

bis



we are a comprehensive circular engineering firm with a positive impact,
specializing in high-level technical building projects of large scale and complexity.
Committed to sustainability, we design and develop structures and building systems
from an architectural perspective

35 years

of experience designing and calculating structures and systems in highly complex buildings.



+ 5000

references support our trajectory as a comprehensive building engineering.



30 countries

in which we have developed large engineering projects.



81 pax

45 engineers, 30 architects y 6 administrative.



2 hq

to provide a personalized service, we have offices in Barcelona and Madrid.



bis in figures indicators

More than 30 years of experience in the Spanish market and projects built in Europe, Latin America, Africa, the Middle East and Asia, has allowed us to obtain the references that we have today. Thanks to our international experience, we understood the need to offer a global vision of engineering in building projects.



about us bis



about us

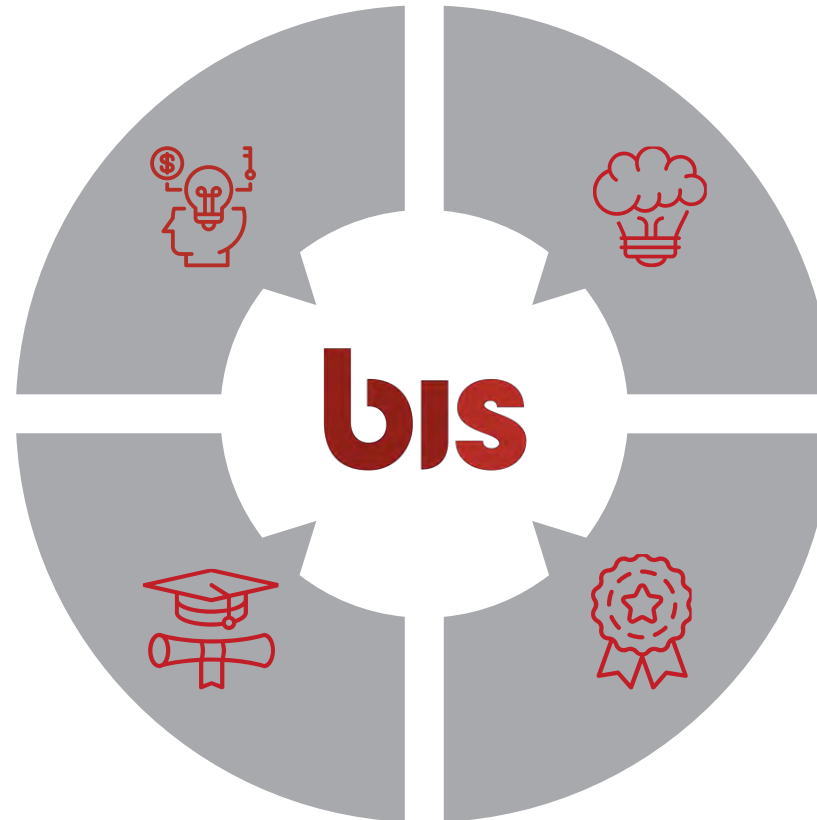
our pillars

production

We assign the right people to each project to meet deadlines and tasks, improving our internal processes to be more productive and offer a more efficient service to our clients.

knowledge

Our technicians are teachers in various master's degrees, postgraduate degrees and courses at the, UPM, UIC, ACE, ACI, IEE, Escola Sert, CAATEB, Zigurat e IE University.



investigation

Our efforts seek to answer the “for what” and challenge the “how” of continually improving our designs to get true impact in the sector.

quality

Through our Quality Management System (SGQ) we give a voice to each team member in the technical and business improvement process.

about us

partners



David Garcia Carrera

Founder. Partner. CEO

Founder and CEO of Bis. Since 1990 it has carried out more than 5,000 projects located in different parts of Europe, Latin America, North Africa and the Middle East. Architect from the ETSAV - Universitat Politècnica de Catalunya in 1990 and Doctor of Architecture from the Universitat Politècnica de Catalunya (UPC) since 2015.



Gemma Massip

Founder. Partner

In 1990, together with David Garcia, he founded Bis. For 20 years she served as Financial Director carrying out planning, asset and liability management and strategic advice on the company's different projects. Graduate in Administration and Management of Public Companies from the International University of Catalonia (UIC).



Xavier Martínez Tomeo

Partner. MEP Technical Director

Industrial Engineer specialized in the design, calculation and management of installation engineering works with more than 20 years of professional experience in that field. Specialist in almost zero-consumption buildings and air conditioning systems, he has directed more than 300 projects of all architectural typologies in the national and international market.

board of directors

Andrea Mora

Business Development Director

Xavi Martínez

Partner. MEP Technical Director

Gemma Massip

Founder. Partner

David Garcia

Founder. Partner. CEO

Maite Ramos

Managing Director

Miguel Gómez

Madrid Director

Amparo Lecha

Director of Operations

Joaquim Olaria

Strategy Director



engineering from architecture services

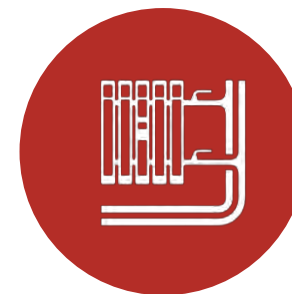
We propose customized solutions and apply the most innovative and convenient technologies in the sector, with the aim of reducing the carbon footprint, minimizing costs and construction time of the buildings in which we collaborate.

We study, design and direct complex building works, with our brand as a guarantee of quality.



structures

continuous commitment to improving each project by providing it with the best structure.



mep

efficiency of buildings determined by their internal systems and the quality of their environment.



sustainability

regenerative mentality within building engineering.



services

structural engineering

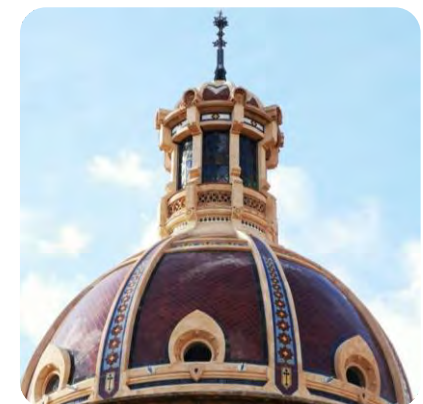
We seek the optimal structural solution to deliver the utmost precision and definition that high-quality architecture demands. We meticulously analyse materials and construction methods to meet the specific requirements of each project. Through the application of cutting-edge technologies, we strike a balance between form, function and sustainability.

new construction

Our philosophy and commitment to the project is to distinguish between design and structural calculation. We believe that the building's functionality is enhanced by the strategic integration of structural elements, which give purpose to its design.

rehabilitation

Our services encompass reports, opinions, diagnoses, projects and monitoring of works. We guarantee not only the stability, resistance and durability of buildings, but also their longevity.





services

mep engineering

We design, from the architecture, the mechanical, electrical, plumbing and protection systems, as well as the building's lifelines. We work with the utmost precision, focusing on a design that is innovative, integrated and oriented to adopt the latest technologies to improve performance and sustainability in projects of high technical level in the building.

