

# The New Law Library of the University of Zurich

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The slides of this paper can be found at: [http://www.zhbluzern.ch/LIBER-LAG/PP\\_LAG\\_06/Thursday/Strehler\\_ZH-RWI-oA.pdf](http://www.zhbluzern.ch/LIBER-LAG/PP_LAG_06/Thursday/Strehler_ZH-RWI-oA.pdf)

## ABSTRACT

The article presents the new Law Library that was opened to the public in 2004. It was integrated in the courtyard of an existing building; its creator was the engineer and architect Santiago Calatrava. The article touches first on the historical background of the building, then gives an outline of the project development. It goes on to explain some of the ecological and energy-saving measures and finally demonstrates the building itself; as the building cannot be 'explained' the demonstration comes in the form of a running commentary on the slides that were shown at the presentation during the LIBER Architecture seminar in Utrecht. The presentation itself is on the web: [http://www.zhbluzern.ch/LIBER-LAG/PP\\_LAG\\_06/Thursday/Strehler\\_ZH-RWI-oA.pdf](http://www.zhbluzern.ch/LIBER-LAG/PP_LAG_06/Thursday/Strehler_ZH-RWI-oA.pdf)

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## THE HISTORY OF THE BUILDING, THE PROJECT, AND A FEW FIGURES

Zurich was in a situation similar to many other cities at the beginning of the 19<sup>th</sup> century: the need for individual and especially public buildings was growing, but all the available space within the city walls was used up. The illustration below shows the so-called Breitingen map, which depicts the city of Zurich in 1814. You can clearly see the old city walls, which were torn down in 1834. The circle indicates the area of the Schönberg rampart: This is where the Law Faculty is located now.



6 February, 2006

Slide 1

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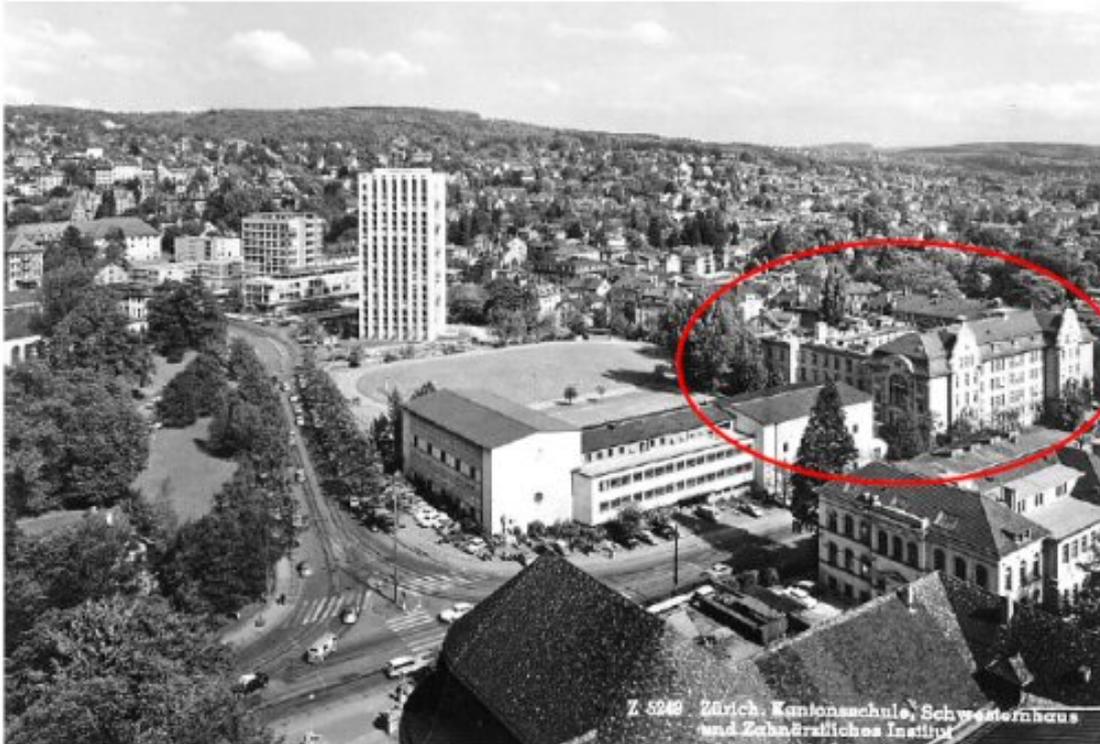
### *Breitinger map*

The demolition of the old city walls represented a great opportunity for the urban development of the city of Zurich. Between 1834 and the First World War, several large public buildings were developed in the area of the former city walls. The main features of today's "education mile" became apparent. Among them is the Swiss Federal Institute of Technology (ETH) Zurich, designed by Gottfried Semper in 1864 and expanded by Gustav Guhl in 1911. In 1914, the new main building of the university was developed by the architects Curiel and Moser. In 1842, the college preparatory high school designed by Gustav Wegmann was built, representing the first large building since the demolition of the old city walls. Finally, in 1909, the building on 74 and 76 Rämistrasse, designed by the Chief Architect of the Canton at the time, Hermann Fierz, was erected.

