ENGLISH ABSTRACTS

THE NEW ICONS OF MOBILITY: TOWARDS A NEW *URBANISM*

Eduardo Rojo Fraile

The introduction of the subway system in Oporto and its surroundings has been parallel to a wise transformation of public space. The new transport system and its stations, designed by prestigious architects, have become a new icon for the city. In the recent past, competition among cities has given place to a search for architectural decoys to differentiate from each other. Paradoxically, many of them have engaged in mortgages to acquire the same auditoriums, congress halls or museums, representing difficult loads to bear in the future. If cities have to search for icons that make them outstanding, these will have to help improve their functioning.

SÃO BENTO STATION

Alvaro Siza

The São Bento station is located in D. Alfonso Henriques Avenue and the Almeida Garett square, inside an area declared World Heritage by Unesco. The axis of the railways and the tunnel are represented by the directions of the S line: Santo Ovídeo towards the South and São João towards the North. The station is type M1, which means it has been built with the *cut and cover* system. The São Bento station has five levels.

ALIADOS STATION

Eduardo Souto de Moura

The Aliados station is located in the central area of the Aliados Avenue, north from Elísio de Melo and Dr. Magalhães Lemos streets, inserted in the urban structure of the Santo Ildefonso district. The station is type M1, which means it has been built with the *cut and cover* system. The São Bento station has three levels.

TRINDADE STATION

Eduardo Souto de Moura

A new plaza was created during the conversion of the Trindade station. The access to the station would be located on this plaza. The covering of the surface station is a pedestrian accessed platform uniting Rua de Camões to Rua Alferes Malheiro and an alleyway of the same name. A metallic gallery is planned along the Jornal de Notícias, this will serve as a bridge between Rua Gonçalo Cristóvão and the Travessa Alferes Malheiro. A new pedestrian street in the rear part of the station is also planned, linking the alleyway with the Rua Alferes Malheiro through an elevator. This access also offers the connection with the covering of the S line station. Renewal of existing ones and new buildings were planned for the block configured by the Fernandes Thomas, Trinidad, and Ensign Malheiro Bonjardim streets. The interior of the park will be a parking space substituting the current one.

BOLHÃO STATION

Eduardo Souto de Moura

The Bolhão station is located on Rua Fernandes Tomás, besides the Bolhão market, between the intersections with Rua Alexandre Braga, Santa Catarina and the Travessa das Almas, in the urban structure of the Santo Ildefonso district. The station is type M3, which means is made of three parts: one, the actual station, built with 'tunnel' construction and centered along Rua Santa Catarina. Another ones, built through *cut and cover* system including the high mezzanine, the ventilation level, and the intermediate level. And another one built as a 'dwell' where lifts are installed for the PMR and the ventilation of the station. (CVE.2/CVT.2/CVC2). The Bolhão station has seven levels.

FUNICULAR GUINDAIS. BALTALHA - RIBEIRA

Adalberto Dias

Important aspects of the concept, space, materiality, and function of the Funicular Guindais: The Guindais cable car connects the Duero riverbank with the high area of the Batalha district, through the Guindais slope. It is the new path griping to a rock and ending in a tower in front of the river, just like the old wall leaning on a large rock, and ending in a big tower.

CASA DA MUSICA STATION

Eduardo Souto de Moura

The Casa da Música station at Av. De França, is an exception regarding the other ten stations because it is not an M1 station, it is not dug from the surface. Is is not an M3, dug through the wrongly named "Micas" TBM, with curved ceilings and walls to better absorb the land forces. The Casa da Musica station is a hybrid case, buried but with natural ventilation, underground but enjoying natural light. This station was used as a 1/1 model as a lab for the other ten stations where constructive systems were experimented, light, sound, details, materials, acoustics, furniture, retail, pavements, gardens, drainage, traffic, security, design/construction or construction/design. We worked on the subway for eight years according to many "voices" and according to the poet Herberto Helder in *Ou o poema contínuo:* "É com as vozes que o silencia ganha".

MARQUÊS STATION

Eduardo Souto de Moura

The Marquês station is placed on the boundary between the Santo Ildefonso, Borfim, and Paranhos districts, and the Marquês de Pombal square. The station is created by a central shaft built in the cut and cover manner constituting the core of the station. This shaft is surrounded by two cavities, built as a tunnel, constituting the other part of the station. It works as a M1 station although construction wise is a M1/M3 type. Each platform has two entrances allowing it to reach the high mezzanine so installing the M3 type emergency exits was not necessary. The Marquês station has five levels.

COMBATENTES STATION

Eduardo Souto de Moura

The Lima station is located at the extrem of the Rua da Alegria, at the intersection of Avenida dos Combatentes da Grande Guerra and the Rua de Costa Cabral within the urban structure of the Paranhos quartier. The station is an M3 type, which means that it is made out of tow parts: one the actual station, built tunnel wise, and the other through cut and cover system, constituting the access shaft to the station. The cut and cover shaft is dug through a building free area, in the eastern side of the Rua da Alegria. A large space is created in the aforementioned area, where a new treatment for the urban space is installed and where the access to the train station are located. The Combatentes station has seven levels.

