

# The Pedagogic Capacity of Architecture the Macro Project University Citadel—University of Atlántico Barranquilla—Colombia

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## Abstract

Urban agenda nowadays puts pedestrians as the axis of urban design, and pedestrians are the most important thing in the city. The architect takes that idea and applies it in the project, and he focuses on prioritizing the pedestrian over the cars. Public spaces filled with green zones are a main element, water treatment is a design determinant, buildings use natural illumination as much as possible and culture and arts are reinforced through new scenarios.

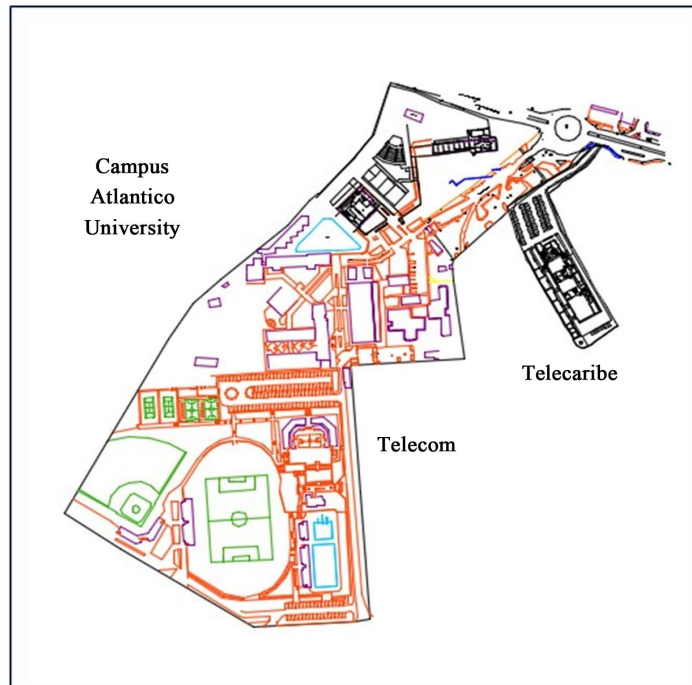
## Keywords

University, Project, Urban Design, Pedestrian, Public, Architecture

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In the city of Barranquilla, the 4th most populated city in Colombia (1,228,621 inhabitants), is the Universidad del Atlántico, the largest and most influential university center in the Colombian Caribbean region (24,000 students)<sup>1</sup>. In the mid-eighties, when in Colombia begins to strengthen public policies to support public institutions of higher education as a result begins to increase a greater demand for university students, their managers decide to implement a model of university campus in metropolitan area of the city, in an 8-hectare site, where previously it existed in the coal mining operations training center of the North American multinational construction firm Morrison & Knudssen (**Figure 1**, **Figure 2**).

<sup>1</sup>Founded in 1914, when the city was Colombia's biggest most important port and the second more economically active city due to its port activity and when modern foreign businessmen invested on the industrial infrastructure of the city.



**Figure 1.** Campus University of Atlántico. Source: Carlo Bell Lemus Archive.



**Figure 2.** Access with 3 different cars way. Source: Google Earth.

As part of the project of reform, adjustment and growth of this first infrastructure, in its second stage of development, in 2000 it was contracted with a local consortium the so-called “Macro University Citadel Project”, in charge of designing, building, equipping new buildings and reform campus urbanism.

As part of the faculty team of architecture faculty<sup>2</sup>, we were summoned in 2009, by the university directives, to review the macro project that had already begun, and we found that the consortium proposal focused its attention on providing spaces and environments for the car ignored the importance of conserving the natural landscape and did not contain criteria of environmental sustainability. Consequently, we were hired to present an alternative architectural urban solution.

In effect, the detailed study of the macro project, found that the design of the campus was strongly focused on the automobile as the main character of the citadel. One of the main problems was the principal access to the campus, this entrance was both for cars and pedestrians with no protection towards the pedestrians, students were visibly pushed to a minimum walkable space that was next to a road, also this minimum walkable space was perpendicularly crossed by another road that led to the parking lot of a neighboring company, yet again the pedestrian was competing with the car (**Figure 3**).

On the other hand, the entrance was also very rustic, trees were out of sight and the distance from the bus stop to the campus door is more than 150 Mt and that path must be done by walking (**Figure 4**). In a city as Barranquilla, placed 10° North Latitude, where temperatures can go from 80.6°F to even 104°F in the



**Figure 3.** Panoramic view of the principal acces to the campus in 2009. The car was most important than the pedestrian. Source: Carlos Bell Lemus Archive.

