INDEX | MEDIA-TIC

- Poble Nou: Post Industrial Architecture
- The Digital Pedrera
- ETFE: Monomaterial
  Energy Eco-efficiency
- Performative Architecture: Nitrogen Uniform
A kind of HOUSE of the Digital Community at the 22 @ de Barcelona.

The MEDIA-TIC building, promoted by the Consorci de la Zona Franca and the company 22@Barcelona, is located in the 22@Barcelona district at the intersection of Carrer Roc Boronat and Carrer Sancho de Ávila, near the Parc Barcelona Media. The building is designed to be a communications hub and meeting point for businesses and institutions in the world of information and communication technologies (ICTs), as well as for the media and audio-visual sectors.

The program of uses and functions of the MEDIA-TIC building include the following installations:

**ICT Centre and communal spaces:**

Information and Communications Technology Centre; Communications hub; restaurant, and other uses. The ICT Centre is a project that is being developed in conjunction with the Barcelona Digital Foundation. It consists of a facility available to the general public and business, in which intensive and straightforward use of ICTs will help their take-up by the public and their increased use by businesses. The facility will be equipped with the latest innovations in ICT hardware, and located in a strategic location, so that all kinds of events can be held there (launches, presentations etc). It is a place where businesses can interact with one another, and with the general public, and where the interaction will be channelled via the use of ICTs.

**Space for entrepreneurs:**

MEDIA-TIC Incubator, and Landing and Accel programs. The MEDIA-TIC Incubator will offer infrastructure and development and financial services for businesses in the media sector (audio-visual, production and digital effects, etc.).
The Landing Program will also offer development space and services for international business initiatives that wish to establish a base in Barcelona and connect with the system of Catalan innovation. At the same time, businesses that are growing under the Accel Program will find space to expand here.

**Space for business and institutions:**

ICT Technological Centre and space for businesses and institutions. The aim of the ICT Technological Centre (CTTIC) is to facilitate mechanisms for the incorporation, use and application of ICTs by various economic sectors. The purpose of this is to increase the productivity and competitiveness of these sectors within the digital economy. It will do so by contributing to the training and skills development of human resources in the use of ICTs.
THE INNOVATION DISTRICT IN BARCELONA

The MEDIA-TIC building is part of the 22@Barcelona district, a project that represents a unique opportunity to recover the productive character of Poblenou and to create an important scientific, technological and cultural centre that will convert Barcelona into a leading platform for innovation and the information economy at international level.

With this project, Barcelona is transforming an industrial district which was the city’s main economic motor for over a hundred years. In its place it is creating a new model of intellectual space that will promote collaboration and synergies between the University, Technology and Business, with the aim of encouraging the development of an innovative culture and fresh talent.

From the beginning of the project in 2000 until 2005, the municipal company 22@Barcelona carried out a project of urban regeneration. After this phase of promoting urban regeneration, a new stage of intense economic and cultural renovation has started: around forty projects are being carried out aimed at creating areas of European excellence in various sectors in which Barcelona can assume international leadership, such as the audio-visual, information technology and communications, biosciences and energy sectors.

In this new stage, the 22@Barcelona district is establishing itself as a platform for innovation in business, scientific and cultural activity.

This transformation will allow the creation of up to 3,200,000 m² of new, flexible, unique, technological space for innovative companies, as well as 400,000 m² of new land for installations, 4,000 government-protected flats and 75,000 m² of green area that will ensure the urban and environmental quality of the new economic centre of Barcelona.

THE ICT CLUSTER IN BARCELONA

The 22@Barcelona district is positioning itself as a leading location at European level in the field of Information and Communication Technologies (ICTs), thanks to the advanced infrastructures that are being established in the district and the development of three aspects that are considered essential for its development: economic and territorial conditions, the organisational capacity of the cluster and the specific conditions of its development.
The building that will house the ICTs aims to be a platform for the development of the ICTs. As the team designing the MEDIA-TIC project, Enric Ruiz Geli/CLOUD 9, Agustí Obiol/Boma, David Tusset/PGI, and J.M. Forteza/G3, we have made sure that the container - the architecture - and the contents are closely linked.
Some of the largest companies in the sector have already moved their headquarters to the district of innovation. These include T-Systems, Indra, Ono and Microsoft. Meanwhile others have announced their intention to move, such as Telefónica.

CONTAINER-CONTENTS.

First came the INDUSTRIAL revolution and now we are undergoing the DIGITAL revolution. Between 1900-1950 the cathedrals of architecture were built: these were the factories. Factories whose technological and structural advances created work spaces.

Berlin
AEG Turbines Factory, 1908
from Peter Behrens

Paris
Eders Sewing Machines Factory, 1919

Noisel-sur-Marne
Menier Chocolate Factory, 1871-1872
Now, in the Information era, architecture has to be a technological platform, in which bits, connectivity, new materials, and nanotechnology are important...

Connections are more important than materials. We are living in an electronic, immaterial world, in which what is important is the design of the network, not its physical size.

The CLOUD 9 MEDIA-TIC project is a digital architecture, constructed using CAD-CAM digital processes.

The façade of the MEDIA-TIC does not represent industrial, series construction, instead it evolves and represents digital construction, the construction of information. It is a contemporary building that allows for the construction of a very complex façade. We are creating “The Digital Pedrera” at 22@Barcelona.
DIALOGUE WITH POBLE NOU

MEDIA-TIC BUILDING
This structural design enables us to create a building as a structure to contain the ICTs. It is a large-dimensioned, carefully-calculated design. Thus we are building a new structural space for the digital age that engages in dialogue with the other industrial spaces in Poble Nou, taking their structural topology as a reference.

