
Maritime works





Extensive experience

in maritime works

FCC has been carrying out numerous maritime works of great technical complexity, internationally for more than twenty years, building an extensive portfolio of projects in the port construction sector. This wealth of international experience has consolidated FCC as one of the most important reference companies in the world in this sector.

FCC Construcción has extensive experience in the construction of ports. We built the largest floating dock in the world in Monaco, the port of Igoumenitsa in Greece, the extension of the port of El Musel in Gijón, the marina of Sant Adrià del Besòs, the Olympic port of Barcelona and the solid bulk terminal in the port of Castellón toname a few.

FCC Construcción has carried out some of the most important projects in global maritime infrastructure, such as the port of Açú in Brazil and the expansion of the port of El Callao, in Peru.



Açu, Brazil

Açu Port

It is located 315 kilometers north of Rio de Janeiro. It is the third largest port in the world and the largest in America. This is a deep-water port with a total expected transport capacity of 350 million tons of cargo per year.

The project involves the construction of a 2438 meters vertical dyke, which was executed by manufacturing and anchoring of 49 reinforced concrete segments. One section of dike was also placed in the 600 meters long slope. The first 9 segments were manufactured in the Port of Algeciras and were transported to the site on semi-submersible barges.



El Musel, Spain

Extension of the port **El Musel**

Expansion of one of the main seaports on the Cantabrian coast, which is leading port in the solid bulk movement.

FCC completed the extension of the El Musel port that includes the construction of a sloped and some vertical dykes with a section with blocks weighing up to 200 tons. This engineering milestone involved anchoring segments in extreme marine conditions. The new dike has a total length of 3,867 meters.



Barcelona, Spain

Expansion of the east dock of the port of **Barcelona**

The work consists in the extension of the existing dike by 2,165 meters. For this, 450,000 cubic meters of material was placed on 50 tons concrete blocks to form the dike. The dike sits on a seabed with very low bearing capacity. This required the development of a construction sequence where the dredging and dumping rates were designed with a degree of control to optimise the land improvement strategy ensuring continuous stability during and after construction.



Las Palmas de Gran Canaria, Spain

Prolongation of the dock **Reina Sofia**

FCC has carried out the expansion works for the Reina Sofia dock; constructing an additional 487.46 meters from north to south. The extension is executed with 9 floating reinforced concrete caissons. As dike equipment 150-ton bollards were placed nominal draft, 1000 mm cylindrical fenders outside diameter and lighting of 14 meters height.



Monaco, Monaco

Monaco floating dock

This is the largest floating dock in the world. The dyke displaces 165,000 tons and is built with pre-stressed concrete in all three directions, forming a double helmet. Built on a dry dock in the Bay of Algeiras, the dock was then towed to its final location in Mónaco. The 100 year design life specification was achieved with one of FCC's in-house innovations; developing a new injection system that has since been patented by the company.

The projects main objective is to expand the "La Condamine" port and serve as protection to the docking area for tourist cruises.



El Callao, Peru

El Callao Port

This contract represents construction of one of the largest ports in the Pacific for a world renowned terminal operator. The project is for construction of a new port terminal, formed by a hinged steel piles and concrete decking. The brief also included the construction of container storage yards with pavements and associated buildings. The work required the staged delivery of the scheme in order to meet the milestone for the arrival of STS container cranes, and works accessories such as remodelling of pier 11 and the northern part of Pier 5.



Cádiz, Spain

Container terminal of the port of Cádiz

In this project we constructed a new container terminal of the Port of Cádiz. The terminal spreads an area of 22 hectares, with a dock length of 590 meters and a 320 meters protection dock.

This is a strategically important project for economic development associated with increased port activity in the City.



Igoumenitsa, Greece

New port of Igoumenitsa

This is one of the most important transport centres in Greece, dedicated to RoRo traffic, mainly to and from Italy. The project consists of 780 linear meters of dock intended to serve 12 ferries simultaneously. The structure of the pier is formed by 26 reinforced concrete caissons, manufactured in our floating dock of Mar del Teide.

Ground improvement techniques were employed; using gravel columns to counter high seismicity and loose terrain on site as well as backfilling the drawers with pumice to eliminate the resulting thrust.