At the end of the 19th century, room again became scarce at the old college preparatory high school. It was therefore decided to construct a new building on the so-called "Wässerwiese" together with the university. This is why today the building has two entrances, one on 74 Rämistrasse with the heading "Alte Kantonsschule" (old college preparatory high school) and one on 76 Rämistrasse designated "Chemisches Laboratorium der Universität Zürich" (Chemical laboratory of the University of Zurich).

Construction started in 1906 and the building was completed in 1909. Building costs amounted to 2.4 million Swiss Francs at the time.

The next picture is taken from the main building of the university. It shows the building on 74 Rämistrasse before the renovation took place. Note the open courtyard.



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Slide 1

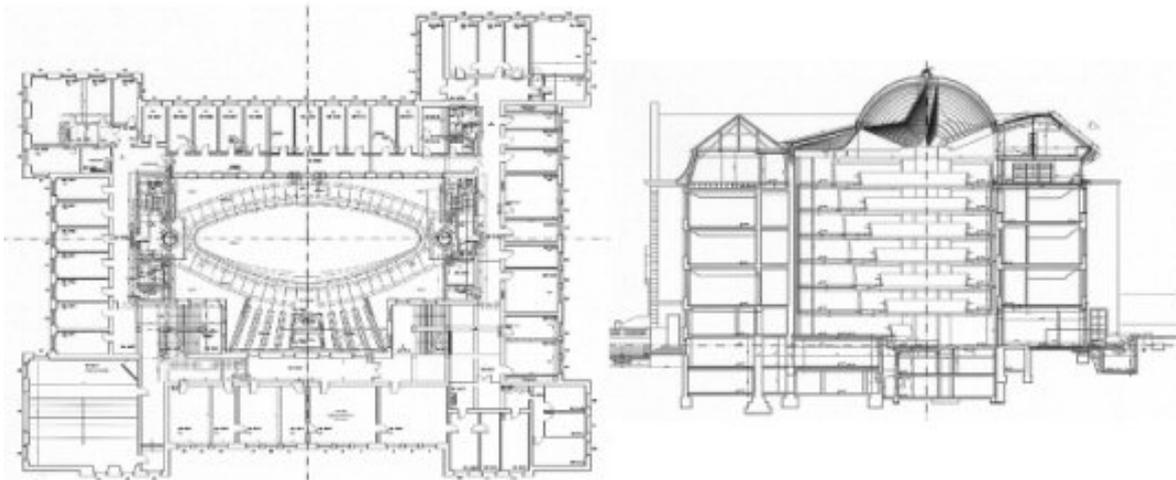
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### *Alte Kantonsschule*

The number of students enrolled at the University of Zurich's Law Faculty had been increasing steadily over the last few decades. While there were about 600 students in 1962, there were 3500 students with law as their main subject and 1500 that took law as secondary subject in 2005. In 1981, the university decided to put up a new building for the Law Institute between Schönleinstrasse and Rämistrasse. As this new building did not gain the required acceptance of the voters, the Law Institute was granted the old building on 74 Rämistrasse. But the building had to undergo an extensive renovation.

In 1989, the then Chief Architect of the Canton, Paul Schatt, awarded the architect and engineer Santiago Calatrava a direct mandate based on the city's Stadelhofen train station that Calatrava had just completed. Calatrava's planning underwent several major changes, but the project was approved in 1999. See picture 3.

