



### Site and Design

Kunsthau Bregenz, under construction from 1994 to 1997 and opened in 1997, was designed by the Swiss architect Peter Zumthor. Peter Zumthor's buildings always address the site where they are located. Although a free-standing building, Kunsthau Bregenz integrates with the existing row of public buildings and interacts with its environment – water, light, and civic life.

### Façade

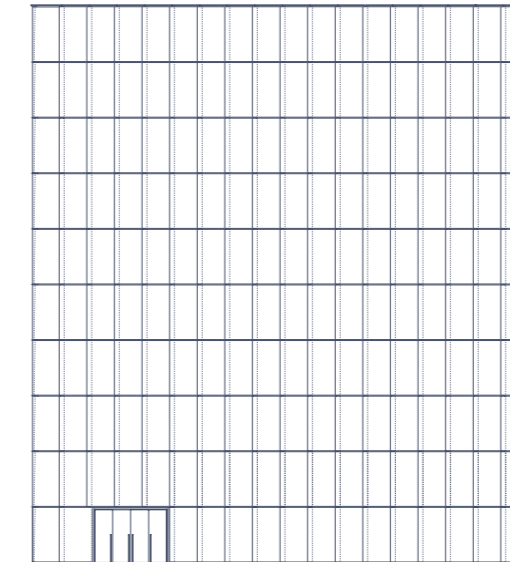
The glass façade of the Kunsthau confers the large architectural structure with a transparent lightness. It also acts as a weatherproof membrane and is an essential component of the building's lighting system. The 712 panels of etched glass, each 1.72 × 2.93 m, absorb the changing light of the sky, filter it, and guide it into the building's various levels. The façade is self-supporting, structurally independent of the actual building – it envelops the free-standing concrete structure like a double casing: a steel truss framework accommodating both the glass panels on the outside and the thermal façade on the inside. There is a 90 cm gap between the exterior and interior glazing, a space equipped with four lift cabins enabling maintenance and servicing of the façade, as well as spotlights that illuminate the Kunsthau at night.



### Administration Building, KUB Café Bar, and KUB Square

On the side facing the town, the Kunsthau is complemented by an administration building of black pigmented concrete, which was conceived as an autonomous structure. This smaller building creates a transition to the lower buildings of the old town and accommodates all the Kunsthau's ancillary facilities, so that the latter can be exclusively reserved for the presentation of exhibitions. In addition to the offices located on the two upper floors, the KUB Café Bar is situated within the ground floor of the administration building, which was expanded in 2013, based on a design by Peter Zumthor, to incorporate a space previously used as a museum shop. By positioning the building at a right angle to Kornmarktplatz, an urban space was created that is open to the town and, in the KUB Café Bar, integrates the Kunsthau into civic life and is used for events accompanying exhibitions.

## Kunsthau Bregenz Architecture



**Architect**  
Peter Zumthor  
\*1943 in Basel, Switzerland

**Buildings (selection)**  
1996 Therme Vals  
1997 Kunsthau Bregenz  
2007 Bruder Klaus Feldkapelle, Wachendorf  
2007 Kolumba, Cologne  
2011 Steilneset Memorial, Vardo  
2016 and ongoing, Extension Building for Fondation Beyeler, Riehen

**Prizes (selection)**  
1998 Mies van der Rohe Award for European Architecture for Kunsthau Bregenz  
2008 Praemium Imperiale  
2009 Pritzker Architecture Prize  
2010 Tageslicht Award

### Kunsthau Bregenz

26.57 × 26.57 × 30 m  
28,000 m<sup>3</sup> enclosed space,  
3,340 m<sup>2</sup> floorspace  
450 m<sup>2</sup> of exhibition floorspace on each floor

### Administration Building

8.35 × 21.57 × 11 m  
2.680 m<sup>3</sup> enclosed space,  
540 m<sup>2</sup> floorspace

### Kosten

285 Mio. Austrian schillings (20.5 Mio. €)  
of which construction costs:  
220 Mio. Austrian schillings (15.75 Mio. €)

### Steel Framework Façade

712 glass panels  
each 1.72 × 2.93 m (252 kg)  
laminated security glass,  
comprising 2 × 10 mm float glass/  
white glass with 4 layers of film,  
externally etched

