



CASE STUDIES

We certify
sustainable building

We certify sustainable building

BREEAM CERTIFICATION, IN MRW OFFICES

The future headquarters of MRW, being executed by the Catalonia Building regional office of FCC Construcción in the business district of L'Hospitalet de Llobregat, has become the first BREEAM sustainability certified

elements of installations which have been implemented later in the construction phase, and many of them are rare or have interesting features in comparison to similar works that we are used to executing. The steps taken in each of the categories of BREEAM certification are described below:

each use, and for different users inside the building, separate electric meters are arranged for each floor switchbox, lifts, climate switchboxes, kitchen/dining switchboxes, plumbing switchboxes; and inside each switchbox at the outputs of more than 10 kW, such as a heat pump, steam humidifiers, air conditioners, etc. All these pieces of equipment, in addition to allowing local readings, are equipped with a communications platform that allows remote access from a website, with it being possible to view all consumption individually or jointly.



► Calorie counters have been installed for water heating and the production of solar energy, and an algorithm for calculating the HVAC energy generated for both cold and heat has been implemented.

► A lighting management system has been installed based on the DALI (communication) protocol. This management system allows controlling the status of the lighting fixtures individually, and depending on natural light, which is measured using an algorithm that receives data from a heliometer located on the building roof. The system software enables the status of all the building's lighting fixtures to be displayed at the site, grouping them into separate switch-ons, associating switch-ons to buttons that are directed individually, programming schedules, lamp fault detection, and regulating the slat opening placed in the facade to prevent glare and direct sunlight.

building in Spain with a rating of Excellent, the highest achieved in our country so far.

The BREEAM method (Building Research Establishment's Environmental Assessment Method), of assessing and certifying the sustainability of buildings intends to measure, evaluate, and assess the level of sustainability, in both the design phase as well as the implementation and maintenance phases, taking into account the characteristics of each of the main types of use. The environmental impact of buildings is assessed in 10 categories, and the score achieved determines the Project's certification.

The project in this case study includes a series of measures and

- All fluorescent lighting fixtures installed have electronic ballasts.
- The colour performance of light fixtures meets EN 12464-1:2002 and EN 12464-2:2007 standards, as it be indoor or outdoor.
- The building has been equipped with a complete automated control of lighting.
- Wood panels, decorative paints and varnishes and carpeted flooring have been selected so that they meet the relevant standards regarding emissions of volatile organic compounds (VOC).
- In order to control the independent consumption of

- ▶ To minimise water consumption, toilets have been installed with dual flush of 4.5/3 litres and waterless urinals. All fittings for public use are timed and have infrared activation with a flow limiting device.
- ▶ To detect anomalous consumption and adopt saving measures, general water meters have been installed for all networks, and also partial meters at the entrance of wet areas of the floors.
- ▶ Electro-valves have been installed in all the networks described above at the entrance of all wet areas, and flood detectors cutting the water supply in each of them in the event a leak is detected. In addition the management system can turn off the electro-valves on the basis of a timetable, when it is expected that wet areas individually are not in use or when the building as a whole is unoccupied.
- ▶ A system has been provided for collecting rainwater and other collection and treatment of grey water from sinks and showers, which will then be reused for irrigation of outdoor areas and the consumption of the building's toilets.
- ▶ To prevent spillage of substances such as fuels or oils, a hydrocarbon separator has been installed in the building's underground garage and a stainless steel grease separator in the kitchen-diner.
- ▶ 100% of the wood used in the work has been sourced legally.
- ▶ In the project drafting phase a Waste Management Study was prepared, based on the content established by the applicable legislation. In the initial phase

to the implementation of the work, a Waste Management Plan for construction and demolition (PGR) has been prepared, in which waste prevention and separation methods are detailed. FCC Construcción has decided to pay special attention to 3 key groups of waste, with greater reduction potential, such as excavated soil, prefabricated building systems (concrete) and easily-removable partitions (glass).