Cocosolo, Panama

Cocosolo Container Terminal

The port consists of a pier set on driven, concrete piles braced with 616 meters long pre-stressed, reinforced concrete panels which form the container storage yard and accommodates nine permanent buildings.



Sevilla, Spain

Floodgate Port of Sevilla

The work involves the construction of a new lock, located on the Alfonso XIII canal, at the access to the dock of the Guadalquivir, of 434 meters of total length, with gravity walls. Prone to severe flooding, the lock protects the port from tidal surges. The lock is equip with four gates.

It is the only existing lock in Spain which can accommodate ocean vessels, with a total length of 293 meters and a 40 meters width, it facilitates access to port of ships up to 29,000 TPM.



Tarragona, Spain

Reus-Lerida pier.
Port of Tarragona
mobile bridge

The works were to join the Reus pier and the Tarragona port, using a mobile road bridge. The 51.5 meters bridge sections leave an 80 meters clear opening allowing passage of 70 meters wide ships.

There is a variable thickness, metal Caisson section and a metal orthotropic base with a tread layer of 0.8 cm thick. The project also comprised the extension of the docks and associated accesses.



Barcelona, Spain

Bascule bridge of Barcelona

The Bascule Bridge in Barcelona was constructed to establish a new land connection between the Poniente and Adosado docks of the Port.

The project is divided into two parts; the section of mobile bridge over the navigation channel built in structural steel and with special piles which house the actuators for the draw bridge; and the access viaducts that connect the base of the docks with the mobile bridge section. The bridge deck at 22 meters above sea level is actuated to enable larger ships to navigate the channel. The combined length of the marine works is 1,150 meters and the bridge is 12 meters wide.



Cantabria, Spain

Laredo Marina

The Laredo Marina is located in the north of Spain on Cantabrian coast. The project includes the design, construction and operation of the port for 40 years. On the 180,613 square meters area we have built a fishing dock and a water sports dock with access channels and new sports moorings.

These works have increased the port capacity to now dock 857 boats.



Islas Baleares, Spain

Adriano

Port extension

The works entailed the construction of a new dock in the port as well as series of other works in part of the existing port. The works involved enhancement of previous facilities and the number and size of the moorings offered, thus providing 82 new moorings for sports boats between 20 meters and 60 meters long. A series of commercial buildings including; workshops and new services facilities for port users were also built.

The caissons were built in the Port of Castellón and then towed to Mallorca.



Barcelona, Spain

Marina Sant Adrià del Besós

The Construction project for a new and modern port Sports in Sant Adrià, which included the execution of an 830 meters long dyke protection formed by floating, reinforced concrete blocks.

A bathing area was formed by the new infrastructure along with a paved, urbanised area with drinking water facilities, sanitation and drainage.

It represents an emblematic piece of infrastructure for the Port Forum.



Barcelona, Spain

Dock Juan Carlos I Olympic Port **Barcelona**

The works were completed with the construction of buildings complementary to the port, such as the reception building, the sailing school, and convention centre, along with parking facilities.

Constructed in an environmentally sensitive area, the port is protected by a dyke wall constructed using floating caissons.



Valencia, Spain

Communication channel construction Port of Valencia

The work consisted construction of a canal of approximately 600 meters long, 80 meters wide and 7 meter deep. Included within the canal construction is a 40 meters wide navigation channel. The canal has been built using walls with precast concrete blocks.

The channel allows departure of the boats from the interior dock by the north mouth. The works involve significant dredging and cleaning of aggregates complemented by a large backfilling operation.



Barcelona, Spain

Dock Adosado Port of **Barcelona**

The project entails extension of the pier Adosada 2B. The total pier length is 476 meters and it is 12 meters wide; that includes infrastructure for roll-on/roll-off use along a 60 meters section.

The project contemplates the extension of the later esplanade of the 2B Adosado pier in a length of about 480 meters, terminated by a closure perpendicular to the pier.



Mallorca, Spain

Mallorca Sports Club

The project transformed the Club de Mar Mallorca, it renovated the maritime of Palma at its end western opening up the port to the city. This project converted the Mar club into what is now the most modern Mediterranean port.

The project of the Club de Mar Mallorca is suggested to be the most important recreational facility in nautical in Spain.