### Load-bearing Structure

prefabricated steel truss  
framework components  
8 + 27 m (l), 4.4 m (w), 0.9 m (thk)  
weight without glass: 180 metric tons

### Load-bearing Structure

3 walls each approx. 72 cm thick  
80 cm reinforced concrete slab  
ceilings

### Glass Daylight Ceilings

705 panels (235 for each floor)  
each 1.45 × 1.45 m (63 kg)  
from laminated 2 × 6 mm float glass/  
white glass with two layers of film,  
etched on the underside



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### Lighting System

Kunsthau Bregenz was designed as a building to be illuminated by daylight. The daylight initially permeates the façade constructed of glass paneling, it is then directed via ribbon windows into an interim space and from there through the daylight ceilings into the three upper floors. Refracted three times (glass façade, double glazing, daylight ceiling), the daylight illuminates the exhibition spaces with varying intensity, depending on the time of day and season.

The daylight ceilings consist of etched glass paneling whose edges are not attached to each other, but are rather suspended from the concrete ceiling on hundreds of thin steel rods. Within the approximately 2 m high interim space, the daylight is supplemented, when required, by artificial light sources that maintain the natural appearance of the lighting. The especially designed pendant lights (235 per floor) can be controlled individually or as a group and continually adjusted.

### Construction

The discrete design of the façade and core of Kunsthau Bregenz was made possible by a skeleton construction that is usually to be found in high-rise buildings: structural elements inside assume the load-bearing functions instead of the outer walls – in KUB these are three vertical slabs of exposed concrete, each approximately 72 cm thick that extend through all levels. They serve, at the same time, to structure the interior. Since all the infrastructure is located behind the three concrete slabs this has enabled the creation of expansive, column-free exhibition spaces.

### Interior Materials

Smooth, untextured panels were used to form the velvety, lustrous exposed concrete walls of Kunsthau Bregenz. The terrazzo floor was applied directly to the floor slab. Terrazzo without expansion joints is unusual for the large areas that can be found in KUB where ventilation slots along the outer walls absorb the tension in the floor.

### Ground Floor

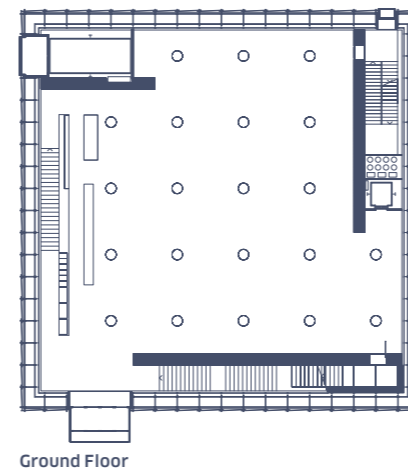
The 6.20 m high and almost 500 m<sup>2</sup> ground floor houses the ticket counter, cloak-room, and the sale of catalogues. It serves as a foyer, as an exhibition area, and may also be used for events. The construction of the Kunsthau, the autonomous structures of the shell and building's core, can be recognized particularly well on the ground floor, as the outer walls here are made of glass.

### Upper Floors

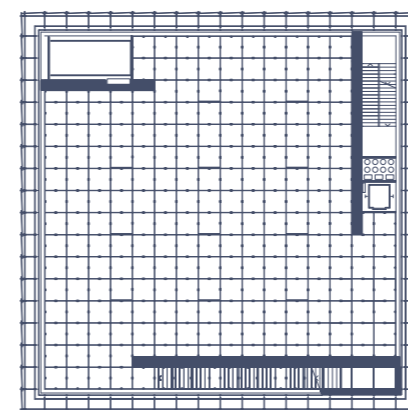
Three upper floors with an identical floorplan of 450 m<sup>2</sup> of exhibition space rise above the unique ground floor. The first and second are the same height (4.25 m), while the third is higher (4.95 m) for reasons of spatial dramaturgy. Consequently, variations in KUB do not result from varying dimensions of the floorplans, but from the differing heights, as well as the distinct lighting conditions on the ground floor.

