



**PROGRESS: 100% - COMPLETED**  
POLAND

## PIONEERING SUSTAINABILITY



### WFOŚiGW Koszalin branch offices

**Author:** Piotr Kołek

**PORR has built a model low-energy building in Koszalin for the Polish Regional Fund for Environmental Protection and Water Management.**

The new building boasts state of the art technologies and techniques to keep energy consumption to a minimum: from solar panels, wind turbines, a double façade and vertical gardens right through to an efficient building management system.

### Overview

Koszalin is one of the biggest cities in the Polish province of Western Pomerania, second only to Szczecin. Here in Koszalin, at the end of 2017, PORR was awarded the contract to design and build the new branch office for the Regional Fund for Environmental Protection and Water Management (WFOŚiGW). In addition to building the new office block, PORR's contract included all planning services and demolishing an existing building.

The WFOŚiGW were particularly keen to emphasise sustainability. Their ambitious goal was to use the new branch as a model low-energy building by incorporating renewable energy sources and environmentally friendly materials. The external evidence of this pioneering accomplishment is the sought-after BREEAM certification at either the "Very good" or "Excellent" level. The certification process is in progress.

### Project data

<b>Employer</b>	Regional Fund for Environmental Protection and Water Management (WFOŚiGW)
<b>Contractor</b>	PORR S.A.
<b>Architect</b>	PIG ARCHITEKCI Sp. z o o.
<b>Order type</b>	Building construction. Office building
<b>Project scope</b>	To design and build a branch office building for the Regional Fund for Environmental Protection and Water Management (WFOŚiGW)
<b>Order volume</b>	4.5 million euros (PLN 19 million)
<b>Construction start</b>	12/2017
<b>Construction end</b>	02/2019

### Challenging circumstances

Construction work began in December 2017 and continued for 15 months. In this time, PORR built a four-storey block plus a basement level. The building has a cubic volume of 12,515m<sup>3</sup> and gross floor area of 3,103m<sup>2</sup>. Major challenges resulted from the position of the construction site in central Koszalin: nearby schools and offices generated a lot of foot and vehicle traffic, which made conditions tricky for site traffic.

Despite these difficult circumstances, the work was carried out on schedule. PORR handed the property over to the client in February 2019, confident that the building, with its state of the art technologies, renewable energy sources and environmentally friendly building materials, is a showcase for sustainability far beyond the borders of the province.



The new WFOŚiGW branch offers the first publicly accessible filling stations for electric cars in Koszalin. Source: PORR

### Sustainable to the core

Solar panels and a wind turbine have been installed on the roof of the new branch office to provide the building's energy supply. Any excess energy is used for the direct hot water supply. For heating and cooling, a heat pump has been installed; this not only considerably reduces the need for conventional fuels but also yields significant cost savings. It works through 13 deep drillings, extending as far down as 100m.



Several photovoltaic modules and a wind turbine on the roof provide clean electricity. Source: PORR



*A BUILDING MANAGEMENT SYSTEM CONTINUOUSLY MONITORS THE ENVIRONMENTAL CONDITIONS AND ENSURES THAT THE BUILDING TECHNOLOGY SYSTEMS ARE MANAGED AS EFFECTIVELY AS POSSIBLE.*

*Piotr Kofek*  
**Construction manager, PORR S.A.**

### Technical data



**3,103m<sup>2</sup>**

Gross floor area

**17.1m**

Building height

<b>Site area</b> .....	1,530m <sup>2</sup>
<b>Office volume</b> .....	12,515m <sup>3</sup>
<b>Parking spaces</b> .....	24 + 8

A building management system continuously monitors environmental conditions and ensures that the building technology systems are managed as effectively as possible – for example, CO<sub>2</sub> concentration and air humidity are measured in the indoor areas to calculate air quality, and the ventilation and air-conditioning systems are adjusted accordingly.

The façade has been built as a double-skin façade, with two surfaces 60cm apart. In winter, the gap acts as a heat buffer and keeps warm air in, while in summer it becomes a vent and directs warm air away from the interior spaces. A cross-ventilation system is also operated through this double-skin façade, reducing temperatures in the office spaces and facilitating air exchange. In addition to these temperature-balancing effects, the façade also provides sound insulation.

The reinforced concrete structure includes thermal component activation: a heating and cooling system in which pipes have been laid in the ceilings and warm or cold water flows through them as needed. This exploits the heat storage mass of the solid building elements to help regulate the temperature.

A vertical garden has been installed in the main atrium: a 15m high green wall with 2,100 different plants. This acts as an effective air filter, temperature regulator and sound insulator.

The basement houses a smart waste management system, which uses sensors to display real-time information about how full the containers are and when they need emptying.

Finally, the new WFOŚiGW branch office also boasts the first publicly accessible electric vehicle charging station in Koszalin.



A 15m high vertical garden provides a perfect indoor climate.  
Source: PORR



*THE VERTICAL GARDEN IN THE MAIN ATRIUM IS AN EFFECTIVE AIR FILTER, TEMPERATURE REGULATOR AND SOUND INSULATOR.*

*Piotr Kołek*  
**Construction manager, PORR S.A.**

### Summary

The PORR-built office block has been in use since May 2019 by the Polish Regional Fund for Environmental Protection and Water Management. The technologies used make it much more than just a headquarters for the Fund – it is a visible expression of the Fund’s mission: environmental protection.