### Implementation as of October 2003



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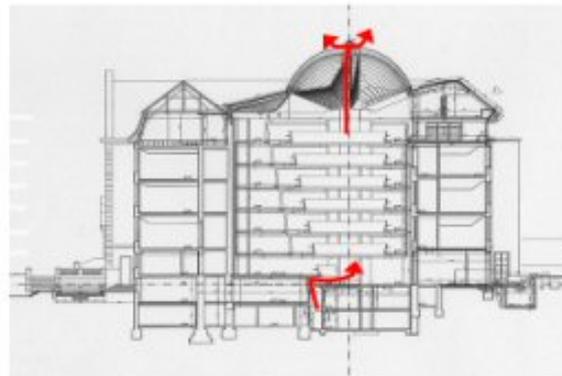
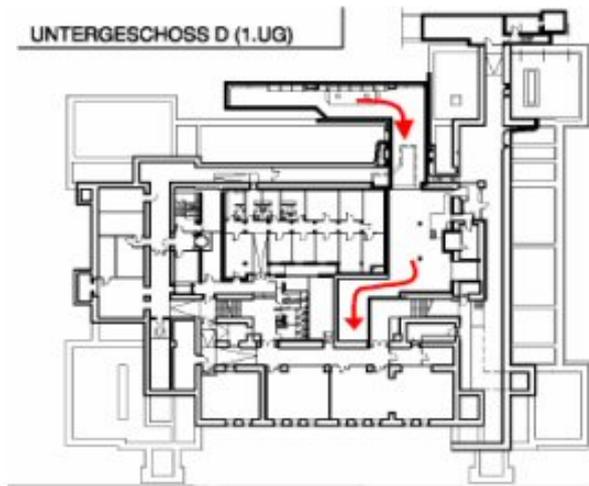
Picture 3

The galleries as well as the rear side of the galleries (the library backpack) are now strictly separated from the old building. The use of glass in the area of the cupola and the displacement of the galleries from the courtyard facade allow natural light to enter the gallery workstations from various sides. The static connection with the old building takes place on the sublevel and at the lateral access towers. The galleries are statically mounted in the lateral concrete cores and are supported by pillars on the rear side of the galleries (the library backpack).

The new building is strictly separated from the old building from an organizational point of view as well. At either end of the gallery is an elevator, the staircase, and the access to the building services. On each level, there is both a ladies' and a men's restroom. There is a total of 480 study places, 250 of which are connected to the electricity mains and have IT access. The lighting can be switched on individually at every study place. On the rear side of the galleries (the library backpack) there is one "parlatorium" on each of the five stories where students can meet to exchange ideas as well as one room for photocopying. A total of 5000 running meters of bookshelves can house ca. 150.000 books. In the area at the back of the old building an addition takes up the study places for research and PhD. students as well as the administration of the Law Faculty.

### ENERGY-EFFICIENCY AND BUILDING-SPECIFIC IMPROVEMENTS

The use of the inner courtyard necessitated a roof. This reduced the outside surface substantially, which in turn brought about massive energy savings - up to 47%! But this new inner space has to be aired. For this, the thermal lift is exploited: warm air - 4 to 6 degrees Celsius warmer than the air on the outside - concentrates in the area of the cupola and leaves the building through vents. It draws up fresh air that is sucked in at the bottom of the building (see Pictures 4 and 5).