Seeking a balance between comfort, cost, efficiency and aesthetics, not only in heating, ventilation and air conditioning systems, but also in plumbing and sanitation systems. We interact with the architectural environment to create electrical systems that go beyond lighting design, high voltage and low voltage. We believe it is the foundation for bringing a building to life while meeting business, safety and regulatory requirements.

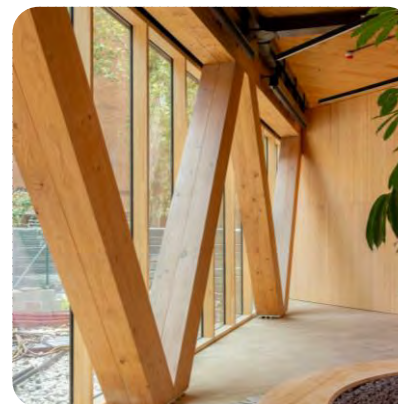


services

sustainability

Our design approach is based on analyzing the needs of the building's use and location. We propose sustainable and optimization alternatives between the architectural system, consulting facilities and structures, to reduce environmental impact.

Our goal is to design buildings with low CO₂ emissions, either through the use of raw materials, production and transport that generate NZEB, sustainable structural proposals, or minimizing the energy demands of the building with efficient facilities and renewable energies generated on-site. This way, we seek to achieve a zero balance net carbon emissions in the annual operation of the building.





project
experience



Hall 0 – Fira Barcelona

Structural Design - STR

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CULTURAL

HALL ZERO FIRA BARCELONA PAVILION

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BARCELONA - SPAIN

Details

Architect :	B720 – Toyo Ito	Cost :	200.000.000 €
Developer :	Fira 2000	Area :	135.400 m²
Builder :	UTE FCC - Comsa	Design :	2022 - 2024
Status :	Under construction	Construction :	2023 -

Description

The new space for the Fira consists of 3 connected buildings, integrating an elevated bridge that connects them with the rest of the Pavilions.

The Pavilion building is built with a vertical load-bearing structural system of the perimeter ring, based on the use of metal frames in two directions, with composite columns. The roofs are proposed with prestressed hollow core slabs. Design without expansion joints. At the intermediate level, a truss structure is generated with concrete trough beams, which will support the horizontal hollow core slabs, with dimensions of 3m/5m wide and 2.5m high, to save a span of 32m.

The roof is resolved from a three-dimensional spatial mesh and without intermediate supports. It is a structure with double curvature and rectangular plan that covers spans of 144x168m. The lobby spaces are resolved with post-tensioned roofs, with sandwich-type slabs and solid slabs. In the Tower building, when it is separated from the Lobby, the horizontal structure is resolved with traditional solid slabs of 35/40 cm. The bridge is resolved with two large Warren type metal trusses, supported by circular section metal columns. The piers are located at variable distances of 24m, with a total length of 120m.

Headquarter Société Générale Maroc

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HEADQUARTER SOCIÉTÉ GÉNÉRALE MAROC

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CASABLANCA - MOROCCO

Details

Architect :	Oualalou + Choi	Cost :	120.000.000 €
Developer :	Société Générale Maroc	Area :	70.000 m ²
Builder :	SGTM - Maroc	Design :	2023 - 2024
Status :	Under construction	Construction :	2024

Description

Working directly for a construction company in an environment different from what we are accustomed to, with the constraints of a well-defined basic project and very tight deadlines, is a challenge for any team.

The project consists of a building of over a 10 story building 7 of them above ground and 3 underground parking.

The main feature that the above-ground floors will be suspended from powerful steel structures placed at the top of the building. The structure will incorporate steel and reinforced concrete elements, as well as floor slabs made of CLT panels—one of the first extensive applications of this system in office buildings in Morocco.

Son Bunyola 5*Hotel Renovation

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HOSPITALITY

SON BUNYOLA 5* HOTEL



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BANYALBUFAR - SPAIN

Details

Architect :	GRAS Arquitectos	Cost :	-
Developer :	Virgin Limited Edition	Area :	3.552 m²
Builder :	Grupo Ferrá	Design :	2018
Status :	Built	Construction :	2021 - 2022

Description

The project involves the rehabilitation of the Son Bunyola estate, located in Banyalbufar, Calvià (Balearic Islands). The complex consists of several independent buildings, with the main structure—of medieval origin—holding the greatest heritage value.

The original structure of the building is composed of load-bearing masonry and ashlar walls supporting wooden beam floor slabs. However, more modern slab typologies are also present due to various renovations carried out over the building's lifetime.

The intervention focuses on reinforcing the existing structure to meet the requirements for its change of use to a public residential facility and to extend the building's lifespan. One of the main actions involves dismantling and subsequently reconstructing entire floor slabs while preserving and relocating the best-preserved wooden beams within spaces of the highest heritage value.

The project also includes new building volumes with the same structural characteristics as the existing ones.

Girona Clinic

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HEALTHCARE

GIRONA CLINIC



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GIRONA - SPAIN

Details

Architect :	PMMT	Cost :	51.073.204 €
Developer :	Clínica Girona	Area :	39.713 m²
Builder :	UTE Rubau – Ortiz - Agefred	Design :	2016
Status :	Built	Construction :	2018 - 2020

Description

The new Clinica Girona has a rectangular shape and is divided into two end blocks (A and C) and a central block (B). It comprises 12 storeys, 3 below ground level, 8 above ground level, plus an upper storey designed to accommodate facilities.

The proximity of the railroad line on the site generates vibrations in excess of those permitted, which is why it is necessary to dissociate and isolate the building structure from the ground using a set of dampers on the heads of the pillars and concrete cores on the underground floor - 1, and to dissociate the roof of this floor from the peripheral containment screens. This division means that the size of the pillars and the height of the basement - 1 will have to be increased to ensure that the whole structure is embedded and rigid.

A reinforced concrete structure is envisaged, based on a highly ordered grid of rectangular-section pillars and bi-directional solid-slab floors. The foundations are laid with a solid slab, which also serves to support the pressure of the water table and ensure the watertightness of the whole. Containment is provided by temporary anchored diaphragm walls.

Mile 22@ Office Building

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OFFICES

MILE 22@ OFFICE BUILDING

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BARCELONA - SPAIN

Details

Architect :	BCA	Cost :	27.305.920 €
Developer :	FREO	Area :	40.987 m ²
Builder :	Dragados	Design :	2020
Status :	Built	Construction :	2020 - 2022

Description

This is an office complex consisting of two buildable units located in Barcelona's 22@ district. The plot has the characteristic shape of the Eixample district and occupies nearly half a city block, making one side of the building adjacent to existing structures.

The complex comprises three prismatic buildings of varying heights and two underground floors that extend across the entire site.

To accommodate the large spans between the reinforced concrete columns, the above-ground horizontal structure was designed using unidirectional post-tensioned concrete sandwich slabs. The underground slabs were constructed as solid concrete slabs.

Due to the high water table level and the granular characteristics of the soil, along with the concentration of loads transmitted by certain columns, a deep foundation system was implemented under the high-load columns. This was achieved using zapilotes (screen elements) along with a 60 cm thick foundation slab, which anchors the columns carrying only basement loads and ties all zapilotes together. The earth retention system consists of continuous diaphragm walls, also 60 cm thick.