<sup>2</sup>The Architecture Faculty of the University of Atlántico was founded in 1951 and is the most numerous architecture school in the Colombian Caribbean Region. Plus, is the only Architecture Faculty of a Public University on a region of 11. 156.755 habitants.



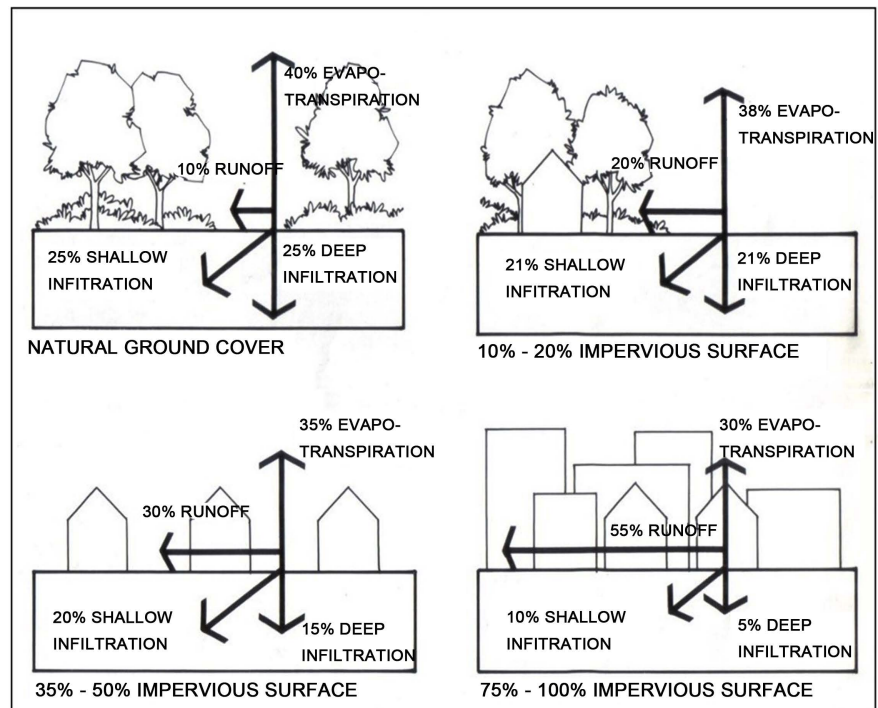
**Figure 4.** Entrance on 2009. The distance between the bus stop to the campus door is more than 150 mt. The students walking under the inclement sun between cars and parking lots in a humid tropical climate. Source: Carlos Bell Lemus Archive.

same day, with a humidity that fluctuates between 70% to 90% and a sun that is almost always out, it is fundamental to guarantee shaded places on public transit spaces, having trees or any kind of structure that provides shade is always necessary, green spaces and shade are essential to lower the Heat island effect.

Another characteristic of the city is the problem with the rainwater runoff, some of Barranquilla's streets have no rainwater harvesting system, so due the lack of it and the natural 10% slope that the city has, some of those streets become very dangerous fast-paced streams that completely paralyze a big part of the city every time it rains. Fortunately, some years ago the administration started a project of canalization of these streams and some have been successfully canalized (**Figure 5**).

With that clear, it is a must that every project of a considerable scale made in Barranquilla thinks about a correct treatment and exploitation of rainwater, this need in specific has a huge urban and environmental relevance, because it will not only help to extend the cycle of the water but it will also facilitate the development of microclimates that help make public spaces more welcoming and comfortable.

During this analysis we also noticed that the university had a lack of scenarios for culture and arts, so we saw the need to add to the project an auditorium and a Convention Center, but this was not an easy task, the rector of that moment had a more scientific vision and thought that was not an urgent necessity, so part



**Figure 5.** Schematic reference of the Department of Environmental Regulation, State of Florida (1991) This was a guide to understand and solve the rainwater runoffs problems on the university. Source: Department of Environmental Regulation, State of Florida (1991).

of the project was also to prove to the rector that it was indeed an urgent necessity.

