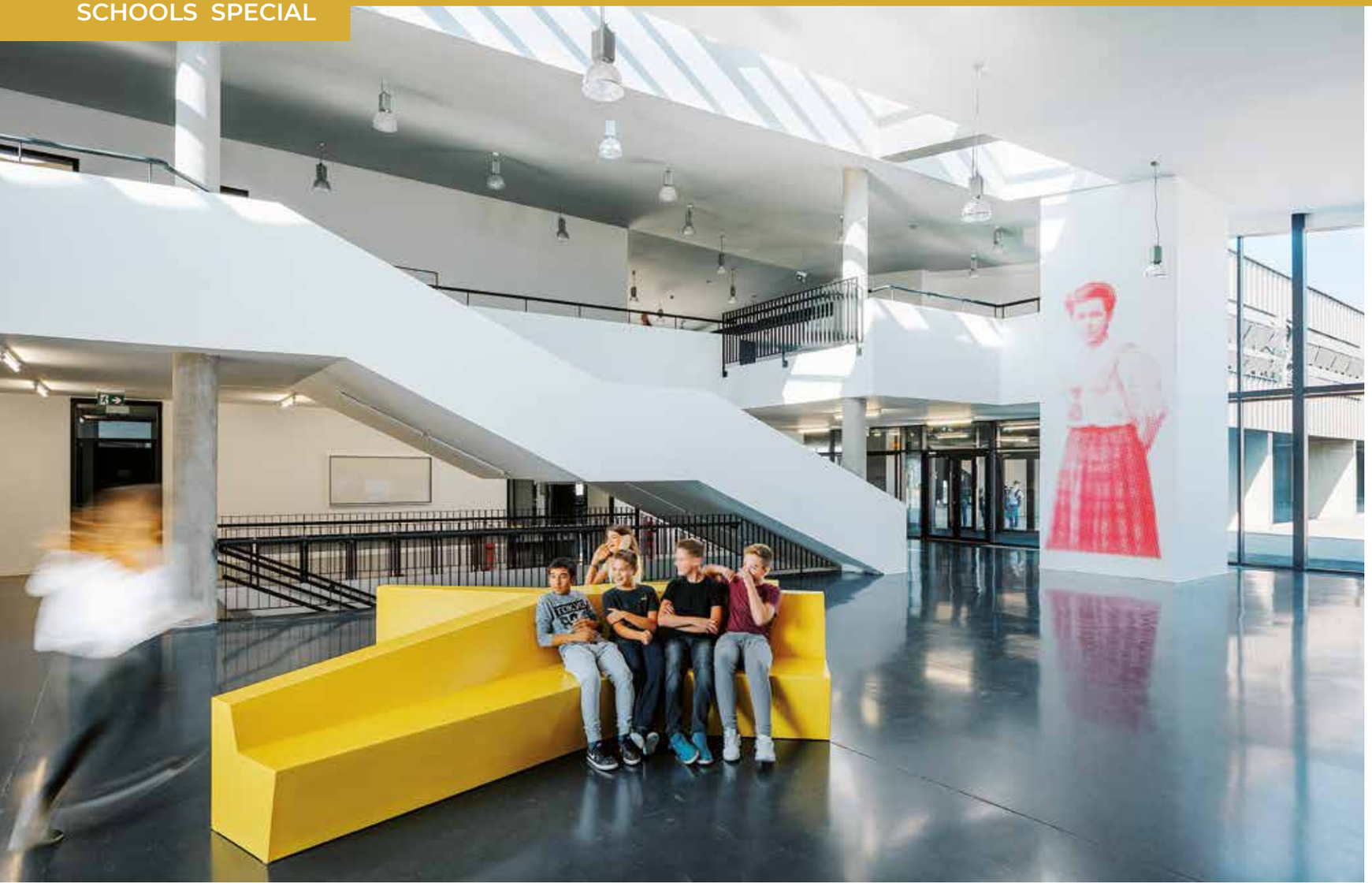

Popovača (Croatia)

Zorka Sever Primary School

WORKING BELOW GROUND LEVEL IN A SCHOOL LOCATED NEAR A WATERCOURSE

In Popovača, a town in the north-east of Croatia, the new Zorka Sever primary school opened in 2019. It was built in an area on the edge of the town characterised by fields and family homes. Apart from the classrooms and services normally found in a school, the complex also has a sports centre and outdoor playing fields which are used by both the pupils of the school and local sports associations.
The entire structure extends over a 8,000 m² area and was built near a river where the water flows with a constant depth of around 1 m. This proved to be quite a challenging problem for the contractor because the ground and foundations had to be waterproofed using a quick and simple system which would last over the years.
The project proved to be so innovative and successful that was nominated for the prestigious international Mies van der Rohe and Piranesi architectural awards. It also won the Viktor Kovačić Award 2018, awarded by the Association of Croatian Architects, as a case of successful achievement in architectural creativity.

ABOVE. In Popovača, a town in the north-east of Croatia, a new primary school was completed with an award-winning design.
RIGHT. Apart from the classrooms and services, the complex also encloses a sports centre and outdoor playing fields.

