

The Future Is Now?

Parametric Design and Technology in Design Process

Massimiliano Fuksas

I did not want to be an architect, I wanted to be a painter. I've never seen myself as an architect in the strict sense of the word. The thought process beyond my work is more similar to that of a visual artist. For example, I've always said that when architecture is successful, it turns into sculpture. This is what I am interested in: being able to dig into an object, turn it into another one, different from the previous; empty it and turn a mundane object into a sculpture. Afterwards, architecture has to turn into something else.

In design, I like to have many techniques available, all the tools, and not just my preferred ones. In the studio there is everything possible that can help the design process. There are my drawings, physical models, virtual visualizations: there is everything. We always use all the tools. We use everything there is. If there were other tools I would use them too. Why should I use only the color blue if I can use the red, yellow, or purple? It would be self-defeating to use only a single technique or a single method, based purely on preference. It does not stimulate me, it does not make me richer, I do not enjoy it. There are different tools for different needs, but together they allow you to express a project. I could prefer certain ones to others, but of course, I do not use always and exclusively those!

For example the world of architecture that is based on drawing is not the only world; I have nothing against it, but I prefer to design with the physical

model over paint; models represent more material expressions. Painting, physical, and virtual models are all incentives to get the architecture, they are all tools to help increase tension. These three "elements" of the work must then be thoroughly merged together. Because you can never achieve emotion if not by growing tension. Today the goal of an architect, I think—at least in my case—is not only to answer the functional requests, but to take care of the emotional perception. Architecture should create emotions. Of course, positive emotions.

At the beginning of my career, there were only paintings. And even today I think the best way to have a vision is to paint on a plastic material. Then, later, I started using physical models. Currently, I added a new tool to these two expressions of the process: it is the world of virtuality. I was interested in this subject of mathematics long before computer-based parametric design made its way into architecture. I was one of the first who decided to use this new tool. I asked myself: why not? Let's use it! We were at the end of the eighties and the first programs began to be common. In my studio, we have always used all the tools in all fields of application (CAD communications). If we think a new tool can be useful for our work, we want to work with it and use it, we are curious to discover how to integrate it in our design process.

Technological innovation is one of the factors that helps represent

our "dreams." Virtual technology is very useful. It allows you to have more control over the project and to imagine it more clearly before it is settled and takes a definite shape. But first you need to have a concrete image, only then the computer can identify the points and take them in three dimensions and visualize the design. The computer helps to build, to achieve a very high precision, accuracy in the design. It helps in solving complex problems. If there is a virtual model, it is extremely helpful. Nevertheless, imagination precedes it. Without imagination, you can do nothing with computers. The precision that the computer brings in the design is not something that is important in itself: it is a function of the design concept.

Architecture does not change because you draw it with a pencil or with a pen. There was a year when Wright, with few assistants, planned 48 villas: all wonderful. Luigi Moretti published his research on parametric architecture and mathematics-based urban planning back in the 1960s. He made complex calculations even though there were no computers at that time! Complex geometrical forms can, theoretically, be quite simple. If, for example, you work with two elliptical curves the most important decision you have to make is how they are positioned next to each other. When I started designing, the computer was not so common and widely available. In the construction phase of buildings sometimes there were small imperfections, that could

have been prevented with today's techniques. Yet, quite often these aspects—imperfections—make the work even more marked, and, therefore, unique.

Today computers are part of the great legend of the power of modernity. I think it is more connected with impotence. It is expected to identify yourself with the tools making you more skilled, and this is not true. Rather than make the effort to come up with an idea, there are those who become part of the tool itself, sure that these will solve the problems.

For all I care, because I work primarily with ideas, the computer doesn't have so much meaning. It performs only as a tool. The problem is not in the tools, the problem is in the substance. If you do not have substance, you can have a whole arsenal of tools, but you do not know how to use them. If you have nothing in your head, you can just create a form. It's like writing: first, you must think, the project is in your head, related to a concept that has to be created, developed, articulated. In this way, you start building, even before you have drawn anything. It is an emotional matter. We can talk about what comes first and after, but the creation, which is the focus point, it has got something miraculous, unintelligible, unique and unrepeatable. It is something that fills an empty space. When a new project gets completed, I just feel amazed and proud. For several days, I sketch ideas and craft models, the painted canvas.

