VELUX®

# 56 SUNS

## Multi-Purpose Hall in Klaus, Austria

# THE BUILDING

In year 2001 Dietrich | Untertrifaller Architekten won a competition for a school building for the municipality of Klaus in Vorarlberg, Austria. A modern, ecological building with classrooms was connected via a library wing to an old sports hall. A sunny, slightly sloped green schoolyard with a view towards the alps is located on the north side of the wings. A walkway under the cantilevered library tract connects the school entrance with the sports hall and allows for outdoor activities on rainy days.

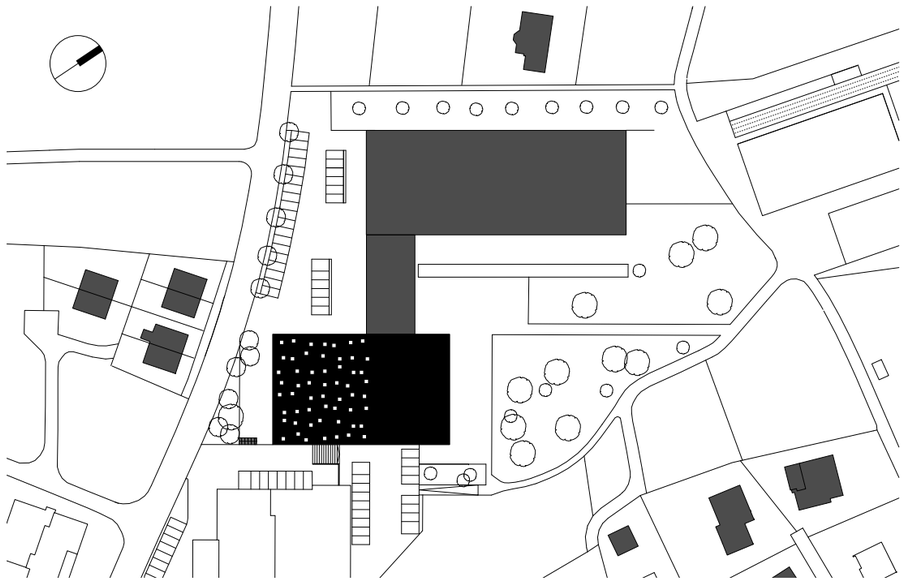
In the second phase of the project, twelve years later, the office was commissioned to refurbish the sport facilities. A brief analysis showed that not only the structure, but also the functions of the old sports hall with swimming pool were outdated, and its best to replace them with a new building.

Currently the volume houses a large playing field with tribunes and a separate room for dance and a multi-function area, where midday care service for schoolchildren, various kinds of meetings and even lessons can take place.

The architects decided to plan the extension according to the design principles that prove to be successful in the first project phase. Simple volumes with wooden structure and claddings open up to the sunlight through the roofs. All load-bearing concrete walls and stairs are visible.

A rectangular volume is accessible from two levels, following the terrain: the entrance under the library wing leads to an open ground floor, while another one on the opposite side accesses directly the upper floor with open space, where a variety of tables invites various user groups.

Both double-height sport rooms are accessed through the underground level, where also wardrobes, technical facilities and storage are located.