Johan Cruyff Stadium

Structural Design - STR

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JOHAN CRUYFF STADIUM

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SANT JOAN DESPÍ - SPAIN

Details

Architect :	batlleiroig	Cost :	12.000.000 €
Developer :	FC Barcelona	Area :	7.245 m²
Builder :	COMSA	Design :	2015 - 2016
Status :	Built	Construction :	2017 - 2019

Description

The project locates the new mini stadium facilities within the Joan Gamper sports complex of Sant Joan Despí.

Facilities that must accommodate more than 6,000 spectators, which is technologically innovative, with a high-level team and, above all, that reflect the club values.

The second team of FCB will begin the 2017 - 2018 season in the mini stadium construction scheduled to begin in January 2016 and the mini stadium inaugurated it will coincide with the start of the season.

Project carried out with BIM methodology.

SPORTS



Vall d'Hebron Rehabilitation and Burns Emergency Care

Structural Design - STR

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VALL D'HEBRON REHABILITATION AND BURNS EMERGENCY CARE

BARCELONA - SPAIN

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Details

Architect :	Corea Moran	Cost :	5.713.000 €
Developer :	CatSalut	Area :	2.400 m²
Builder :	Isolux Wat	Design :	2002
Status :	Built	Construction :	2003 - 2006

Description

The project consists of creating a unit for hospitalized burned patients. The existing gymnasium was demolished to allow for the expansion of the annex, with only its basement being preserved. This basement previously housed the hospital archives, and since the program stipulated that this space and its function had to be maintained, it was necessary to integrate it into the new design.

For this reason, an external structure was conceived as a "skin" around the existing building. It is supported only at the ends, and through 35-meter-span steel trusses, it is capable of bearing the two suspended floors to be constructed. This approach achieves a completely open first floor (without any internal supports), minimizing intervention in the preserved area (the ceiling of the archives).

The foundation is resolved using micropiles, which are connected to the columns through eccentric pile caps located outside the building

HEALTHCARE



New National Museum of Afghanistan

Structural & mep Design – STR & MEP

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NEW NATIONAL MUSEUM OF AFGHANISTAN

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KAMBUL - AFGANISTÁN

Details

Architect :	AV62 Arquitectos	Cost :	51.000.000 €
Developer :	Ministry of Urban Development and Land - MUDL	Area :	25.139 m²
Builder :	-	Design :	2018 - 2021
Status :	Ended	Construction :	-

Description

his project is part of the urban regeneration plan for District 6 of Kabul, driven by the recent rehabilitation of the Darul Aman Palace. The transformation of this sector aims to establish a new urban epicenter, projecting Kabul into the future. It is envisioned as a space with a strong representative character, bringing together public facilities of the highest symbolic and political significance in the country.

On one hand, the goal is to enhance the collection, designing an environment that appropriately showcases the exhibition content. On the other, it aims to foster an ideal visitor experience by providing a space that allows for focused engagement throughout the observation and appreciation process, while also facilitating connections and interpretations of more abstract or less direct concepts.

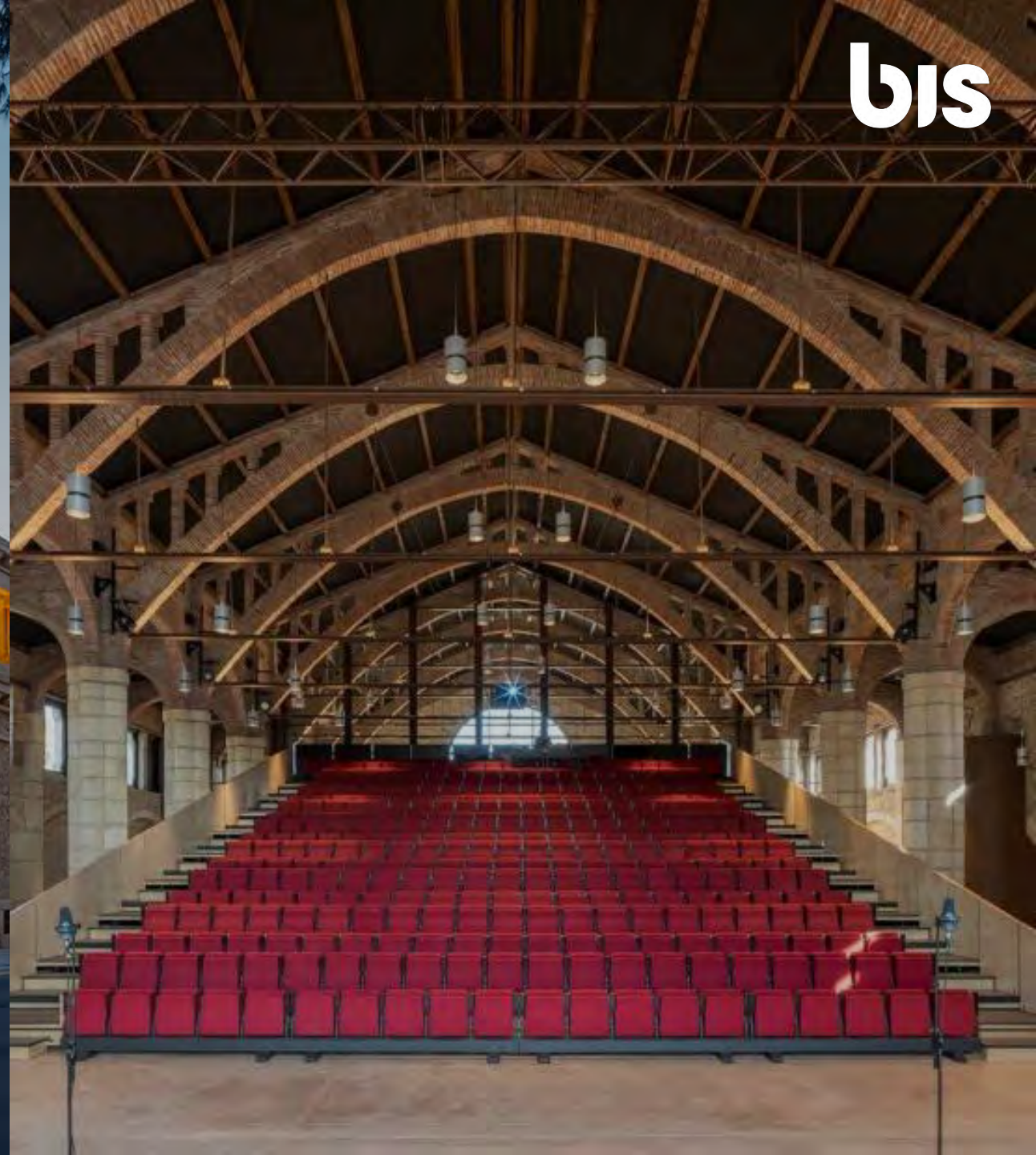
The distribution of the program's main areas (Public Collection Area, Public Non-Collection Area, Non-Public Collection Area, and Non-Public Non-Collection Area) follows a layout based on transverse bands that clearly divide these zones, primarily on the ground floor, ensuring a well-defined sectorization of functions and security requirements. The Non-Public Collection Area occupies the entire basement.