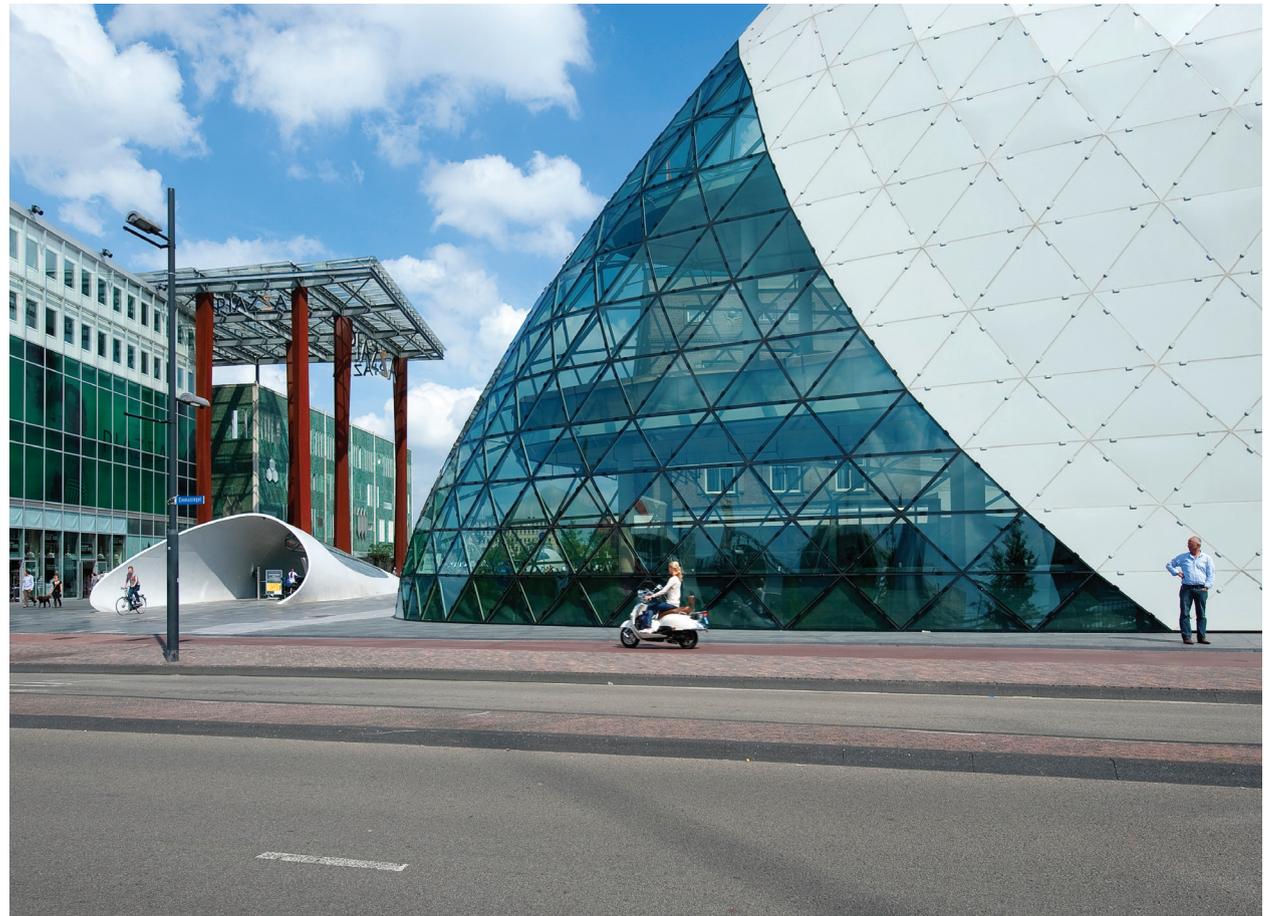
The wave motion with which you can summarize our approach has a constant curiosity and the information of distant worlds. I think there are extraordinary conditions and resources ever fielded before, it is to use them with care and direct the energy to begin to solve a large part of the contradictions and conflicts.

Admirant Entrance Building Eindhoven, Holland, 2003–2010

Following the outline of the masterplan in 1998 for the center of Eindhoven in the Netherlands, Studio Fuksas developed the four projects associated with it:

- The 18 Septemberplein, a square of 7,000 square meters with an underground parking of 2,300 square meters for 1,700 bicycles
- The Piazza Shopping Mall, a shopping center covering approximately 20,000 square meters with 6,000 square meters of office space
- The Media Market, a store for the sale of electrical appliances and electronic equipment
- The Admirant Entrance Building
The focus point of the masterplan is the 18 Septemberplein, with its surrounding buildings: these represent the most important hub of the axis of the commercial activities in Eindhoven.