SALGUEIROS STATION

Eduardo Souto de Moura

The Salguerios station is located in the current soccer field withing the Paranhos urban structure, and there is no design for the surface. The station is type M1, meaning that the whole station is created through the cut and cover system. The Salgueiros station has five levels.

POLO UNIVERSIRTARIO STATION

Adalberto Dias

This is a S line station, and the subterranean M3 line, under the new Alameda (Rua Dionisio Santos Silva), in the new Asprela university campus. Due to railway size, the station was provided with two intermediate spaces, where the booths and the service spaces are located.

RESIDENTIAL BUILDINGS IN THE ECOPARC DISTRICT OF NEUCHÂTEL

Emmanuel Rey

The Ecoparc district implies the creation of a new and dense multifunctional urban hub, regenerating a moor standing besides the Neuchâtel train station, in Switzerland. The houses developed under this frame have been conceived focusing on sustainable architecture, outstandingly characterized by a careful integration into its surroundings, cherishing a broad tipological variety, the use of local climate resources, a scarce non-renewable energy consumption and a high spacial quality.

108 DWELLINGS IN ARDOY

Alfonso Alzugaray /Jesús Ramírez / Carlos Urzianqui

Beyond a regular housing arrangement, all of them enjoying double orientation, with a traditional scheme of day spaces towards the interior and night spaces towards the opposite facade, using the toilets as joint for circular communication, on this project we focused on the expressive qualities of a material: we wanted to force, in a project where expressive quotas are really narrow, the use of a single material for the exterior skin, despising composition, allowing for the daily use of the dwellings, through the arbitrary openings of shutters what will define the exterior appearance of the buildings.

TOT HOUSE

Fernando Oíza / Michel Arauzo / Enrique Kahle

The project came from the commission for a low budget single family house in the outskirts of Cintruénigo, a town on Navarra's Ribera recording one of the country's greatest number of sunlight hours per year. Although it is a standard case for typology, programme, and dimensions, we avoided the usual cliches and designed a contemporary home from every point of view: typological, constructive, spatial...besides any aesthetic and building conventions, always bearing in mind energy efficiency criteria.

VENTILATION IN HOUSING: THE CHALLENGE OF AN EFFICIENT AND EFFECTIVE VENTILATION

Víctor J. del Campo / Jon Terés

Buildings in Spain represent 20% of the total energy consumption, HVAC representing 40% of it. One of the general goals of the CTE is cutting the energy consumption of dwellings. Particularly, it's DB-HS3 aims at guaranteeing a minimal ventilation flow. The equilibrium between both supposes an important technological challenge that needs to be tackled. The search for this equilibrium means obtaining the best air quality with the minimum energy consumption, through an efficient and effective ventilation, adequately responding to WHERE, WHEN and HOW MUCH.

WATER EVACUATION UNDER THE CTE FRAME: A PERFORMATIVE APPROACH

Juan Echeverría

This documents is the first one of a series of essays aiming at approaching different building issues relating to systems through a performative design method. A few years after the CTE approval in Spain, performative design is both a challenge and an opportunity to those of us working in the building realm. A challenge, because we are aware of the difficulties implying the thorough understanding of the physical phenomenons linked to the systems and an opportunity because we now know that many projects will not be approached successfully through different means.

Quantification, the biggest obstacle for the correct implementation of performance based design, has a very accurate definition in the evacuation of rain water: the isoyet map and pluviometry areas constituting appendix B of the DB-HS5. Nevertheless, this clarity does not exist in the evaluation of the sewage waters, based in the known system of Discharge Units (UD), en empirical procedure, that although it has a widespread use, it can present some inconveniences if it is not properly applied. Due to these facts and because of the simplicity of these systems in front of others, it seems appropriate to beginning this series with them.

ARCHITECTURAL KNOWLEDGE IN THE AGE OF INFORMATION: SOFTWARE REPOSITORIES

Leandro Madrazo

Architecture, like other disciplines, aspires to delimit its study field identifying, naming, defining, and classifying its own conceptual and material objects. However, unlike nature science, what architecture studies lies in its own creations: the buildings that make up the built environment, and the design and construction processes preceding them. Therefore, investigating what constitutes architecture implies analyzing not only projects and buildings, but also understanding the links between them.

DAMAGES AND RENOVATION OF PLUMBING AND DRAINAGE SYSTEMS IN HOUSING BUILDINGS.

Alberto Meiss / Jesús Feijó

Renovation of buildings has had a strong boost in the last decades due to an increasing awareness of the heritage existing at the cores of the urban centers. Today, this task has been encouraged by public administrations through economic incentives focused on improving the comfort conditions and energy consumption of housing built under different determinations. A rational use of economic means, sprouting from a social conscience based on sustainability, forces us, a priori, to banish existing systems when dealing with the restoration of a building. Plumbing and drainage systems have a key role, both for the span of possible works as for their important impact regarding preservation, compared to other type of systems.