CULTURAL



Vila-Seca wine Cellar

Structural & mep Design – STR & MEP



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REFURBISHMENT CELLER DE VILA-SECA

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VILA-SECA - SPAIN

Details

Architect :	Espinet Ubach	Cost :	4.118.089 €
Developer :	Vila-Seca's town council	Area :	2.254 m²
Builder :	Cots i Claret - García Riera – Ertak	Design :	2019
Status :	Built	Construction :	2020 - 2021

Description

The project involves the rehabilitation and extension of the Noucentist Celler in Vila-Seca, with the aim of transforming it into a municipal facility, largely preserving the existing overall volume, and adding a new building and a stage box.

The original structure of the main building, in the Noucentist style and of considerable size, is resolved by means of load-bearing walls and buttresses that shape the facades. Inside, aligning with the buttresses, there are stone pillars supporting brick diaphragm arches reinforced with tie rods. Meanwhile, the two side naves are covered with lowered semi-circular arches. The structure of the secondary nave is formed by stone walls supporting brick vaults and wooden trusses.

The structural intervention has consisted of creating a rear stage box made of reinforced concrete walls and slabs, situated on the rear facade of the main nave. It also includes a new volume corresponding to the services pavilion; the structure of this new volume is a base formed by a slab on variable-depth beams, while the roof is resolved by a lightweight covering supported by metal pillars.

**Building listed as a Local Cultural Asset (BCIL).
Winner of the Vila-Seca Celler competition.**

CULTURAL



Puyo Parametric Hospital

Structural Design- STR

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PUYO PARAMETRIC HOSPITAL

bis

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PUYO - ECUADOR

Details

Architect :	PMMT	Cost :	17.500.000 €
Developer :	MSP del Ecuador	Area :	15.710 m²
Builder :	Makiber	Design :	2011 - 2012
Status :	Construido	Construction :	2012

Description

Construction of a hospital with 155 beds capacity. It has been designed in three bands that divide the hospital according to the main uses: public access and outpatient, inpatient, diagnostic areas and private areas. Those three bands are not aligned in order to generate overlapping pavilions to create a non-rigid volume based on the repetition of simple pavilions.

The structure is solved with metal structure based on successive frames of trusses of 14m (width of each pavilion). The yards are solved by creating two large longitudinal frameworks. At the same time those frameworks facilitate the creation of higher areas, designed to accommodate facilities that provide a more dynamic view of the roof.

The three main access areas : public, emergencies and freights, are solved with pavilions of 35m range and large profiles instead of frames, to give a sense of largeness.

Winner of the FAD Prize 2014 in the category Architecture

HEALTHCARE

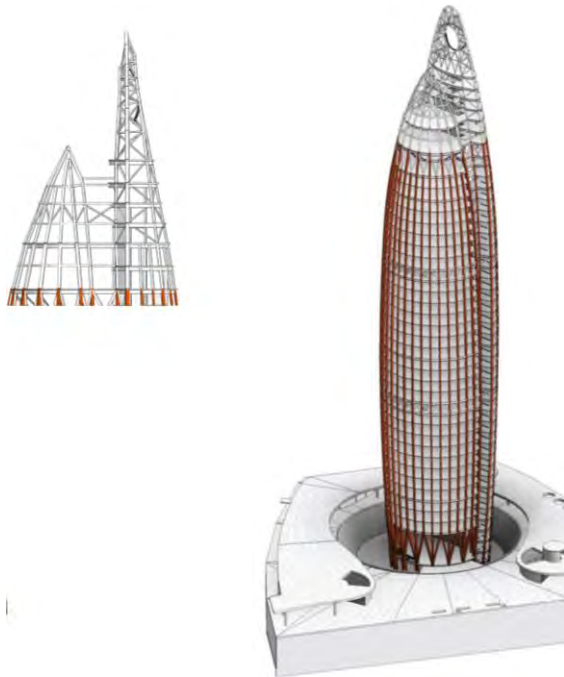


CFC Tower in Casablanca

Structural Design- STR

bis





CFC CASABLANCA TOWER



CASABLANCA – MOROCCO

Details

Architect :	Rafael de la Hoz	Cost :	200.000.000 €
Developer :	Financecom	Area :	128.000 m²
Builder :	-	Design :	2014 - 2015
Status :	Schematic Design	Construction :	-

Description

This project involves the construction of a set of office buildings that include a skyscraper with 37 storeys and 3 basements (199m of height above ground level) and two shopping centers with 8 storeys each and 2/3 basements.

For the skyscraper is planned a structure type "tube in tube" with a large inner concrete core and a perimeter ring with facade columns. To ensure lateral stability three rings of stiffness located on floors 12, 24 and 33 formed by three trusses with a storey height and located from the core to the fourth truss.

The slabs with approximately 25 m span were designed with a bidirectional structural mesh with steel profiles as a basis for the composite slab.

The shopping center buildings were designed with prestressed concrete columns to control the effects of the thermal expansion of the structure since it has 120m in length without expansion joints.

The site location is the former lands of the "Casa-Anfa" airport.
Design made with BIM methodology.

OFFICES



Cuatro Caminos Sports Center

Structural & Sustainability Design – STR & SUS

bis





CUATRO CAMINOS SPORTS CENTER

bis

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MADRID - SPAIN

Details

Architect :	Lahoz López Arquitectos	Cost :	12.000.000 €
Developer :	Ayuntamiento de Madrid	Area :	9.200 m ²
Builder :	Eductrade	Design :	2023
Status :	Built	Construction :	2023 - 2024

Description

The proposed solutions aim to construct the building as a fully integrated system with an ultra-low energy demand, capable of accumulating, distributing, consuming, and recycling energy in a fully autonomous process—creating a Nearly Zero Energy Building (NZEB).

Beyond its mechanical systems, the project serves as an opportunity to be a model in implementing corrective measures for energy gains and savings. To achieve this, various strategies are proposed to optimize all possible aspects: natural light utilization, high-efficiency systems, water consumption minimization and recycling, solar energy harnessing, and the use of exemplary construction techniques based on recycled and easily recyclable materials.

The building is designed as a complete organism that accumulates energy, when possible, distributes it, consumes it, and recycles it in a fully autonomous process. A key element in this concept is the configuration of the double façade with its vegetative protection and courtyard, which enable cross-ventilation, functioning as a large-scale system regulating exchanges with the exterior.

NZEB and LEED GOLD Sustainability Certification

Vall d'Hebron Research Institute- VHIR

Structural Design - STR

bis





LIFE & SCIENCE

VALL D'HEBRON RESEARCH INSTITUTE - VHIR

BARCELONA - SPAIN

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Details

Architect :	BAAS Arquitectura - Espinet Ubach	Cost :	26.124.432 €
Developer :	Recerca Vall d'Hebrón	Area :	16.791 m²
Builder :	Calaf	Design :	2018 - 2020
Status :	Built	Construction :	2021 - 2024

Description

It is a new research building located within the Vall d'Hebron hospital complex. It is divided into 3 structural blocks; two of them consist of a basement, ground floor plus two upper floors, and the smallest one consists of a basement.