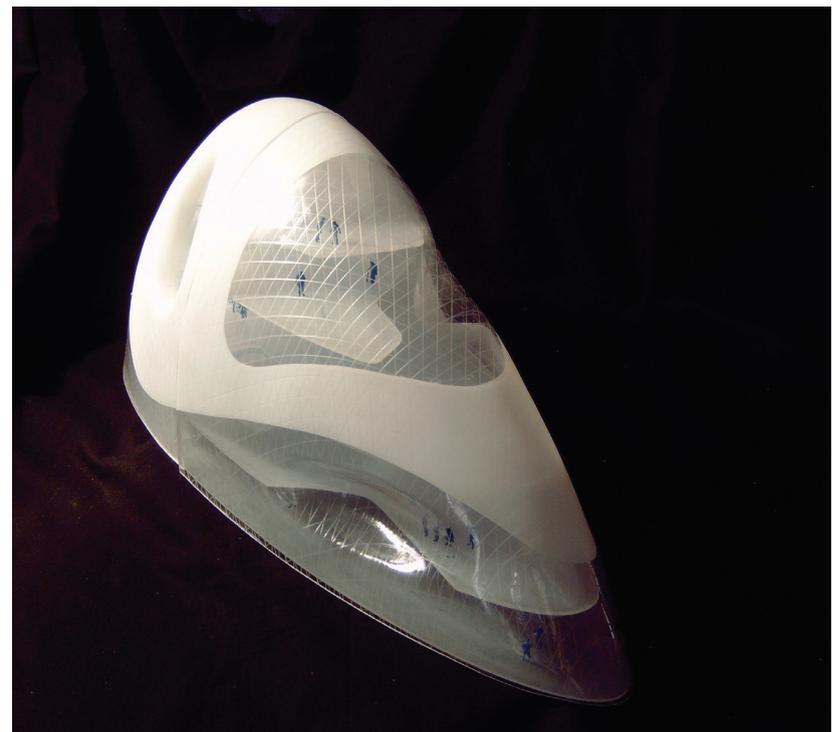
The four projects, together, proved to be a great success in inner city redevelopment. The Admirant Entrance



Building is part of a developed shopping area by Heijmans Real Estate, a prominent Dutch building developer. It is located just at the border between the new quarter and the 18th September square, forming the main gateway to a new shopping axis. This prominent position called for an iconic building, a request that the Admirant Entrance Building fulfilled entirely. It is like a precious jewel, that attracts the public's attention and leads pedestrians to the heart of the new district.

The Admirant Entrance Building is based on an intensive form-finding process whose result has prescribed for an unpredictable design: conventional design rules lose their meaning.

Compared with the immediate surroundings, the new architecture



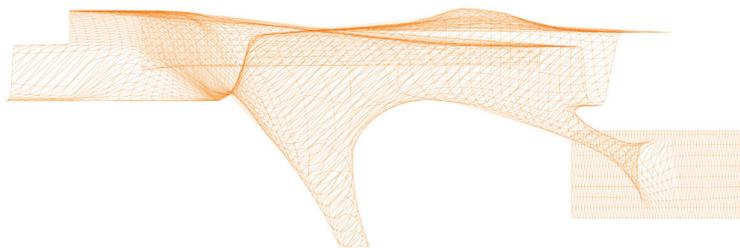
seems to be at a first glance like an amorphous or organic object. Like an undefined celestial body, the new building appears between the building fronts: one might think that an unexpected impact in the existing structure left behind its mark, whereby the object has been stuck or frozen.

On closer inspection, however, the architecture is full of movement. Dynamics go in different directions and with varying intensity. This further flow of speed has its origin in the contrast of the two facade materials: crystalline, the maritime blue of the glass is in contrast to the dense and clear white panels. Open and closed surfaces alternate smoothly and flow over softly.

The building consists of two elements: the five-story primary concrete structure and the glass and steel envelope. Commercial spaces are located on the ground and first level and office spaces on level three and four (plus an additional technical level). The geometry of the façade varies from vertical surfaces to amorphous shapes, which create a dynamic inside of the building. In fact, the floors—whose shapes are determined by the form of the façade—comprise 950 square meters on the ground floor and 250 square meters on the highest office level.

