Memory of House of Culture. Kaleidosponge.

Project generation or the reasons why.

The process design of the project takes into account :

The existing urban conditions of the site. The site location is at the edge of the city centre, between the motorway and the centre, in a new development area.

The proposed area has a general height of 40 metres except for some landmark projects, mainly high rise buildings, strategically located in corners to indicate axes or squares or main points.

The adjacent buildings of our site are: on the east side a block of 40 meters, on the north side a green square and in front of it a landmark tower building, on the west side a building of a 150 meter high and on the south side the motorway. The geometry of these buildings are mainly straight lines.

The project responds to these urban conditions. Why this shape ?

It is continuos, with no corners or proper limited façades, in contraposition of its neighbours buildings, thus it is easily visible. It gives continuity to its faces.

It has got a different presence without being massive, keeping the human scale. It is a human landmark.

It creates an empty frame structure allowing to keep inside everything required, being able to be modified in a flexible way.

The ratio between volume and surface is optimal.

The main bodies of the project.

The blob is hollowed in all its thickness by a 3d geometrical body creating a public space, the forum which opens up the building to the environment and the sky.

The hollow from the square side functions as a gate, which opens the building to the city. The forum is perceived from the motorway as a hole-screen, acting an indicator eye. From inside the volume, the void is an open public space where people watch the scenery of the cars passing by and the activity of the square.

It is possible to distinguish especialised bodies of the project, because of its position :

The lower part of the project is formed by a sloping platform as a ground floor which saves the difference of levels (8 meters and a half) from the square to the motorway.

The platform is the starting point of two staircases, leading people to the main parts of the project.

Basement -1 slab is pierced by the blob body, and stays below earth four levels considered from the motorway and only one from the square side.

Below basement -1 there is a package of three more levels of parking area.

The upper part is formed by a blob body pierced and emptied three dimensionally. This void continues the public space of the square inside it.
The blob is a structural frame container which is able to keep inside everything required in a flexible way.
The staircases start at the platform level, and have two different directions, up and down. A long staircase which collects people from the square and leads them to the main entrance level at the fourth floor. The people once there may move up and down, being already in the middle part of the building.
A shorter staircase leads people from the street and square to the performance halls. It descends only three and a half meters, to the basement -1.

How to fit a flexible program inside a container?

The program is divided into different packages which have been grouped in bubbles. The volume of the bubbles is fixed and the space of them can be transformed mainly internally.
The main decision in relation to the program is to place the main floor access in the fourth floor. The path people follow to access there is by a public open space with scalators and stairs (used as tiers when there is a show in the square). This is the most public area of the building, where info, tickets, entrance to the exhibitions, shop and lounge is placed. From there people who's got informed decide to pass security control and go up or down depending on their interests.

The arrival

On foot, private transport or public transport: people will take the main staircase from the platform.
By car and parking in the basement : there is a ramp on the square street to access the parking area. From there people will take the lift to the 4th main floor.

The program

The first bubble program is defined by the Performance and Conference halls.
The whole floor space is paved with a pixel system embeded in one metre thickness of the three dimensional spatial structure. Pixel space consists of flat square single pieces (dimensions : 50x50 cm) which can be moved up and downwards through an hydraulic telescope piston system. This flat squares pieces are surrounded by a metre of wall, which allows to create different sitting configurations having its own back if the level difference is less than one metre among rows.

This system allows to join the three independent spaces of the two performance halls (big and small one) and the movie theatre, as well as to keep them separate, or divided in groups of two and one . It also gives freedom to place the scenario as a central and unique one and the sitting all around, as well as anyother options.
This system also gives the flexible option to convert the space into different other configurations, for example, a rock concert, exhibition and different meeting areas.. and can be modified instantly, creating also an spectacle of movement, improvising sitting area for the public, etc …Main space requirements provided: Flexibility of the space, direct delivery access, some light and possibility of get darker.

The second and third bubble are formed by the administrative centre and technical and miscellaneous rooms, which are spread in three different floors, from ground to second floor, occupying not main areas. Main space requirements provided: Light for the administrative centre.

The fourth bubble is the one formed by the exhibition spaces and cinematheque. It consists of two open floors in plan and four heigths. The forum space can also be used for exterior exhibitions. Main space requirements provided: delivery access, direct exterior light, possibility of getting darker and exceptional height.

The fifth bubble is the workshops, located in the sixth floor and in close visual relationship with the exhibition area. Main space requirements provided: Flexibility of the space and direct exterior light.

The sixth buble is the restaurant, cafeteria and library which are placed in the seventh and eighth mezzanine level, in close relation with the sky garden area at the top. Main space requirements provided: City views, quietness, double height spaces and direct exterior exit to the sky garden.
The sky garden is open and suitable to be used for everyone attending to the house of culture. It is a quiet place for people to be in direct contact with the exterior and nature. inmediately or wi where the volume is fixed the program is flexible.

The skin

Kaleidoscope or / and Sponge ? kaleidosponge.

The skin of the project gives the idea of a **kaleidoscope**. It is defined by a double skin, creating a buffer area. The exterior façade is covered completely by a 3d external piece , called quasi brick, partially made of colour-effect filter glass, solar panels or a metal

sandwich depending on its aspect position. The lateral faces of the quasibrick are openable and allow ventilation.
The 3d piece turns over itself 360º with intervals of 60º in order to create an efficient canopy to protect the interior spaces of the direct solar rays in Summer and allow them in Winter. The skin responding to the solar aspect and to a high or low position in section creates a different pattern, which at the time interacts with the environment, reflecting the surrounding elements, changing them, mixing them up in a fragmented way. The size of the piece is 1m high.
Superposition: The interior skin also is made of an hexagonal grid shifted from the one outside. This creates another pattern and adds depth to the skin.

The skin allows a certain degree of exchange with the environment, described as **sponge performance**. On one side, there are flat pieces (bow tie shape pieces) between the quasi brick pieces which have a connection hole for pipes to suck and expel air, called porous exchangers. These holes also allow to install sprinklers to refresh the external façade.
On the other side, in the buffer area and inside the bidirectional slab a micropipe system is installed to heat and cool the spaces.
A multiple lighting system is installed and through sensors in the exterior skin of the blob information from the city, users or spetial days is communicated to the outside world through different colours, ways of lighting, image screen projected, etc… reflected to the skin.
Rain water is collected from the roof area, storage into a tank and reused as grey water in the building.

And structurally

The building is thought to work structurally by using three vertical cores together with the skin of the blob and void area of the gate-eye entrance, in order to support the slab, wich spans from the core to the skin.
The skin is made of tubular 3D spatial tubular metallic structure while the cores are supposed to be 2D tubular helicoidal metallic structure. The slab is made of concrete 3d pieces with a special mold to cast the concrete on site, using the whole thickness of the slab to work structurally in order to cover big spans. The wires, pipes, etc… will be going through the slab, as a porous 3d slab.