The structural system is based in concrete slabs supported by columns and concrete walls and steel columns. The facilities galleries consist of a steel structure and interweaving of pray.

This system will have deep foundations formed by piles grouped in pile caps locked with braces.

In situ reinforced concrete perimeter diaphragm walls are proposed for the containment. These will be 45cm wide at the front of the building and will contain only the basement grounds, and at the back, due to the unevenness of the land, they must have the total height of the building and a width of 80-60cm. In the construction phase, the diaphragm wall must be executed with provisional active anchors. In the final phase, and given the presence of the facilities gallery, it will be connected to the concrete floors by means of steel profiles as buttresses.

Project developed with BIM methodology.

Surgical Block – Germans Trias i Pujol University Hospital

Installations Design - MEP

bis





GERMANS TRIAS I PUJOL UNIVERSITY HOSPITAL

BADALONA - SPAIN

Details

Architect :	Mario Corea - CDB	Cost :	16.397.000 €
Developer :	CatSalut	Area :	6.965 m ²
Builder :	UTE Acciona – Copcisa - Cobra	Design :	2023
Status :	In progress	Construction :	-

Description

The object of the project is the expansion of the surgical block of the Germans Trias i Pujol Hospital, which is located in the city of Badalona, located at the foot of the Sierra de la Marina.

The proposed site for the location of the building is located in the space between the Hospital building and the recently built multipurpose building.

The area of action has a façade facing east and faces the main access street to the Hospital and Emergency Room. This façade has views of the landscape, with the mountains, the city and the sea in the background. The project is developed in a collaborative way, with project and work, and applying LEAN CONSTRUCTION technology.

The facilities project is complete, and interconnected with the general services of the hospital. The entire facility is planned, which includes four operating rooms, an OER and semi-critical area, the Necropsy room and the pathological anatomy laboratory, apart from all the necessary spaces.

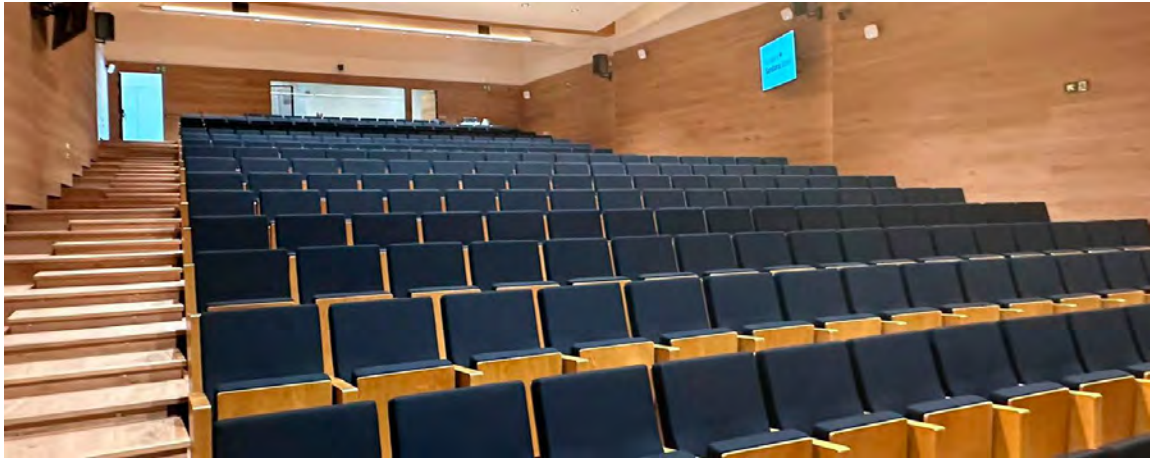
The project is complemented by a 100kW rooftop photovoltaic installation.

Teaching Building – Mollet Healthcare Foundation

Structural & mep Design - MEP & STR

bis





EDUCATIONAL BUILDING FOR THE MOLLET HEALTHCARE FOUNDATION

MOLLET DEL VALLÈS - SPAIN

Details

Architect :	Mario Corea	Cost :	7.000.000 €
Developer :	Fund. Sanitaria Mollet	Area :	5.152 m²
Builder :	SEROM	Design :	2023
Status :	Built	Construction :	2023 - 2024

Description

The new university building linked to Mollet Hospital is designed on an adjacent, standalone plot separate from the hospital. It features a climate-control system that combines geothermal and aerothermal energy sources, and uses induction terminals in the interior spaces.

A DALI-regulated lighting system is implemented throughout the building, and a photovoltaic installation is placed on the roof.

In terms of facilities, the building has an auditorium for 300 people, equipped with the modern audio and video services required by both the hospital and the faculty.



Bellesguard Tower Renovation

Structural Design - STR

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CULTURAL

REHABILITATION OF TORRE BELLESGUARD BY ANTONI GAUDÍ

BARCELONA - SPAIN

bis

bis211.com

Details

Architect :	bis - Martí Cabestany	Cost :	617.000 €
Developer :	Familia Guilera	Area :	150 m²
Builder :	Seidom	Design :	2008
Status :	Built	Construction :	2008 - 2009

Description

Heritage rehabilitation intervention in two phases: an emergency phase to monitor the cross's movements and dismantle it, followed by a subsequent phase to diagnose the building's current condition and carry out comprehensive restoration and rehabilitation works.

Project conducted under the scope of the IEE (Instituto de Estudios Estructurales), with participation from the Artistic Heritage Department of the City of Barcelona and the Government of Catalonia (Generalitat de Catalunya).

Building listed as a Cultural Asset of National Interest (BCIN).

Sant Joan de Reus University Hospital

Structural Design - STR

bis





UNIVERSITY HOSPITAL SANT JOAN DE REUS

REUS - SPAIN

Details

Architect :	Corea Moran - Pich Architects	Cost :	95.362.117 €
Developer :	Innova	Area :	84.000 m²
Builder :	Dragados - Avantia	Design :	2007 - 2008
Status :	Built	Construction :	2008 - 2010

Description

The new Hospital de Sant Joan de Reus has a total built area of 84,000m². The Hospital is conceived as a large horizontal three-storey building with courtyards, above which float six two-storey inpatient volumes float above it.

The project seeks to control its scale, controlling and balancing the landscape impact of a building of this size in front of the city, with two opposing readings: the sequence of six cantilevered volumes and the sloping façade with organically shaped pavilions.

Winner of the NAN 2010 Award for Best Integration of Energy in Architecture.



Novotel Diagonal 199

Structural Design - STR

bis





NOVOTEL DIAGONAL 199

bis

bis211.com

BARCELONA - SPAIN

Details

Architect :	BCA	Cost :	14.686.000 €
Developer :	Metrovacesa	Area :	28.536 m ²
Builder :	Metrovacesa	Design :	2005
Status :	Built	Construction :	2006 - 2009

Description

This hotel project has involved a real estate investment of 44 million euros and has become the most important Novotel of the Accor Group in Spain.

It is a mixed-use building consisting of an 18-story hotel and an office block occupying the first five floors, with a total area of 6,200 m², while the hotel occupies the upper floors. The site, with a buildable area of 17,570 m², is located next to the Torre Agbar and opposite the Glòries Shopping Center.

