Facultad de Arquitectura
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Guatemala City, Guatemala

Master Plan La Aurora

HONORABLE MENTION IN URBAN AND LANDSCAPE DESIGN

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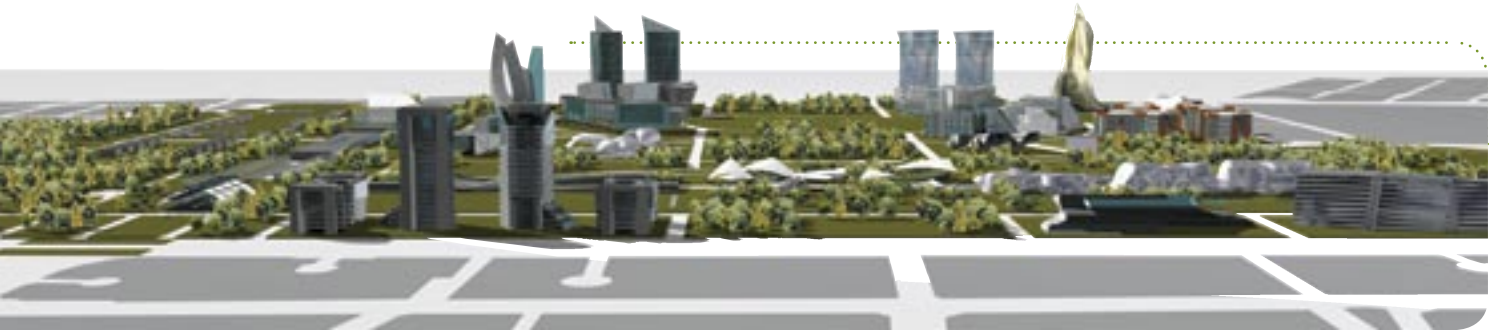
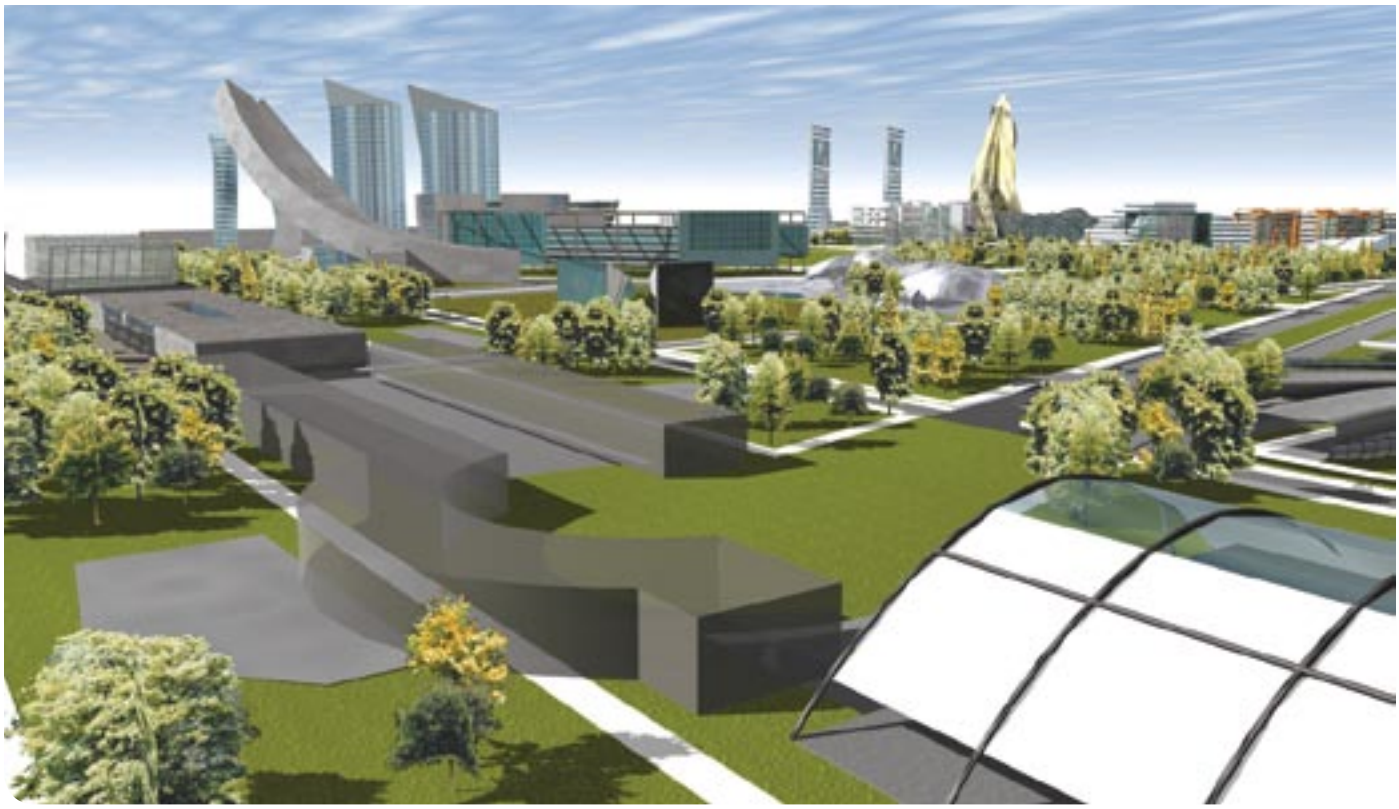
La Aurora is an area in Guatemala City where the International Airport, the City Zoo, the Archaeology and Art Museums, and an abandoned horse race track, are located. Originally, this was a suburban area that has, for many decades now, been surpassed by the city. Given the hazard of having the airport right in the middle of the city, there are recent plans to relocate it to a remote location.

