A NATURAL HABITAT

Sustainability and natural materials are the key to the design of a Swiss elementary school that encourages learning through flexible spaces and views of nature. Irena Barker explored.

The small Swiss town of Port, with its neat buildings and sloping roofs, is surrounded by the gentle hills of the Jura.

Fresh air is plentiful and nature is never far away, making it a good place to grow up and learn.

This was all at the forefront of architects' minds when they were asked to design a new kindergarten and elementary school for the town. It would replace tired temporary wooden buildings that had been in use since the 1960s.

The architects from the Zurich-based Skop studio were determined to make their mark with an aesthetically pleasing, ecological design built from natural materials that would complement the surrounding countryside.

And they didn't disappoint in what was the first ever project for the studio.

The school is futuristic – with its roof of solar panels and tight geometric design - but its wooden façade and modest height means it fits in with the natural landscape.

As it hugs the gentle slope of the plot, the jagged roof of the building both blends in with the sloping roofs of the surrounding houses and stands out as an outstanding piece of contemporary design.

The partially pre-fabricated school brings 280 kindergarten and elementary school children under one roof, with each of the nine classrooms benefiting from large windows on two sides.

"The main idea was to bring the school under one roof," says architect Basil Spiess, co-founder of Skop.

"We decided to limit ourselves to only two storeys to fit in with the surrounding family houses but this meant a larger building footprint.

"We had this zigzag layout to make it work in the space, but that also had the advantage of classrooms having two outside walls that get light from two sides."

Each classroom also benefits from the interesting zigzag of the roof geometry, which can be seen from the inside too.

"It's a design decision that makes each classroom more like a little house," says Spiess.

But this cosiness is not at the expense of fluidity and flexibility in the main school classrooms and three kindergarten spaces which take up the upper floor of the school building.

"Bringing all the main teaching rooms on one level is a big advantage for a school because it allows a very fluid interaction between different rooms and circulation zones and they also use all those spaces very actively. You don't have to go to another level," says Spiess.

Other aspects of the school, such as the administrative offices, workshops and school kitchen are on the lower floor.

Parts of this have been nestled into the natural slope of the land, using concrete construction where the walls meet the earth.

Free circulation zones through the school encourage all kinds of learning - from solo study to group work. There are inviting staircases for pupils to colonise and space to move around. Classrooms are also connected to each other through large doors.

Floor-to-ceiling magnetic chalkboard walls encourage the spontaneous display of work and allow children to express their ideas and workings.

Spiess explains: "We thought it would be nice alongside this digital world to bring back the old blackboard world to the school - they can use them spontaneously.

"We thought it would be a shame to say to children 'Well don't touch these walls', we wanted a proactive approach and say 'Those walls are open for everybody'.

"It's good to teach the digital methods but sometimes the easiest way is out from your brain directly into your arm and onto the wall."

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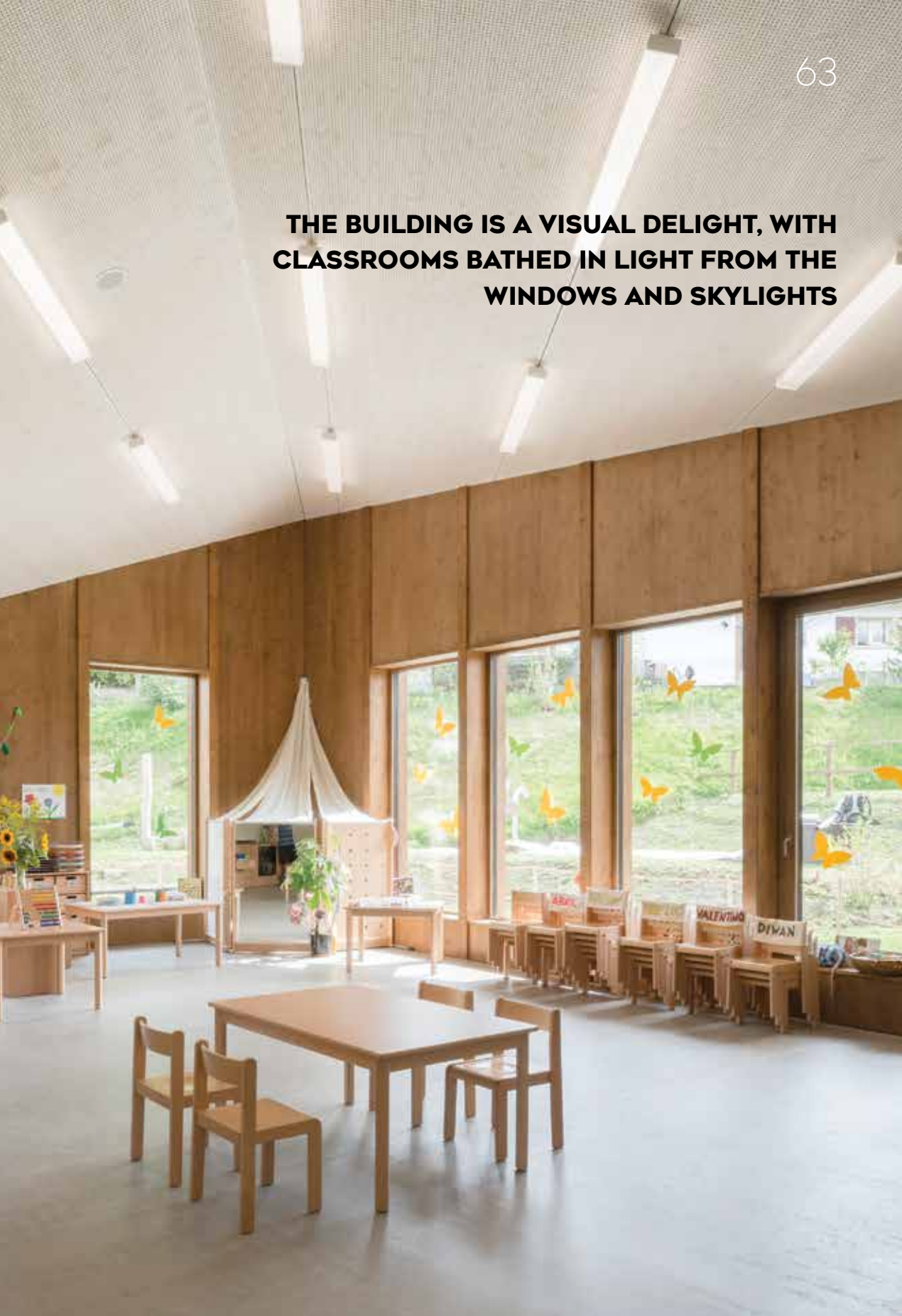
FREE CIRCULATION ZONES THROUGH THE SCHOOL ENCOURAGE ALL KINDS OF LEARNING