ABOVE. MAPEPLAN UG waterproofing membrane was used to waterproof the foundations.

Safe waterproofing of the foundations

Mapei Croatia d.o.o.'s Technical Services was asked to carry out a survey of the site and proposed the application of a system of waterproofing membranes manufactured by Polyglass, a subsidiary of the Mapei Group.

MAPEPLAN UG waterproofing membrane was proposed as the solution to waterproof the foundations. This is a single layer colour geomembrane with an orange signal layer. It can be applied as a water barrier in tunnels and underground constructions of any type and is available in various thickness (15, 30 and 20 cm) and a standard 20 m length.

A base layer of concrete was first created, over which a layer of POLYDREN PP was applied, a non-woven geotextile to be used as compensation, levelling, protection and filter layer. MAPEPLAN UG was then applied over this layer with overlaps of at least 10 cm between adjacent sheets. Particular sections of the areas to be waterproofed were finished off using MAPEPLAN D 15 unreinforced synthetic waterproofing membrane manufactured from plasticized polyvinyl chloride PVC-P, produced in a multi-extrusion process, with high quality raw materials.

A section of MAPEPLAN D 15 at a height of 5 cm above the level of the finished floor was fixed with MAPEPLAN METAL SHEET.

For waterproofing the pillars, joints and masonry of the foundations, it was recommended to use PLANISEAL 88 osmotic cementitious mortar, which was applied in three layers over the surface, with a pause of several hours between each coat to avoid capillary rising damp affecting the wall.

Find out more PLANISEAL 88

TECHNICAL DATA
Zorka Sever primary school, Popovača (Croatia)
Year of construction: 2013-2018
Period of the Mapei intervention: 2014
Intervention by Mapei: supplying products for waterproofing foundation walls and structural elements
Owner: Popovača City Council
Design: XYZ arhitektura d.o.o.
Works direction: Arhingtrade d.o.o.
Main contractor: Gradnja d.o.o.
Waterproofing contractor: Izolacija d.o.o.
Mapei coordinator: Fausto Ferlin, Mapei Croatia d.o.o.
Photos: Marko Mihaljević

MAPEI PRODUCTS
Waterproofing foundations: Planiseal 88
Sealing joints: Mapeflex PU 45 FT

POLYGLASS PRODUCTS
Waterproofing foundations: Polydren PP, Mapeplan UG, Mapeplan Metal Sheet, Mapeplan D 15

For further info on products visit mapei.com and polyglass.com

School architecture: a laboratory of innovation

WE SPOKE WITH THE AWARD-WINNING CROATIAN ARCHITECTS MIA ROTH ČERINA AND TONČI ČERINA, XYZ ARHITEKTURA AND ROTH & ČERINA

What does designing a school involve in the year 2020, in Croatia in particular? Are the buildings mainly single-block structures with a corridor-classroom layout or is a good percentage of the buildings based around more modern principles?

School architecture has ideally been the forerunner of new tendencies, but the spatial organization is not necessarily the carrier of innovation. In quite a number of projects and sites, it is the in-between space which embodies progressive ambitions. Many examples of recent school architecture in Croatia are proof that school architecture is a continuous laboratory of innovation projected towards the future.

A primary school like Zorka Sever is attended by children aged between 6-11 years. How have you tackled problems associated with children of such a wide age range during this important stage in their school education?

The Croatian elementary school system combines children from 6 to 14, and addressing this range was an important aspect of the design. The school sits on two volumes, one housing public spaces and lower classes, the other housing sports areas. They are bridged by an upper floor containing higher classes, spanning both volumes, and the heterogeneous design is enveloped by a common pitched roof. The classrooms of younger children are assembled in a cluster of their own, under the roof's lowest height, so when the children go out of their ground-floor classrooms, the volume of the school seems connected to the surrounding houses, close to the rural matrix of the local community. Interiors extend towards the botanical garden in a protected environment. The older children, whose classrooms are located on the upper floor, enjoy the atmosphere of a busy street, with views towards the outside and the communal spaces.

Waterproofing was carried out using Polyglass solutions. How important is it for an architectural designer to have a good understanding of the building materials available on the market and to actually test them out in person?

The materialization of an idea is an integral part of the design process and being familiar with the materials and details which will embody both its functions and strengths is crucial. The right materials underline the basic concepts behind a project. In the case of a school, the materials embody many properties – durability, character, comfort – and this is even more crucial in the larger spaces such as communal spaces or classroom floors.

The Zorka Sever school project has been nominated by panels of judges for international prizes, such as the Mies van der Rohe Award, and won the Viktor Kovacic Award. In your opinion, what is it about your project that has caught the eye of these panels of judges?

Architects always give their best possible answer to a program, so it is difficult to speak from a jury's point of view. The award and nomination explanations mentioned the strong sense of place created, connecting local values with a contemporary idea of school, the new identity the project brought to the neighbourhood, the multiple ambiances that users could readily exploit.