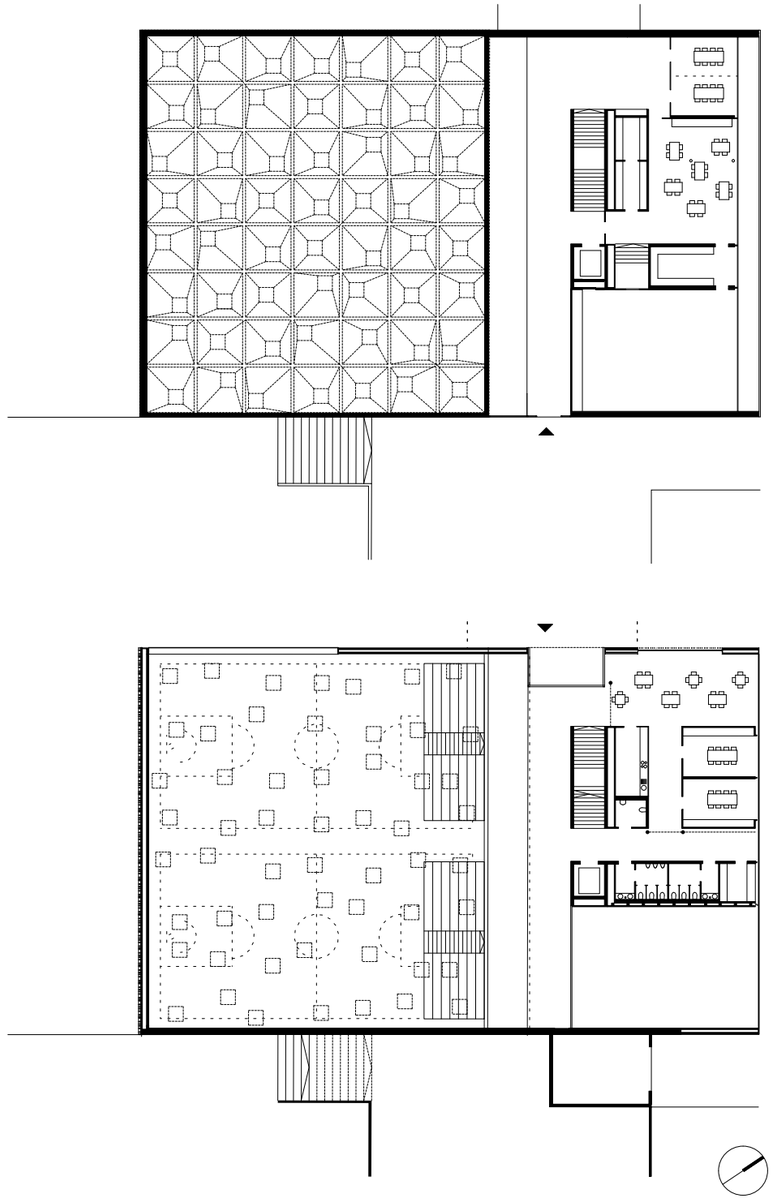
Site plan. dgfgh

"We often design both with horizontal and zenithal openings in rooms, as we appreciate the quality lying in the combination of both kinds of light."

Peter Nussbaumer, architect at Dietrich | Untertrifaller Architekten

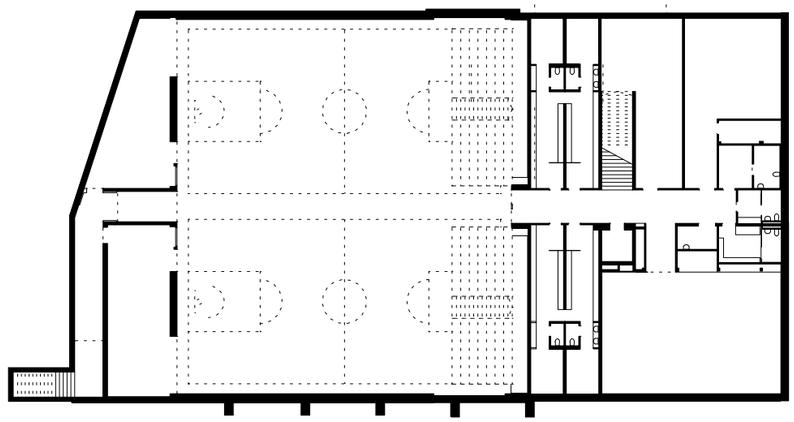
"My favourite place in the building is the multi-function area just at the entrance. At midday, the children are playing under a big skylight, on the right the space opens towards the playground, its floor adorned with an array of sunny spots."

Peter Nussbaumer, architect at Dietrich | Untertrifaller Architekten



First floor. The entrance from the elevated plaza leads to a mezzanine overlooking the lower level and allowing a glimpse of the sports hall – a full view is not possible because of the 3 meters roof openings. A retractable wall allowing for the division of the hall into separate fields is hidden in the height of the structure. The floor houses an open multi-function area and a room with a retractable wall. This space is used by a local musical society for rehearsals.

Ground floor. The entrance from the north-west underneath the library wing leads directly to a lively area, where children spend their lunch breaks and play. A difference in colour underlines the two different functions within the building.



Underground floor. A corridor through the middle of the building grants access to the hall and smaller sports room, wardrobes, showers and other facilities. The footprint is bigger than in the overground levels – additional space behind the playfield gives space to storage, sports team gathering, as well as leads to an extra stair leading outdoors.

"The materials in the building are handled in a very straight-forward way: wooden structure is clad with wood, where needed, while all concrete elements stay visible."

Dietrich | Untertrifaller Architekten

# LIGHT FROM ALL DIRECTIONS

Both buildings, the school and the sports hall, proof that high-quality architecture can be resource-friendly and economical. Many elements could be prefabricated to minimize the cost and usage of material.

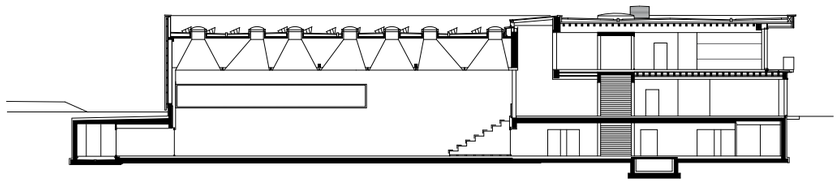
The ceiling of the sports hall, playful and irregular at first glance, consists of prefabricated units: "pyramides" with a flat roof VELUX window with dome cover on top. Four types with different tilt angle were produced: careful placement and rotation of the elements created an effect of a playfully irregular ceiling.