Except for the staircase, no vertical elements block the visual connections on the inside of the building. Furthermore, due to the non-orthogonal shape, the Admirant is non-directional. Its smooth curves allow a dynamic flow around it. There is no front or back: the building envelope is experienced continuously. Looking at this from a certain distance, it is noticeable that the building is in a rotation. Perhaps a similar appearance to a marine mammal that rises to the surface, shows itself for the briefest moment, then sinks immediately into the depths again.

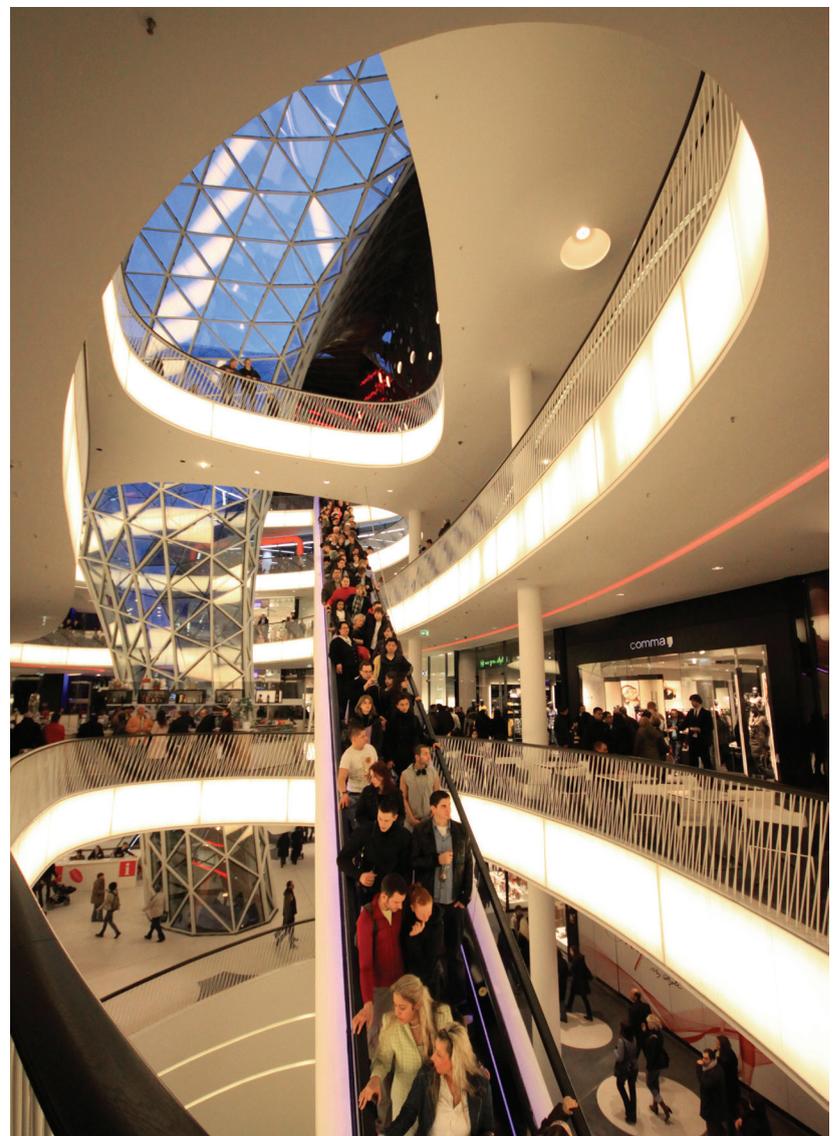




MyZeil

Frankfurt, Germany, 2002–2009
The MyZeil Shopping Mall covers an area of 77,000 square meters, a structure that includes shops, leisure spaces, children's areas, restaurants, a fitness center, and parking. The building is spread over six floors, the shopping area from the first to third levels, while from the fourth floor, which serves as a square and meeting place, there are the fitness area and restaurants. The project comes from geography. It is like a river that, from above, has different depths, reaching the depths of the earth. The structure of the project stems from a fluid shape that connects the Zeil, an important shopping boulevard in the heart of the city of Frankfurt, with the Thurn und Taxis palace (a building reconstructed in historic style). The two poles of the project, the side of the Zeil and the side of the Thurn und Taxis, are designed differently. The facade that runs along

the Zeil is an expression of leisure, entertainment, and relaxation. The other side, instead, maintains a more formal appearance. The facade on the Zeil is sucked into a great void that makes us see the sky and that invites visitors to enter as if sucked into a vortex. From the ground floor, users can access the various plans through a system of escalators and elevators, and go directly to the fourth floor in 120 seconds through a 45-meter escalator. Worthy of note is the cover, alternating panels of glass and steel recalling the landscape of a canyon. This external "shell," mostly transparent, through a system of voids is for filtering the natural light at all levels of the mall.