The vertical structure consists of reinforced concrete columns and cores, positioned at the center of the tower. The floor slabs are constructed using bidirectional slab systems in the basements and office block, while waffle slabs are used in the tower to reduce weight. On the 6th floor of the tower, several upper-floor columns are transferred using three deep wall beams that converge at one corner of the building. The plaza slab at the ground level is resolved with a 70 cm thick post-tensioned solid slab.

Due to the granular nature of the soil and the high water table level, the foundation is designed as a continuous slab supported on groups of micropiles located beneath the columns. The retention system for the three basement levels consists of a 45 cm thick diaphragm wall.

HOSPITALITY



Lycée Français

Structural Design - STR

bis





LYCÉE FRANÇAIS

bis

bis211.com

BARCELONA - SPIAN

Details

Architect :	b720	Cost :	4.200.000 €
Developer :	Lycée Français de Barcelona	Area :	3.400 m²
Builder :	Const. Pérez Villora	Design :	2015
Status :	Built	Construction :	2016 - 2017

Description

The Lycée Français de Barcelona's preschool is located on Munner Street.

All existing buildings were demolished except for the main villa, where minor structural interventions were carried out, such as the installation of a continuous compression layer on the ground floor and the addition of steel lintels to widen passageways and improve circulation.

Additionally, a new building was constructed parallel to the existing one, consisting of a basement level and three above-ground floors.

The above-ground structure consists of a steel framework with columns and beams connected by a composite slab.

The basement slab structure was built using a conventional system with a solid concrete slab and deep beams to ensure sufficient stiffness for transferring the load of certain upper-floor columns. The foundation was designed as a shallow system using footings.

SCHOOLING

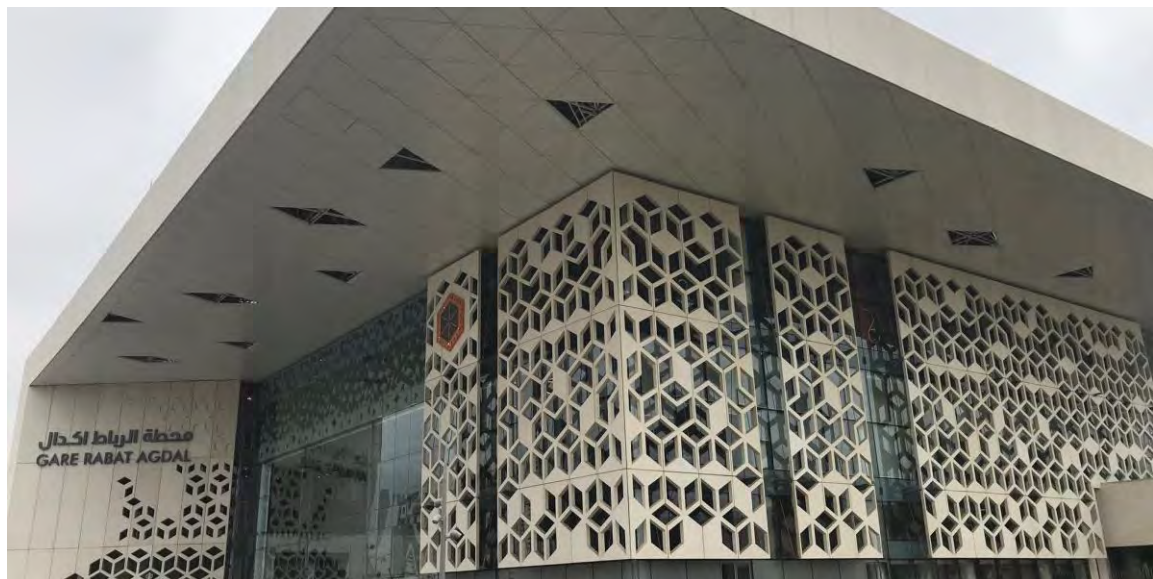


TCV Station Gare Rabat Agdal

Structural Design - STR

bis





TGV STATION RABAT AGDAL

RABAT - MAROC

Details

Architect :	Youssef El Melehi	Cost :	70.000.000 €
Developer :	ONCF	Area :	17.071 m²
Builder :	TGCC	Design :	2015 - 2016
Status :	Built	Construction :	2016 – 2018

Description

Modernization and expansion project of the existing train station at Agdal neighbourhood in Rabat, Morocco. The station will serve to unify two districts currently separated by the train tracks using the building as a bridge. The building is accessed by two adjacent buildings north and south respectively.

The North and South bodies consist of 2 basement and 5 storeys. The bridge building has the train platforms to access the 10 tracks plus two upper floors. The three buildings, separated by expansion joints due to their size, are under a single cover with 90m x 200m.

The structure is mainly built with reinforced concrete except some prestressed beams with 16m spans in which the beam height had to be limited.

The cover is a spatial grid of rectangular base with three large central openings where the three-dimensional structure converges into a two-dimensional structure. A complex geometry solved with a light steel structure optimizing the structural behaviour against the seismic actions.

Estel Office Building Renovation

Structural Design - STR

bis





ESTEL OFFICE BUILDING RENOVATION



BARCELONA - SPAIN

Details

Architect :	BCA Arquitectura	Cost :	34.008.475 €
Developer :	FREO	Area :	77.950 m²
Builder :	UTE Elecnor + Dragados	Design :	2022 - 2023
Status :	Under Construction	Construction :	-

Description

The project involves the rehabilitation of the ESTEL building, located on Avenida Roma in the "Nova Esquerra de l'Eixample" neighborhood of Barcelona.

The building consists of five basement floors that extend across the entire plot, a unified ground floor in the shape of a heptagon, and two distinct blocks rising above it. Block A (Roma Block) has 13 floors above ground plus a rooftop, while Block B (Mallorca Block) has 7 floors above ground plus a rooftop. The main structure is made of reinforced concrete, with localized steel structural elements resulting from various modifications the building has undergone.

The project's key interventions include reconnecting Blocks A and B on the above-ground floors, creating a new entrance, and introducing new vertical circulation cores while adapting the existing ones. Additionally, the project involves the regularization of slab edges and the construction of new slab sections.

OFFICES



Badajoz 97 Office Building

Structural Design- STR

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OFFICES

BADAJOZ 97 OFFICES

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BARCELONA - SPAIN

Details

Architect :	batlleiroig	Cost :	23.309.349 €
Developer :	Conren Tramway	Area :	17.898 m²
Builder :	SACYR	Design :	2018 - 2020
Status :	Built	Construction :	2020 - 2022

Description

Office building located on the corner of Badajoz and Almogàvers streets in Barcelona's Poblenou district. The building comprises 2 basements, a first floor and 13 storeys. The storeys are trapezoidal. The basements are used for parking, while the upper storeys are reserved exclusively for offices.

The above-ground vertical structure is based on two reinforced concrete support facades on the longer sides, a vertical communication core and two columns, also in reinforced concrete. The ground-floor structures have spans of between 10 and 20 m. The structural facade consists of columns and ridge beams. On the first storey, the first two columns of the south facade do not reach down to the foundations, resulting in two 10 m long cantilevers. To solve these problems, the façade beams are prestressed.