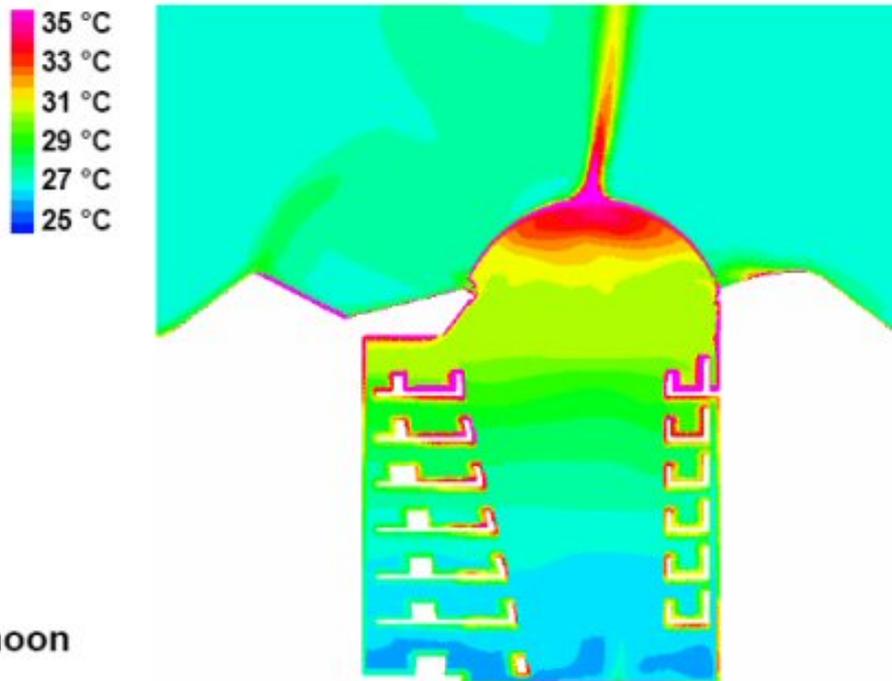


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Picture 4



### Insolation at noon

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Slide 1

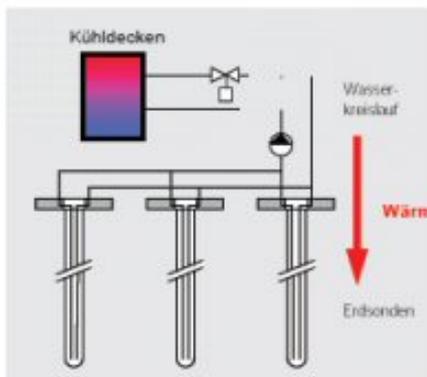
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#### Picture 5

Simulations predicted that the temperatures on the top gallery were going to be some 2 to 3 degrees warmer than the air outside the building - this has been proven to be right. So in a hot summer it can be quite warm at the study places towards the top ... But active cooling or air-conditioning are not allowed in public buildings.

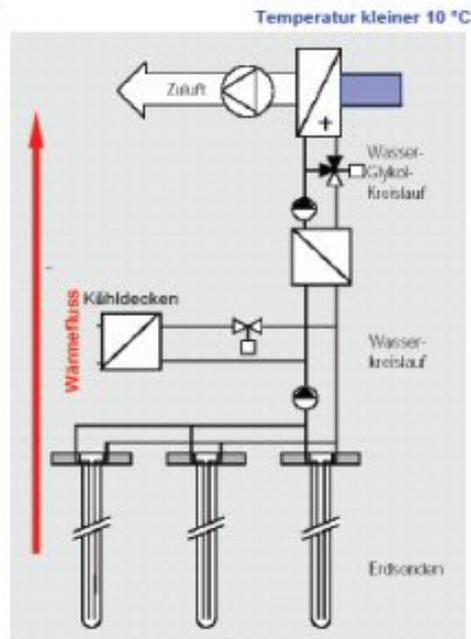
Two measures prevent a stronger heating up of the inside air: First, the glass cupola is protected by an anti-dazzle device, shutters that shut out direct heat but not all light. This has a further effect: the glass cupola provides a good amount of natural light during the day with or without shutters. The result is a reduction of the use of artificial light and a greater vividness of the room. This yields a higher room comfort level and keeps the students in touch with the outside. They see the passing of the day through light and they feel the weather situation outside. And second, the fresh air that is coming into the building is cooled passively by a heat exchanging system that is connected to ground sensors

Number of sensors on 74 Rämistrasse  
43 sensors with a depth of 100 m. each



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### Ground sensors & exploitation of rain water

Around the building, a total of 43 ground sensors have been installed at a depth of 100 meters to heat or cool the water to about 18 °C. The cooled or heated water is then passed through a heat exchanger which in turn cools or heats the outside air. This outside air is either fed directly into the library or used to feed the cooling ceilings built in on the attic story. A final example of energy saving measures concerns the water management: Rain water is collected in the roof area, and is, after filtering, fed into a grey water tank, and then used for sanitation flushing.

### A TOUR OF THE BUILDING

The following tour of the building needs the pictures taken for the presentation during the seminar; is therefore has the form of a running commentary to the slides that are published on the website of the Architecture Group: [http://www.zhbluzern.ch/LIBER-LAG/PP\\_LAG\\_06/Thursday/Strehler\\_ZH-RWI-oA.pdf](http://www.zhbluzern.ch/LIBER-LAG/PP_LAG_06/Thursday/Strehler_ZH-RWI-oA.pdf)

Slide 24:

This view is taken from the main building of the university. You can clearly see the addition in the area of the rear flat roof where the administration is located and the new glass cupola above the old courtyard (cf also ill. 2 and/or slide 8).

Slide 25:

This is the main facade of the old building with the former entrances to the college preparatory high school and to the Institute of Chemistry in the lower and in the upper area, respectively. The facade features elements of both Neo-Baroque and Art Nouveau.

Slide 26:

This slide shows the facade as seen from the gym and from Schönleinstrasse (i.e. the back of the building). Thanks to the addition, the roof height is the same for the entire building. Facing Schönleinstrasse are the so-called “Weissbibliothek” and the area reserved for research and PhD. students.