Architects decided to use standard windows with electric sun shutters. No element was modified, even the usual white frame, commonly used in industrial buildings, was left untouched. Thanks to positioning on top of the light shaft and careful detailing only the glazing is visible from the inside.

"We intended to do a design with optimal light conditions. As sport grounds call for even lightning, we decided to use roof windows, like we did in the school building. The contrast between the sober volume and the play of sunrays inside is very pleasing to the eye – next to being most suitable for indoor sports activities."

Peter Nussbaumer, architect at Dietrich | Untertrifaller Architekten

The use of roof windows had, in the eyes of the architects, also psychological advantages. They perceive a sports hall as a place, where the players focus on the game, and do not wish for any distractions from the outside world. A closed wall also protects the exercising people from curious glances of passers-by and allows for mounting of sports equipment like a basketball hoop.



Longitudal section through the sports hall, mezzanine and multi-function rooms. VELUX windows on top of each "light shaft" are not the only roof openings in the building: the double-height area connecting both sides of the buildings features a generous glazing. There is also a roof window – also a smoke outlet in case of fire – above the staircase.

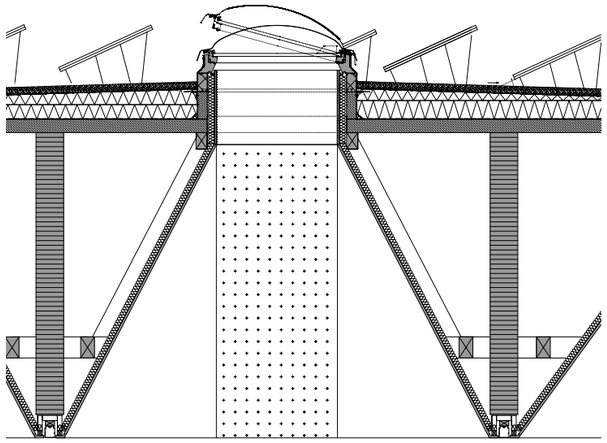
# DETAILS

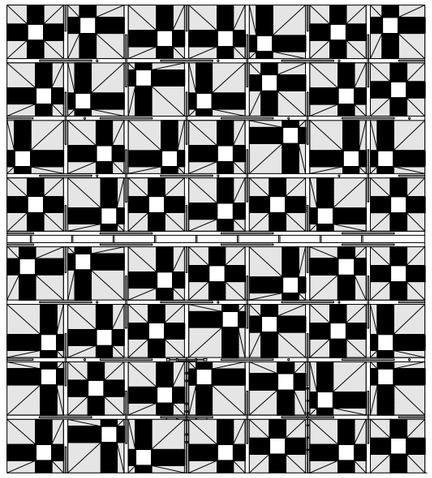
Prefabrication of light shafts was a crucial element in ensuring a precise detailing, both indoors as well as on the roof surface. After the wooden frames had been brought to the site and mounted, it took only a couple of days to insert VELUX windows and add insulation layers. Roofer company prepared two types of pre-cut rubber sheets, which speeded up the work at the construction site as well as allowed for absolute precision – crucial for minimizing the risk of water leaks. On the roof, between the windows, an array of solar panels was mounted.

Each of the 56 light shafts is cladded on the inside with noise protection panels. They enhance the acoustics of the room even further beyond the positive impact of the ceiling's geometry. Artificial light, mounted between the elements, underlines rigid geometry of the structure. The windows are equipped with rain sensors and sun protection.

"An element repeated 56 times should be designed precisely. It makes things easier at the construction site, as it gives an all-over construction solution."

Peter Nussbaumer, architect at Dietrich | Untertrifaller Architekten





Detail of a light shaft. At the top, VELUX curved glass rooflight is installed. High quality connections allowed for seamless integration of a standard product into a demanding design. On the right an overview plan of the ceiling, showing the acoustic panel fields and the ones of plain plywood.

# PROJECT DATA

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| Location: | Klaus, Austria |
| Competition: | 2001 |
| Construction: | 2013-2014 (multi-purpose hall) / 2002-2003 (school) |
| Area multi-purpose hall: | 2.440 m² |
| Capacity: | 250 students / 600 guests |
| Client: | Gemeinde Klaus |
| Architecture: | Dietrich \| Untertrifaller Architekten |
| Project Leaders: | Peter Nußbaumer, Isabella Pfeiffer |
| Structural engineer: | DI Kurt Pock, Klagenfurt |
| | |
| Photos: | Adam Mork, Patricia Weisskirchner |

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