As the spans between the elements of the vertical structure are considerable (between 10 and 20 m), the upper storey at ground level rest on a post-tensioned unidirectional slab with pierced ribs, whose formwork system is made of a polypropylene mold. These ribs are supported by the façade edge beams or by the vertical core

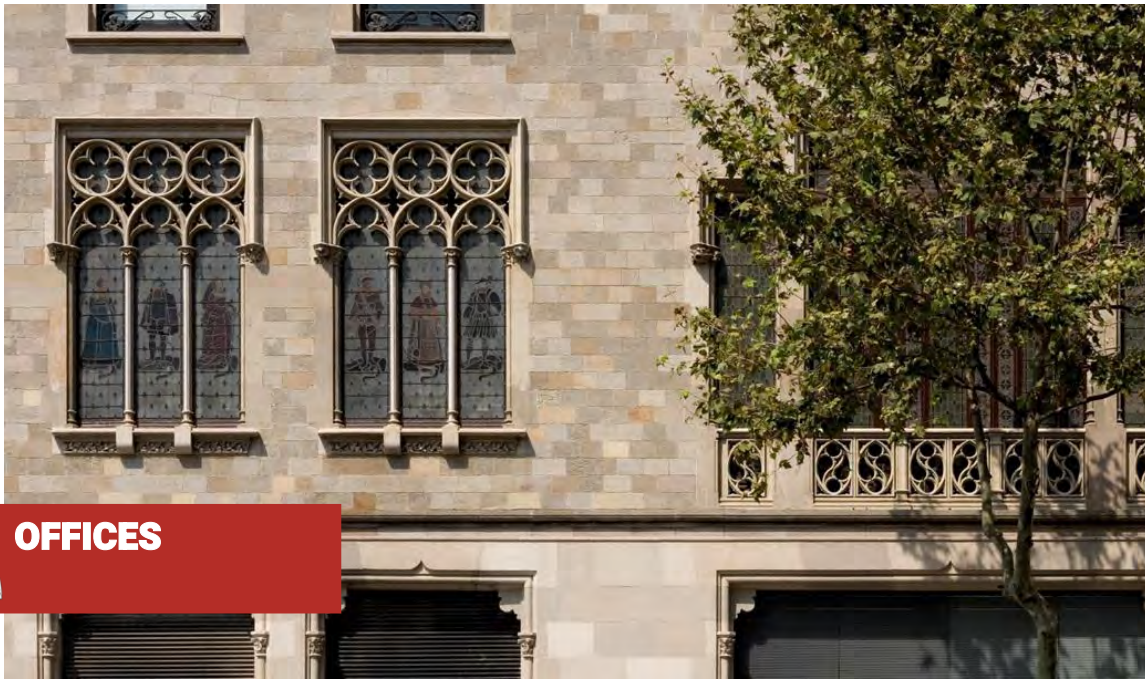
Certificación LEED Gold y Well .

Palau Pons i Pascual Office Building Renovation

Structural Design - STR

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PALAU PONS I PASCUAL OFFICE BUILDING RENOVATION

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BARCELONA – SPAIN

Details

Architect :	Espinet Ubach	Cost :	21.500.000 €
Developer :	Catalana Occidente	Area :	17.610 m ²
Builder :	Copcisa - Ucotex	Design :	2013 - 2018
Status :	Built	Construction :	2017 - 2021

Description

This is an office building located in Barcelona, undergoing renovation and rehabilitation. It is situated at the chamfers of Passeig de Gràcia with Ronda Sant Pere and Carrer Casp, next to Plaça Catalunya.

The palace consists of two adjoining buildings forming the chamfer, and the project is divided into two parts, corresponding to each building: Passeig de Gràcia 2 (PG2) and Passeig de Gràcia 4 (PG4), each involving a distinct type of intervention.

In PG2, which contains the most significant heritage elements (the Hall and the Main Floor), the intervention focuses on reinforcing and consolidating these areas while significantly transforming the remaining floors to create open-plan spaces and the main circulation core.

In PG4, the building's interior structure is demolished while preserving the façade, followed by the construction of a new structure with composite columns and solid concrete slab floors. A key feature of this section is the four levels of underground parking with a continuously inclined helical geometry. The construction process followed an ascending-descending methodology to optimize the project timeline.

Classified as a Cultural Asset of Local Interest (BCIL).

OFFICES



Els Encants School

Structural Design - STR

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ELS ENCANTS SCHOOL

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BARCELONA - SPAIN

Details

Architect :	AMB	Cost :	4.166.956 €
Developer :	AMB / Ayto. de Barcelona	Area :	4.150 m²
Builder :	DRAGADOS	Design :	2013
Status :	Built	Construction :	2014 - 2015

Description

The building is organized into two double-block strips, where classrooms are positioned on either side and connected by a wide corridor designed to enhance the teaching experience. On the fourth floor, in addition to the large hall or gymnasium, there is a spacious terrace facing the courtyard, intended for outdoor activities.

Structurally, the building responds to the regularity of the floor plan and the functional program, allowing for a highly organized structure. The classroom strips are built using a unidirectional system of precast slabs supported on deep beams, while the entire central corridor is constructed with a solid concrete slab.

To span the 14-meter width of the gymnasium or multipurpose space, a lightweight Fink truss steel structure was chosen. Notable features of the project include the cantilever on the first floor, extending 3.5 meters in the infant classrooms, and another cantilever above the main entrance, from which the staircase to the first floor originates. Both elements are resolved with a solid reinforced concrete slab.

1st Prize FAD, Opinion Architecture Category, 2016.

SCHOOLING



One Parc Central Office Building

Structural Design - STR

bis





ONE PARC CENTRAL OFFICE BUILDING



BARCELONA - SPAIN

Details

Architect :	batlleiroig	Cost :	29.418.758 €
Developer :	Dos Puntos	Area :	28.256 m²
Builder :	Keller - San José	Design :	2019
Status :	Built	Construction :	2019 - 2021

Description

This is a newly constructed office building located next to Can Ricart on Marroc Street, 33, in Barcelona. The building has a rectangular shape with approximate dimensions of 48.5 × 38 meters. The entire project has been developed using the BIM methodology.

The horizontal structure consists of solid slabs below ground level and post-tensioned sandwich slabs on the above-ground floors. The latter include flat beams where the post-tensioning is concentrated to support the cantilevers in both directions.

The main vertical structure is supported by ten perimeter concrete columns and a central vertical circulation core. In the basement levels, the columns are duplicated to simplify and optimize the structural solution.

The building's foundation has been designed with precast piles and an uplift slab. The retention system for the three basement levels consists of 80 cm thick reinforced concrete diaphragm walls, with a row of anchors positioned above the water table.

OFFICES



Hotel Renovation in the Historic Center of Toledo

Structural Design - STR



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HOTEL RENOVATION IN THE HISTORIC CENTER OF TOLEDO

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TOLEDO - SPAIN

Details

Architect :	AVA Studio	Cost :	7.304.604 €
Developer :	Bemus Hotels	Area :	5.454 m²
Builder :	Kalam	Design :	2015 - 2017
Status :	Built	Construction :	2017 - 2023

Description

A complex project with high heritage value in the historic center of Toledo.