Assuming that the airport is relocated, the students were to propose a master plan for a mixed-use, high-density development that would bring new life to the area. Each student had to prepare an individual proposal for the master plan resolving for vehicular circulation, program distribution, contextual connectivity and visual image. A review of the seven proposals, by a jury, allowed the students to identify the strengths and weaknesses each of them had. After the jury review, a final master plan was developed as the result of merging the top three individual proposals.

One of the considerations of the master plan was to leave a small, one-runway airport for private planes and domestic flights, both as a desirable feature and as a reminder of the original use of the site. This small airport played a key role in determining the





location of high-rise buildings within the development. Building height was established by the distance from the site to the runway; allowing for taller buildings on sites farther away from the airport.

The urban fabric consisted of an orthogonal grid with the same orientation that most of the city has. The footprint of the horse racetrack was incorporated as part of the fabric, defining an urban park around which higher density buildings would be located. A diagonal street, dividing the grid in two sectors, was introduced with the intention of making it an important artery. The lower levels of buildings along this diagonal axis were destined for commercial use to promote the creation of a commercial strip. In order to encourage diversity, a mixture of residential, commercial and office use was permitted.

Cultural buildings were located in the same sector of the existing museums and the zoo. Recreational areas, including parks were distributed evenly; with a large urban park located near the center of the development. The idea behind this was for the users to perceive the development as a large green area to compensate for the lack of urban parks in Guatemala City.

Once the master plan was defined, each student selected a site to design a particular building. They had the freedom to select the type of building to design and the architectural style to follow. The only restriction was a material and color code to which all of them should comply.

Individual building proposals ranged from traditional to avant-garde digitally based architecture. It was interesting to discover the variety of design theories, methodologies and software employed by the students for their individual projects. **form·Z** was used as the main 3D modeling and rendering program where all the pieces came together for final assembly of the building complex. The master plan layout and most of the buildings were modeled with **form·Z**. The buildings that were not modeled in **form·Z** were seamlessly imported into it. Each individual building was integrated to the master plan as a symbol definition to reduce the size of the master plan file and to facilitate building modification. In this way, each student needed only to modify the symbol definition of his building and then the new version would be automatically loaded into the master plan. Managing the project in **form·Z** was also fundamental to maintaining a uniform material and color code.

form·Z's versatility and diversity of tools allowed the students to produce building designs ranging from conventional/ orthogonal to complex and freeform structures. Among the modeling techniques used for individual building designs are:

- The use of macros to simulate and record sequences of transformations in order to generate new forms. Since these operations produce variations of a specific object, the results are patterns of superimposed objects similar to those produced by fractal transformations.

- The use of metaballs to produce isomorphic polysurfaces or BLOBS. Both positive and negative weights were used to explore how objects and forces could influence and effect other objects, within a formal composition and context.

- The use of NURBZ tools to generate free form surfaces and spaces. Unfolding and self-intersecting surfaces were generated to explore the possibilities of continuous space through "bubbles" and seamless integration of the horizontal and vertical planes.

Dynamic animations using Alias' Maya were then used as abstract and generative machines, with the purpose of deriving form from digital animations (digital morphology). These generative machines consisted of different dynamic techniques to conceptualize and to materialize forces to identify the centrifugal force of the site, to relocate the centrifugal force to the site to superimpose the centrifugal forces, and to find the convergence of the forces in the site, among others.

After incorporating all the individual buildings produced by the students into the master plan, it was interesting to contrast those produced with conventional design processes and those produced with computer-driven generative processes. Regardless of the complexity of form and program, **form·Z** provided the students with all the tools needed for creating and manipulating their models from conceptual to final design.