Slide 27:

The main entrance to the library is located on Schönleinstrasse. In order to reach the level of the inner story, the outside area had to be cleared away and supplemented by a staircase that leads a few steps down. The doorways correspond to the former window apertures. In the area of the staircase on this side of the building, fresh air for the library is sucked in.

Slides 28 and 29:

Slide 28 shows the reception and the foyer of the library. The foyer acts as a “filter”. On the left and on the right, there is the passage to the old building. In the middle, there is the desk where the first information clerk can be found. On the left-hand side there is the entrance to the library; on the right-hand side, the exit can be found. This is where the book-securing device is located. The books are secured with magnetic strips. The two rooms for the 600 lockers are situated on the short sides of the foyer. – On the floor plan, the courtyard’s measurements are 22 x 34 meters, and the room up to the cupola is 29 meters high.

Slide 30:

We are now on the ground floor of the library.

A short note on the materials used: To keep the light from being absorbed, we were careful to use mainly light materials. In the area of the escape routes, non-inflammable materials had to be mounted. This is why white natural stone was used on the ground floor and in the lateral access areas whereas wood was used in the galleries. The wood chosen is maple - Canadian maple in the area of the floor and European maple in the remaining area. This creates a pleasant room ambience.

Slide 31:

In the mezzanine, the periodicals are stored. Towards the front of the gallery you find reading places, two information desks, and eight computer information terminals

Slide 32:

On this slide you can see the staircase leading from the ground floor up to the mezzanine with the periodicals. You can clearly see how the galleries were detached from the former courtyard facade.

Slide 33:

When looking up, you can gain new and interesting perspectives. This is again the passage from the galleries to the old courtyard facade with the new skylight above.

Slide 35:

And now a slide showing the cupola, which is mounted between the two staircase cores, and the anti-dazzle device below. The anti-dazzle device serves three purposes: the first purpose, evident in the name, is that of preventing dazzling when the sun hits at a right angle. The device also works as a sound-absorbent element and, finally, keeps the emerging heat layer under the glass from entering the area of the library any further. As mentioned before, the opening of the ridge and eave flaps allows the hot air to pour outside.

Slide 37:

This is the view from one of the windows of the lateral staircase into the space between the gallery and the old building.

Slide 38:

This slide shows one of the “regular floors”. The study places are in the "eye" of the library, at the front of the gallery, and the books are behind the students. The parapet is brought up to eye level, thus conveying a certain intimacy. Bringing up the parapet makes the room look less large so that people feel safe here. Students can connect their laptops at each study place, and they can adjust individual study place lighting as they please.

Slide 39:

Let us now take a look from the top gallery down. The elements of the parapet are developed to be sound-absorbent and are made up of slats assembled individually with a sound-absorbent insulation behind.

Slide 40:

View of the opposite staircase with glass elevator.

Slide 41:

The top gallery with the cupola.

Slide 42:

A detailed view of the top part of the elevator. Above it, the engine room of the anti-dazzle device is located.

Slide 45:

In this room it is not allowed to use laptop computers. Certain areas had to be made 'laptop-free' after many protests from students who complained about the noise of typing and beeping!

Slide 46:

Located on the second story of the addition are the study places for research and Ph.D. students and, on your right, the rooms for group work.

Slide 47:

View of the opposite gallery.

Slide 48:

This is the area where the administration of the of the Law Library and the Law Faculty can be found. You can see an open-plan library office on the top story of the addition.

Slide 49:

An outdoor shot of the cupola. You can clearly see the ventilation flaps along the ridge. In the base area of the cupola, there are ventilation flaps as well. Although the glass looks greenish from the outside, no negative changes of colour are noticeable on the inside.

Slide 50 and 51:

We are now in the old part of the building. All of the interventions occurred during previous renovations and redevelopments were undone in the access area. We thus have the original state as of 1909, so to speak.

Slide 52:

This is what the courtyard looked like in 1999 before construction and renovation work had begun.

Some general information on the building schedule and the costs involved.

Planning by Santiago Calatrava started in 1989

*The New Law Library of the University of Zurich*

Credit of a total of 33 million Euros granted in 1999

Start of construction in July 2000

Inauguration of the new library in November 2004

Credit of 10 million Euros for the redevelopment of the remaining rooms in the old building granted in April 2004

Altogether, the Law Faculty now has a net floor area of 25,458 m<sup>2</sup> at its disposal.

Slide 53:

A detail of the cupola; the anti-dazzle device is fully open.

This brings our tour to an end. The building was officially opened in November 2004; it has since been a huge success both with students and faculty. It is fully occupied most of the time, and the Law Faculty has had to consider strict restriction of use to law students...