The project involves a group of abandoned residential buildings, consisting of a ground floor and two or three upper floors, in an advanced state of deterioration—some of which had already been demolished due to imminent collapse risk. The renovation and rehabilitation have adapted these structures for hotel use.

The buildings primarily feature load-bearing wall structures made of various materials (timber framing, masonry, rammed earth, ceramic, etc.), supporting wooden floor slabs, vaulted ceilings, and pitched roofs. Each building is organized around a central courtyard, where the façades are composed of timber-framed elements.

The intervention in the existing buildings, designated for guest rooms, focused on reinforcing and consolidating the original structural elements. New wooden floor slabs were added in areas where the existing ones were beyond repair. In the central part, where the previous structures had been demolished, the hotel's common areas were constructed. This section was entirely redesigned with steel columns and trusses due to its distinct structural requirements.

Registered as a Heritage-Listed Building.

HOSPITALITY

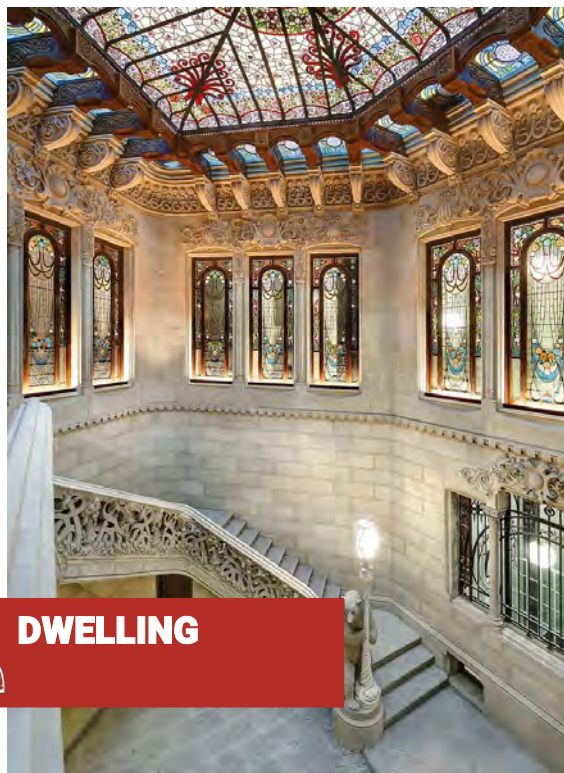


Casa Burés i Borràs Residential Building Renovation

Structural Design - STR

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CASA BURÉS I BORRÀS RESIDENTIAL BUILDING RENOVATION

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BARCELONA - SPAIN

Details

Architect :	TdB Arquitectura	Cost :	6.990.000 €
Developer :	Bonavista Development	Area :	7.463 m ²
Builder :	Oproler	Design :	2015
Status :	Built	Construction :	2016 - 2019

Description

Casa Burés is a modernist building in Barcelona, designed by Francesc Berenguer i Mestres. The building exhibits neo-Gothic and Germanic influences characteristic of the Barcelona Modernisme era. It consists of a ground floor and four upper floors, along with a basement and an attic.

The façade is entirely made of stone, with notable elements including the rough-cut ashlar surfaces, the overhanging eaves, the wrought iron balconies, and the distinctive curved decorative features—especially present in the sculptural ornaments of the continuous railing on the main floor, the two bay windows, and the framed balcony openings.

Many of the structural consolidation interventions required in the building are due to its state of conservation. Various structural solutions have been proposed, carefully adapted to meet the heritage preservation requirements of the building.

Classified as a Cultural Asset of Local Interest (BCIL).
Nominated for the Mies van der Rohe European Award, 2022.
Special Mention at "La Nit de la Construcció 2019" – Heritage Rehabilitation Category.

DWELLING

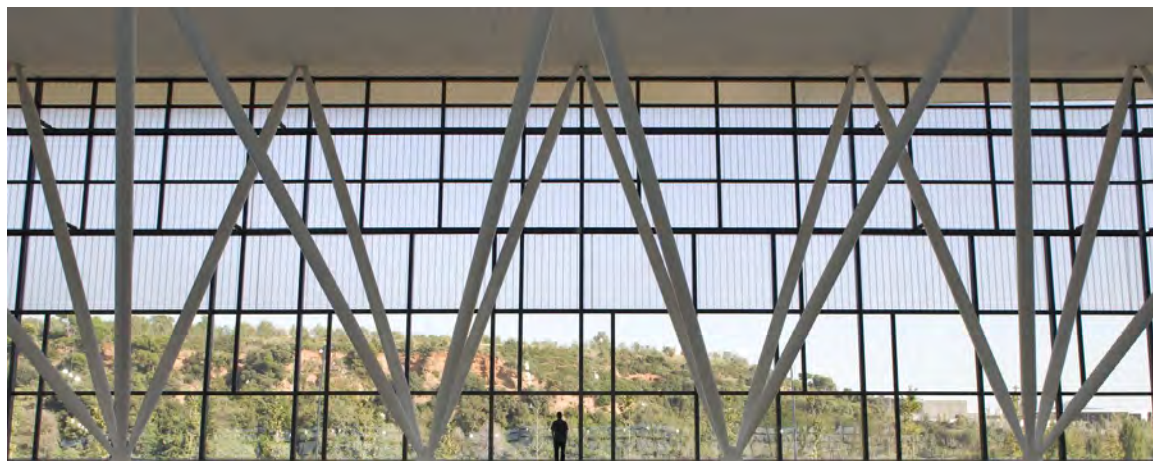


Athletics Stadium in Sabadell

Structural Design - STR

bis





ATHLETICS STADIUM IN SABADELL

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SABADELL - SPAIN

Details

Architect :	Corea Moran	Cost :	8.143.626 €
Developer :	Ayuntamiento de Sabadell	Area :	12.712 m²
Builder :	VIAS	Design :	2004 - 2006
Status :	Built	Construction :	2007 - 2010

Description

Located within a sports complex in the Sant Oleguer neighborhood, the stadium, with a seating capacity of 2,500 spectators, is the main feature of the complex and serves as a significant landmark for the city.

The large 11,000 m² roof unfolds following the site's topographical movement along both its transverse and longitudinal axes. It consists of a central, elevated trapezoidal body, connected at both ends to triangular wing-like planes. Despite its vast surface area, the structure was built without any structural expansion joints due to its complex geometry.

The central section reaches the largest dimensions, with a maximum span of approximately 50 meters, covering the entire width of the track and spectator stands. The transverse spans are covered with flat V-shaped lattice trusses made of rolled steel profiles. These elements have a maximum depth of 3.5 meters at the center, gradually decreasing to 1.5 meters where the support distances are shorter.

**Finalist at the Spanish Biennial of Architecture and Urbanism in 2011.
Winner of the 6th Vallès Architecture Exhibition.**

SPORTS



Esplugues Auditorium

Structural Design - STR

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Jardines de Velázquez 125 Residences

Structural Design - STR

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Catalana Occident Campus

Core & Shell

bis



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