The building consists of a main metallic structure, composed of 4 rigid, braced frames, 14.25m apart. The frame type consists of metal Fink-type beams made of 7 and 8 section forged-metal girders. Each frame has a support beam that transfers their load to “galleries”, the rigid support centres.

Each of these elements defines a space with a different structural density:

**Zero Density:**
Ground floor, no structure, public.
Free space of 36m x 44m. An historical space.

**Low Density:**
Office floors.
Floors are crossed by structural lines (support beams) of minimum size thanks to the use of traction. Maximum flexibility. This makes it possible to divide different uses and different users.

**High Density:**
Galleries.
The large support centres define smaller and more inflexible spaces that correspond to centres of communication, installation supports, bathrooms, roof terraces and courtyards.
MEDIA-TIC BUILDING

ETFE SKIN: ENERGY ECO-EFFICIENCY FOR THE MEDIA-TIC BUILDING

MEDIA-TIC is a building for technologies, an image of unity where the entire range of digital diversity and complexity exists under one roof, in one place: a material. A material that is different to the glass found in other offices, different to the solid walls of apartment blocks, a different material: the result of training, research, production and dissemination: ETFE
We believe that Solar Protection is necessary in order to achieve an eco-efficient building. Using 2,500m$^2$ of ETFE cladding, the MEDIA-TIC building will enable energy savings of 20% and will score 42 points of the maximum 57 points envisaged by the decree on environmental criteria and energy eco-efficiency for buildings.

**ETF**E is a hybrid material (Ethylene Tetra Fluoro Ethylene) with very special characteristics.

- WE ACHIEVE A SOLAR FILTER AND A FAÇADE WITH A THICKNESS OF 200 µm
- GREAT RESULTS WITH VERY LITTLE MATERIAL
- ULTRA VIOLET COEFFICIENT 85%
- DENSITY 350 g/m$^2$
- AUTO-COMBUSTIBLE MATERIAL
- LIGHTNESS
- ELASTICITY
- GEOMETRY FORM FINDING
Furthermore, it is anti-adherent, which prevents it becoming dirty and requiring cleaning maintenance. At the same time, it does not lose its characteristics of elasticity, transparency or strength over time.

ETFE cladding is inflatable, with up to three air chambers. This not only improves thermal insulation, but also makes it possible to create shade by means of the pneumatic system. The first layer is transparent, the second (middle) and third layers have a reverse pattern design which, when inflated and joined together, create shade, or in other words a single opaque layer. When the second and third layers are joined, creating shade, the inflatable section only has one air chamber. This is the DIAPHRAGM configuration.
In this way, it is possible to manage an entire façade simply by the movement of air. This is not done with industrial mechanisms, but with air management, which has very favourable and energy-economic results.

**Roc Boronat Façade (nord-east)**

According to the solar study, this façade receives around 3 hours of sun per day during the morning, and it does not require a system of external solar protection. Instead, we are applying internal protection based on screen-type blinds.

**Sancho de Ávila Façade (south-east)**

This façade receives an average of 6 hours of sunshine a day, requiring an external solar system based on a double layer of cladding that is regulated, domotic, structurally light, with low energy consumption and great illumination efficiency. The solution is an exterior “film” of material with a variable ETFE solar filter in Diaphragm configuration, constructed with 3 layers of ETFE, with constant pressure and variable circulation of air between the chambers.
CAC Façade (south-west)

This façade also receives an average of 6 hours of sunshine a day. For this reason, thanks to the powerful heat energy that enters, the suggested solution is the so-called LENTICULAR solution, based on 2 layers of ETFE, filled with nitrogen.

In this case, we use the air density of its particles in order to create a solar filter. This is a mechanism created following exhaustive research that represents a very low economic cost with respect to the project, accounting for 5% of the total.

We are in an area of ICT innovation, where energy management is the most important objective.

For this reason, the theme of the MEDIA-TIC building is how architecture creates a new balance with the digital use of energy.
RNE FAÇADE

CAC FAÇADE
SANCHO D´ÁVILA FAÇADE

ROC BORONAT FAÇADE
PERFORMATIVE ARCHITECTURE
A NITROGEN UNIFORM

A vertical cloud that filters the solar radiation.

Augmenting the air density of the ETFE cushions with nitrogen particles, the G factor of the building goes from 0.35 to 0.19. The system activates itself automatically with a temperature sensor network.

According to the definition of Terry Riley “PERFORMATIVE ARCHITECTURE”

An architecture that performs.

At this point, it performs and regulates the solar energy with a filter in the façade, which combines a nitrogen particle system with air from the ETFEs and creates a cloud that protects the building’s interior.
Movie attached in the CD →
MOST RELEVANT DATA

- 3,572 m² PLOT AREA
- 23,104 m² CONSTRUCTED AREA
- 20,791,486 Euros BUDGET
- 27 MILIONS Euros INVESTMENT FROM THE CONSORCI
- JANUARY 2009: COMPLETE DATE
- 2,500 m² ETFE FAÇADE
- 20 % ENERGY SAVINGS WITH ETFE SOLAR FILTERS
- 42 POINTS OF A MAXIMUM 57 POINTS ACCORDING TO THE DECREED ON ENVIRONMENTAL CRITERIA AND ENERGY ECO-EFFICIENCY FOR BUILDINGS
- AUDITORIUM FOR 300 PEOPLE
- 201 PARKING SPACES; 26 MOTORBIKES SPACES; 4 DISABLED PARKING SPACES
- 2,418 PEOPLE: MAXIMUM OCCUPANCY
- 2 ACCESSIBLE FAÇADES

CREDITS

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Please see attached CD with Movies