There were two main ideas that helped to prove the need and usefulness of these spaces. First, the Colombian Caribbean Region is historically more productive in the cultural and artistic field, and that is in part because of our rich and varied cultural identity, we are a mixture of African, Indigenous and Spanish ancestors, we can see that there are many international and relevant Caribbean artists, also exists events such as Barranquilla's Carnival which was named Intangible Cultural Heritage of Humanity. Second, there is evidence that in this moment Latin America has the benefit of the called "Demographic Bonus", now this is the region of the world with the highest youngest working population and that means that it is where there is more creative capacity. These two aspects strengthen each other.

Until now it is clear that there were four main urban and environmental needs: consequently, we proposed to return space to the pedestrian, ensure a better and greener walkable space, treat the rainwater strategically and solve a more academic need, which was the need for cultural and artistic scenarios (Figure 6).

Being able to perform a solution of this type at a university campus that has an Architecture faculty in it, —the only one published in the Colombian Caribbean



**Figure 6.** Bell & partner’s proposal—2010. Gardens, pedestrian paths, rainwater lake y Cultural Center. Source: Carlos Bell Lemus Archive.

region—was seen as an excellent opportunity to make of the project something more architecturally pedagogic by showing to the students with this tangible example how to give architectural and urban solutions that actually respond to the context and necessities of a place and generate powerful and significant public spaces (**Figure 7**).

The NACTO Principles are 6 principles given as a guide to design secure, attractive and sustainable streets, three of those principles back up the theory behind the redesign of the entrance of the university.

- Streets can be changed: “Many city streets were built or altered in a different era and need to be reconfigured to meet new needs”. [1]
- Design for safety: “Traffic engineers can and should do better, by designing streets where people walking, parking, shopping, bicycling, working, and driving can cross paths safely”. [1]
- Streets are ecosystems: “Streets should be designed as ecosystems where man-made systems interface with natural systems. From previous pavements and bioswales that manage stormwater run-off to street trees that provide shade and are critical to the health of cities, ecology has the potential to act as a driver for long-term, sustainable design”. [1]

Nowadays, the speech about cities development has three axes: The most important thing is pedestrians, the development of alternative transportation systems and the reforestation of the city.

On the entrance of the university is located a very overloaded roundabout, it was necessary to make a mobility study because next to the university were two companies<sup>3</sup> that also had their accesses near the roundabout, the study made it clear: It was necessary to separate the vehicle entrance from the pedestrian entrance. The design that is developed takes the old vehicle/pedestrian entrance and makes it completely pedestrian.

The new entrance was designed especially for pedestrians, their comfort, and security, providing them with shade, safety, and exclusiveness (**Figure 8**). The cars now had another entrance that directs them to the parking lot, the

<sup>3</sup>Two telecommunication companies: The regional TV company: Telecaribe and the National Telecommunication Company: Telecom, that manages the information flow of the interoceanic fiber optic cable that appears in **Figure 2**.



**Figure 7.** Today. The landscape of the new access to the university campus. To the left, the Cultural Center, on the center the rainwater lake, to the right the pedestrian path for the students and the gardens. 2018 Source: Jose Carlos Gonzales Bell—Photographer.



**Figure 8.** Today. Pedestrian path exclusive for the students to access the campus. Source: Jose Carlos Gonzales Bell—Photographer.

topography was used and useful, this parking lot was located on the higher side of the land so immediately a physical separation between cars and pedestrian is defined, it is also separated through triangular stepped planters where different types of colorful flowers were planted and parallel to the pedestrians' path two lines of trees were planted, for them to grow and eventually provide the needed shade (**Figure 9**).

The entrance then becomes a big scale garden, towards the north-west of the entrance, is located an artificial lake, this is an essential part of the project, because the lake is product of the need of finding the right treatment for rainwater runoffs, as it is known, the city has problems managing this type of water, so on the project a rainwater harvesting system is designed and the outfall of it is the artificial lake. The lake facilitated the creation of intimate spaces that allowed the emplacement of passive recreation zones with more seating shaded places (**Figure 10**).

As it was mentioned before, we found the lack of scenarios for culture and arts in the university, thus the idea of an auditorium and a Convention Center is born, these two spaces would be connected with a lobby that also worked as a performance room. Looking for different alternatives, renewable materials and new ideas to design the Convention Center, trying that the building was also an example for the students in the university, we designed and build the structure of the Convention Center in wood, —extracted from reforested forests certified by the environmental authorities—; with the collaboration of the architect Urbano Ripoll, due to his experience with this particular material (**Figure 11**).