Armani Fifth Avenue

NYC, USA, 2007–2009

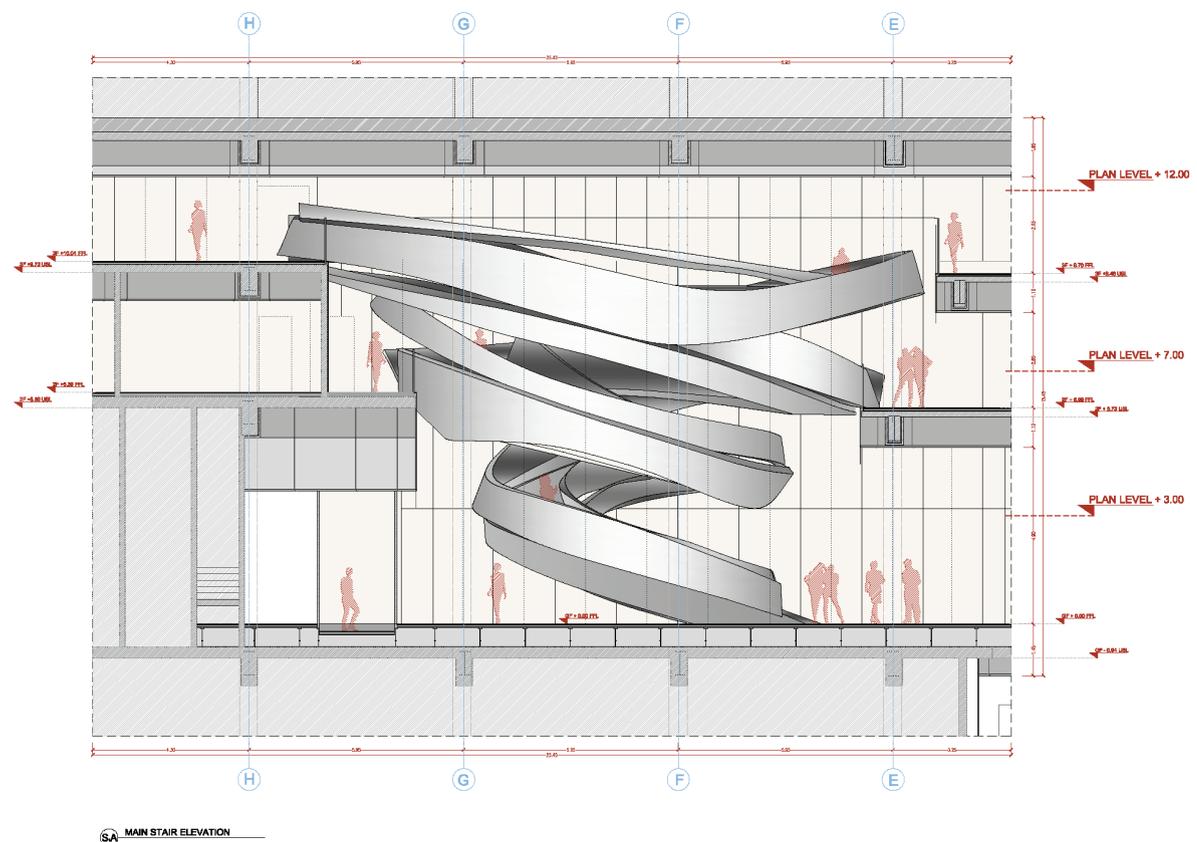
After the Hong Kong Charter House and Tokyo Ginza Tower, Fifth Avenue completes the trilogy of the Armani Stores designed by Doriana and Massimiliano Fuksas for the famous designer.

Situated in the center of New York, on one of the world's best-known streets, the project takes up the first three floors of the two buildings located between Fifth Avenue and 56th Street. Besides the basement, the showroom develops on four different levels and it is conceived as a single space, without clear distinctions, a space in harmony, connected with the power generated by the vortex that is the staircase.