### Basement Areas

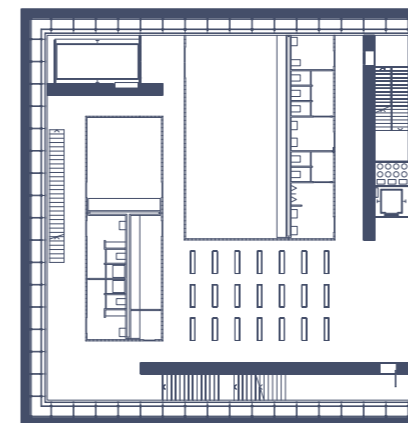
The upper basement accommodates a lecture room, spaces for outreach, and sanitary facilities, as well as storage space, and workshops for the building's utilities. The lower basement, which is not accessible to visitors, is the location of further workshops and storage spaces, and the electrical, heating, and air conditioning center.



Ground Floor



Upper Floor



1st Basement

### Heating, Ventilation, and Air Conditioning

Kunsthau Bregenz is distinguished by an innovative heating, ventilation, and air conditioning system based upon four principles:

#### Active mass coupling and building component heating / component cooling

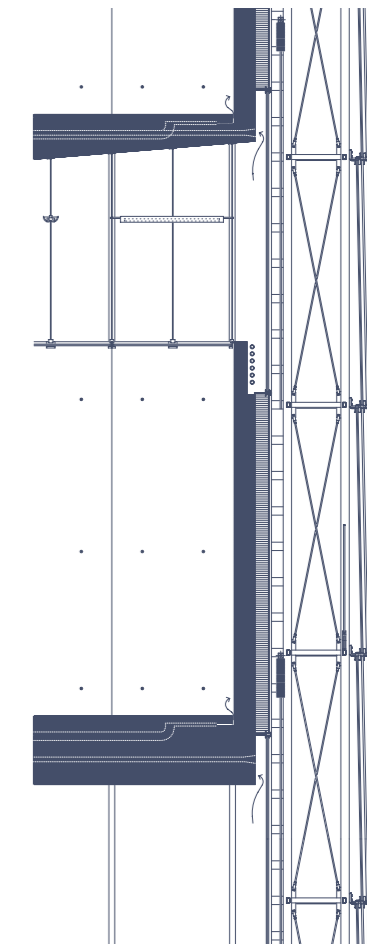
A system of plastic pipes totaling 23.4 km in length was cast into the non-load-bearing concrete walls and ceilings of the building, in which water circulates, cooling or heating the building's mass as required. As a result of the absorption and storage capacity of the exposed structural mass, the building can be thermally controlled and the desired indoor climate generated.

#### Air conditioning

By coupling the temperature regulation to the building mass, the air does not have to fulfill any warming or cooling functions during normal operations, it only serves ventilation purposes together with ones of humidifying and dehumidifying.

#### Earth coupling

The location of the Kunsthau is put to active use in the heating, ventilation, and air conditioning system: the structurally necessary four slurry walls around the building's basement reach to a depth of 26 m and are surrounded by groundwater flowing from the nearby Pfänder mountain into Lake Constance. A 24 km network of pipes has been laid in the slurry walls, which are each about 1 m thick. A heat pump is used to extract energy for heating and cooling from the slurry walls. In winter gas heating is used, providing support during peak levels.



#### Decoupling sources of disruption

The exhibition spaces and the spaces above the daylight ceilings function as two zones. The stronger sources of light and heat in the upper zone are separated from the lower, climatically sensitive zone by the glass panels.

Other central components of the heating, ventilation, and air conditioning system include the external thermal insulation and flexible sun protection in the form of blinds between the outer glass façade and the insulating glazing, which prevent any undesired heating of the façade. The Kunsthau heating, ventilation, and air conditioning system, which is neither visually nor acoustically apparent, and which has been continually updated technically from 2005, is distinguished by both its energy efficiency and economy.