Experts say that on tropical zones due to the inclination of the sun, buildings



**Figure 9.** The pedestrian paths newly built in 2011. One can appreciate the layout of the trees and the design of the gardens. Source: Carlos Bell Lemus Archive.



**Figure 10.** The rainwater lake, the pedestrian path and the trees, principal elements on the landscape design of the campus access of the university. 2018 Source: Jose Carlos Gonzales Bell—Photographer.



**Figure 11.** Cultural Center’s lobby and conventions room. Roof on reforested Wood structure designed to facilitate natural lighting of spaces, and in that way save energy costs. Source: Jose Carlos Gonzales Bell—Photographer.

should have skylights towards the North, in order to be able to receive sunlight (illumination) but not sun rays (heat) and save energy<sup>4</sup>. Following these instruc-

<sup>4</sup>According to Norbet Lechner in his book “Heating Cooling Lighting” [2].



tions, the cover of the Convention Center is a stepped one and is placed diagonally, directed north. The vertical axis of the stepped cover, the ones that face north, are windows (**Figure 11**).

On the sides of the Convention Center, which face the north-west and north-east, following the diagonal axis is given by the cover, are placed some structures that are also skylights, but these are faced to the ground and in that way, they also capture light but not heat.

The project had a constantly fluctuating budget, therefore some changes had to be done, for example, for the Convention Center the first proposal was for it to have a stone coating on the outsides, but due to a budget adjustment the idea had to be reformulated and the geometric shapes on vinyl that it can be seen today are the result (**Figure 12**).

Last but not least, the pedestrian access door to the university was also redesigned. Before, this access door was a cubical shaped space of approximately 10 m<sup>2</sup>, a very tiny and almost discriminatory size compared to the large and welcoming entrance for the cars to their parking lot. The pedestrian access door became an access building with a very generous door for students.

On the building were placed three dependencies, one bank office, and two university offices. The two university offices located here are the busiest ones:



**Figure 12.** Landscape integration of the Cultural Center with the rainwater lake, enhancing the symbolic importance of culture within nature. Source: Jose Carlos Gonzales Bell—Photographer.

Admissions and Archive. Before, these two offices were far apart and the locations were not the best, specially Admissions that is where long and delayed lines take place, before there was no waiting room or places to sit, it was just an open window and people had to stand outside—sometimes for hours—waiting to be attended. Now the Admissions dependency is an actual open office with an acclimatized waiting room (**Figure 13**).

But the project does not end here, there are future plans, to continue improving the campus. There is a zone before the now pedestrian entrance of the university that has a problem of illegal occupation of public space, this zone in almost completely invaded by permanent peddlers, there are mini-locals built on different materials. The proposal is to recover that space as the public transit space that it is, define bus stops, pedestrian paths and to re-locate the peddlers on the neighbor lot, for that there is already a design of suitable commercial premises.

So the project is composed by the redesign of the pedestrian entrance with the lake, the construction of 3 spaces for cultural and artistic events, the improvement of two principal offices and the students' access. These tangible examples of urban design and architecture is the pedagogic part of it that we wanted to show, so students make sure from first hand that other type of materials can be used—such as wood—, that if you design smart, sunlight can be an ally and not the enemy, that runoff water can reinforce green spaces and that good quality is not a luxury, is a need (**Figure 14**).

“The conventional wisdom is that design costs more and is only a luxury. Yet people from all walks of life deserve good design. The power of design to dignify will never be fully explored until average people have some sense that they



**Figure 13.** Admissions and Archive building. Spaces with greater affluence of external public. Source: Jose Carlos Gonzales Bell—Photographer.



**Figure 14.** Exterior facade and interior of the Cultural Center's auditorium. 2018 Source: Jose Carlos Gonzales Bell—Photographer.



**Figure 15.** Aerial panoramic view of the university campus with the new landscape elements: The lake, the trees, the admissions building and the cultural center. 2018 Source: Jose Carlos Gonzales Bell—Photographer.



**Figure 16.** The pedestrian path finally, dignifies the students. Source: Jose Carlos Gonzales Bell—Photographer.

deserve better” [3]. Just because an institution is public, that doesn’t mean that it cannot be or look as good as a private one, the architect insisted in his own words that this work is about “Build the public where he public is weak”, meaning that there is an urgent need to dignify the public goods, just as John Cary says “Good design is a public good” (Figure 15, Figure 16).

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