Vigo, Spain

Port of Vigo fish market

The newly constructed fish market facilities in the Port of Vigo, has a total floor area of 16,609 squared meters. The scheme contains a rectangular building; a 27 meters diameter, salt water tank and, a ramp for vehicle access to the parking. The main building has three levels above ground that houses all the fish market facilities and office space. The project also included the demolition of the existing structures and renovation of 125 meters of the pier wall for the formation of two ramps.



Castellon, Spain

Solid bulk terminal pier south **Port of Castellon**

The project entails construction of the solid bulk terminal, superstructure and all facilities relevant to its operation, including the office building, maintenance building and the warehouse. The project also includes construction of a 500 meters dock, and a 60,000 squared meters platform for loading and unloading. The platform arrangement includes two 420 ton, 50 meters Gottwald-class cranes, each with 100 tons of lifting capacity.



Lanzarote, Spain

Extension of the **Playa Blanca** Port

The project involved increasing the surface area of the port of Playa Blanca to 75,000 squared meters. The area includes; 38,000 squared meters of sheltered water sheet and 37,000 squared meters of land.

This created a new maritime station, with commercial area, as well as with new apron which will provide new boarding and parking areas.



La Palma, Spain

Santa Cruz de La Palma

coastline

A sandy beach was created with sand attained from dredging in the northern part of the island.

The purpose of the project is to create a new beach in front of Santa Cruz de La Palma, to respond to the existing demand in the city and improve the protection to the waterfront.



Barcelona, Spain

LNG Tanks **ENAGAS** plant

The project brief was to construct four, total containment, liquefied gas storage tanks with a storage capacity of 150,000 cubic meters each. With this system each tank is built by an inner steel, cryogenic tank, and an outer envelope of steel and pre-stressed concrete. The tanks contain foam glass and perlite insulation necessary to moderate the Liquefied Natural Gas temperature.

Denia - Ibiza

Submarine pipeline

The work involves creating landings for the underwater pipes in Denia, Ibiza and Mallorca. This forms part of the natural gas project in the Balearic Islands in line with the energy model advocated by the European Union.



Denia - Ibiza, Spain



Islas Baleares, Spain

Hydraulic exploitation Tramontana

The work involves building infrastructure for the water collection from the Verger sea front, and that of the surpluses of Torrente Major de Sóller. It also included connection to the supply networks of the urban centers from Sóller, Bunyola, Palmanyola and Palma from Mallorca. The water once collected it is transported by a 9,670 meters long, submerged pipe.



Tahkoluoto, Finland

Liquefied Natural Gas (LNG) Storage tank

Construction of an LNG storage tank at the port of Tahkoluoto, Pöri, on the west coast of Finland. The new terminal has a storage capacity of 30,000 cubic meters. Developed the engineering and design of the tank, as well as the procurement of materials and the construction and commissioning of the tank and all ancillary facilities necessary for the operation of the terminal.



Tarragona, Spain

Baleares Moll

The Moll de Balears is the new port infrastructure of Tarragona Port. It consists of 11 concrete caissons, built by the floating dock Mar del Aneto, owned by FCC. During dredging, 600,000 cubic meters of earth were used to fill the dock. The new dock is 40,000 square meters in size, and has a cruise ship mooring line of 700 meters. It has the capacity to receive 4 cruise ships simultaneously, one of the largest in the world.



Ibiza, Spain

Botafoc dyke protection works

This project was completed in record time. The damages detected in the dike have been repaired. Six-ton blocks have been repositioned and a 1.5-ton breakwater has been poured to give continuity to the slope of the filter formed by the previous blocks.

WE ARE FCC



More than 1,000 kilometers of tunnels



More than 10,000 kilometers of highways



More than 3,500 kilometers of railways (1,500 kilometers of high speed and 450 kilometers of metro)



More than 5,500,000 square meters of airport runways



More than 2,500,000 square meters of airport terminals



60 kilometers of dykes and 50 kilometers of docks



130,000 homes built
More than 40 million square meters of non-residential building



More than 3,000 kilometers of gas and oil pipelines



More than 20,000 kilometers of water pipe



More than 110 water treatment plants



www.fcc.es
www.fcco.es



Avd. Camino de Santiago, 40
28050 Madrid, Spain
Phone: +34 91 757 38 03/04
Fax: +34 757 38 25/26