- ▶ 82.3% of the waste has been assessed as inert on site.
- ▶ To increase the site's ecological value, native plant species have been used or species with xerophytic tendencies and low water requirements, plant species have been planted that adapt well to urban areas, plant diversity has been promoted and systems have been installed allowing water savings, such as drip irrigation or the deck garden with rain tank, which collects rainwater.
- ▶ After the building, the ecological value of the site increased from 0.11 to 3.23 species.

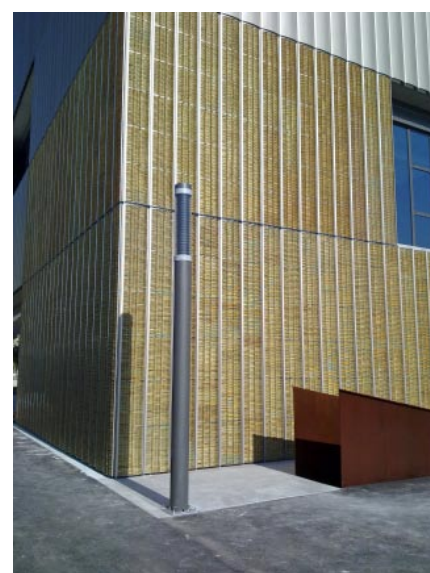
MRW, a brand committed to Social Responsibility, decided to certify its corporate headquarters for the sake of a strong commitment to sustainability; and its building up was entrusted to FCC Construcción, a company that is characterised by defining, recognising and promoting best practices in the market, identifying the most demanding requirements and actions, even stricter than legislation.

LEED CERTIFICATION IN THE PUERTO VENECIA SHOPPING CENTRE

The Aragon-Navarra regional office of FCC Construcción is currently executing the project of development of the shopping and leisure centre Venice Port Complex (Zaragoza), within the frame of the LEED certification method.

LEED (LEADERSHIP in ENERGY in ENVIRONMENTAL DESIGN) is a voluntary standard for sustainable building, which measures the level of respect for the environment and health of the buildings; it has been developed by the US Green Building Council (USGBC). LEED certificates are structured into five different categories, within which points are obtained for meeting the specific objectives, being able to get up to 100 points. Depending on the score achieved, the project gets one of four levels of certification: Certified, Silver, Gold or Platinum.

The LEED method has some prerequisites that must be performed in all cases and other requirements, the performance of which depends on the people involved, in both the design phase as well as the construction phase. To help achieve this certification, FCC Construcción has carried out the following



activities while executing the works:

- ▶ Earthmoving planning to be performed outside of the rainy season (October to April) and minimise potential soil erosion.
- ▶ Preventing erosion of embankments, through its restoration with topsoil and subsequent hydroseeding.
- ▶ Maintaining cleanliness of the roads adjacent to the work in order to prevent dust and



particles from the natural soil of the work settling on these roads.

- ▶ Irrigation of the works and roads adjacent to it to avoid or minimise dust and particle emissions, establishing a frequency of at least two irrigations a day in dry season.
- ▶ Creating a gravel area through which all work transportation drives through before joining the public road and access control, to ensure proper cleanliness of the access roads.
- ▶ Creating a specific area for washing truck tyres at the exit to the work, in order to avoid the existence of mud or dirt

on the road to the shopping centre adjacent to the work.

- ▶ Using locally-sourced aggregates, concrete, paving stones, slabs and curbs (extracted or manufactured within 800 miles from the work).
- ▶ Using certified wood flooring with FSC seal.
- ▶ Reusing material removed in digging trenches for filling, in order to minimise the resources used and waste generated and therefore air pollution associated with transport of materials and waste.

Many of these measures are traditionally performed in our works as a result of implementing FCC Construcción's Good Environmental Practices system, but voluntary certification is a step further; it implies a way to be visible and be a benchmark for professionals who, like us, believe that the words "construction" and "sustainable" should always go hand in hand.