THE BUILDING IS A VISUAL DELIGHT, WITH CLASSROOMS BATHED IN LIGHT FROM THE WINDOWS AND SKYLIGHTS

One really striking aspect of the school from the outside is the solar panels across the entire roof.

Designers had originally envisaged a living "green" roof to create habitats for small creatures, but the town council was so taken with a plan to include solar panels in the design it asked for the whole roof to be covered.

The panels are rented out to individuals in the area and the school now produces enough power to cover its own use and that of 50 domestic homes. The school itself is also highly energy saving with an energy efficient ventilation system.

The school is also in keeping with the trend to pre-fabricate many new school buildings. In the case of Port, the main wooden structure was created off-site, with the somewhat complicated segments winched into place. Other aspects of the school, including the concrete sections, were constructed on-site.

However, the decision to pre-fabricate didn't save time as the architects had hoped. The school took the standard two years to build, opening in summer 2017.

"We had hoped for a shorter construction period and the prefabrication was done very fast but you need a lot of precision to put them in place on-site because our geometry was a bit complex; they needed much more time to put the elements in place," says Spiess.

The result though, is certainly stylish. The building is a visual delight, with classrooms bathed in light from the windows and skylights illuminating the building's interior.

The Skop studio believes strongly in using natural materials where possible, and the building design means children are never far from nature.

Neuroscientific research has suggested that by being surrounded by natural materials with imperfections, people are more likely to be creative.

In his 2016 report *The Neuroscience of Classrooms*, commissioned by Spaceoasis, Dr Tim Holmes, director of research and development at Acuity Intelligence Ltd, writes that using natural materials in areas where students are required to design and make things is beneficial.

He writes: "The natural imperfections in the materials will prime students to focus less on perfection and precision, and to be more innovative in their approach to experimentation and reinforce a general principle…that problem solving requires the making of mistakes."

Research is emerging all the time, too, about how humans are "hardwired" to be happier and more relaxed when surrounded by nature – making easy access to the outdoors a prerequisite for optimal learning.

Elsewhere in the school, architects have shown great attention to detail.

Even the toilets – a place often neglected by designers – have not escaped thought.

"We were interested in giving a certain respect to every room," says Spiess.

"We thought it would be a shame if the toilet wasn't treated the same way.

"Of course you don't spend much time there but we wanted a very high quality atmosphere there."

The washrooms benefit from natural light from skylights, the interesting geometry of the ceiling and bright colours.

"In the other rooms we restricted ourselves to natural colours," says Spiess.

"The woods and natural cement of the floor were enough because we thought the kids would bring enough colour, some drawings, for example.

"The normal classrooms are quiet in terms of decoration because the geometry is already exaggerated."

But the toilets were a chance to go to town on colour – since it didn't matter hugely if it was to users' tastes or not - so they could experiment.

"We thought it would be nice to question a bit gender colour norms so we suggested for the boys a purple colour and for the girls a blue colour but this was rejected by teachers," laughs Spiess.

As Skop's first project, the school has been a learning experience – and a successful one.

Spiess says: "We were always looking for a strong design that answers many questions with one solution and it's always difficult to get there.

"But I think we succeeded because the design was never questioned – we won the competition [to design it] and we were able to build it the way we designed it for the competition.

"Of course it's a very stiff geometry but it answered the questions of the school very well.

"They were looking for an open layout, it's a democratic structure, with a lot of flexibility and we were looking for a coherent structure.

"But at the same time we learnt that it doesn't make sense to be too dogmatic and we were always looking to have conversations and discussions with the people who use the building.

"It's has a strong design intent but it's also very pragmatic."