The heart of the building is, in fact, epitomized by the staircase, built from rolled calendar steel (made in Italy) and clad in a plastic layer that highlights its exceptional sculptural presence. It is an entity that is almost impossible to convey in terms of any normal geometric shape that originates from a vortex with great dynamism, surrounded by the different levels that accommodate the Armani world.

The movement of the ribbons that constitute the staircase, skimming each floor, disenchant the possibility to recognize the geometry.

The general layout of every floor develops according to the different flexures of the ribbons, creating a space controlled by the vortex.



No element is extraneous to the internal dynamism, not even the external facade, even if it is lined up to the rigid orthogonal stitch of Manhattan, simulating the movement through images and shades, projected on a set of LED threads. This screen, besides being the projection to the outside of the internal space, is also a particular tribute to New York City, the inescapable necessity to compare its modernity and its dynamism.

The fluidity of the internal space is rendered by the wall of continuous threads, that are realized with lacquered wood panels.

The different rays of bends that outline the threads transform into the spaces and handles for the different product areas. The folding of the threads give hospitality to the

dressings-rooms and the VIP hall, also transforming into areas reserved for staff, cash desks, or special product areas such as Armani Dolci. A particular importance is given by the enlightenment that defines, characterizes, and emphasizes the bends of the walls and of the spaces, highlighting the different functions of the general layout.

Every element of the internal design, from the shop floors to the storage, from the desks to the armchairs, follows and satisfies the movement concept generated by the staircase, becoming a part of the same vortex. The disposition and the route that it implies outlines the harmonic layout. There is a conflict between the shine of the walls and of the furnishings and the blackness of the marble and the ceiling, emphasizing the areas that are there for interaction.

There is also a conflict between the apparent simplicity of the internal space and the cafe/restaurant giving an advanced notice of the elevator's entrance. The refolded bronze that covers them, acquires and reflects the colors and the shades giving a glimpse of the new atmosphere. From the restaurant, filtered by an amber veil, there is a splendid view of Fifth Avenue and the end of Central Park. The colors and the materials utilized are the same as the rest of the showroom, but the suggestions are new and different. The space becomes recreational, a line of light on the floor that leads to the entrance of the restaurant, underlining the sensuality of the bends of the wall.

A virtual curtain activates the passage and, just like a theatre...the show begins!



Shenzhen Bao'an International Airport

Terminal 3, 2008–2013

The concept of the plan for Terminal 3 of Shenzhen Bao'an international airport evokes the image of a manta ray, a fish that breathes and changes its own shape, undergoes variations, turns into a bird to celebrate the emotion and fantasy of a flight.

The structure of T3—an approximately 1.5-kilometer-long tunnel—seems to be modeled by the wind and is reminiscent of the image of an organic-shaped sculpture. The profile of the roof is characterized by variations in height alluding to the natural landscape.

The symbolic element of the plan is the internal and external double-skin honeycomb motif that wraps up the structure. Through its double-

layering, the skin allows natural light in, thus creating light effects within the internal spaces. The cladding is made of alveolus-shaped metal and glass panels of different size that can be partially opened.

The passengers access the terminal from the entrance situated under the large T3 “tail.” The wide terminal bay is characterized by white conical supporting columns rising up to touch the roofing like the inside of a cathedral. On the ground floor, the terminal square allows access to the luggage, departure and arrival areas, as well as coffee houses and restaurants, offices, and business facilities. The departure room houses the check-in desks, the airlines info-points, and several help-desks. The double- and triple-height spaces of the departure room establish a visual connection between the internal lev-

els and create a passage for natural light. After checking in, the flow of passengers spreads out vertically for departures.

The concourse is the key airport area and is made up of three levels. Each level is dedicated to three independent functions: departures, arrivals, and services. Its tubular shape chases the idea of motion. The “cross” is the intersection point where the three levels of the concourse are vertically connected to create full-height voids which allow natural light to filter from the highest level down to the waiting room set in the node on level zero.

The honeycomb motif is transferred and replicated on the interior design. Shop boxes, facing one another, reproduce the alveolus design on a larger scale and recur in different

articulations along the concourse. The interiors designed by Fukasas—placed in the Internet-point, check-in, security-check, gates, and passport-check areas—have a sober profile and a stainless steel finish that reflects and multiplies the honeycomb motif of the internal “skin.” Sculpture-shaped objects—big stylized white trees—have been designed for air conditioning all along the terminal and the concourse, replicating the planning of amorphous forms inspired by nature. This is also the case for the baggage claim and info-point “islands.”



