

Evangelische Schule Charlottenburg

Berlin, Germany
52,5°N, 13,2°E
predominantly cloudy

bilateral, the skylight provides the room with smooth light while the window offers extensive views to the outside

building

When the protestant school was erected in 1973, it's exposed concrete construction made it a sample of brutalist architecture. When the building was retrofitted, insulation and a new skin of anodized aluminum were added. The organization of the classrooms bases on a staggered floor scheme. It is composed of two opposed wings interconnected by bridges that comprise the stairs and create exterior courtyards.

daylight strategy

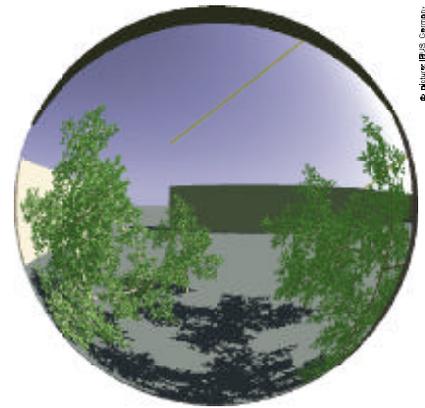
The daylight strategy and the shape of the protestant school are inseparable. Each classroom shifts about 1,2 m to the East over the floor below. Within the bi-directional daylighting strategy this scheme maximizes the exposure of the skylight on the West and creates an overhang which shades the East facing window. The skylight is glazed with light diffusing glass to offer an even illumination of the room. The overhang provides shade from high angle incident sunlight. Additional exterior blinds protect from glare and heat when the sun is low. Even when these blinds have to be closed completely as in case of strong sunshine, the skylight distributes enough light for the daylight strategy not to be affected. Consequently the luminance distribution in the classrooms is very pleasant during sunny and cloudy sky conditions. In addition a small window in the West wall offers further views to the outside.

classroom

With an area of 59 m² the classrooms are relatively large. A pair of two classroom is connected by a room for working groups.



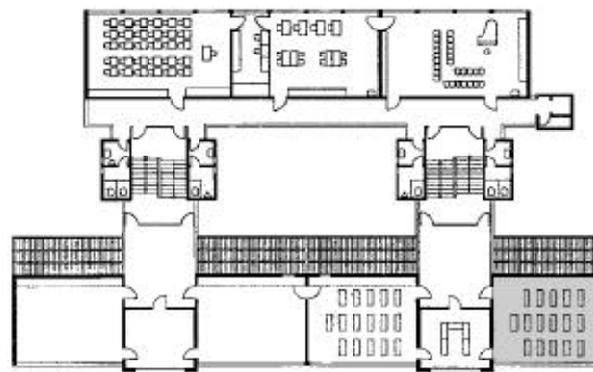
The L-shaped school encloses a school-yard on the West, to the East it is situated next to a cemetery with old trees.



Obstruction of the selected classroom in the 3rd story.



Exterior view of the Protestant school, the shifting of the classrooms creates a significant shape of the building.



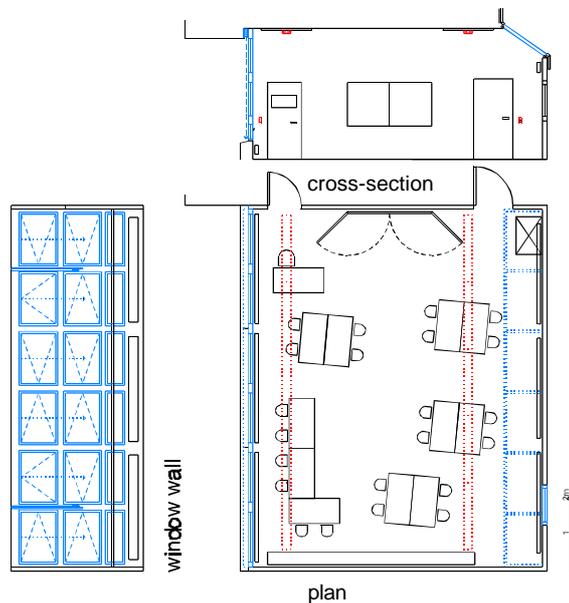
Floorplan, cross-section: The wings are organized in a staggered floor scheme. The East wing classrooms are shifted horizontally to increase the exposure of the skylights on the west side and to shade the east facing windows.



This shows a classroom on the third floor under overcast sky conditions. The bi-directional daylighting strategy provides the classroom with even illumination. The low window sill allows seated students to maintain views down to the neighboring cemetery.



The overhang protects the manually operated blinds from dirt. The windows show a massive frames structure as used in many buildings of the late sixties.



building data

size	5000 m ²
number of stories	5
architect	Neumann, Grötzbach, Plessow
year of completion	1973

classroom

daylight strategy	bilateral, sidelighting and toplighting
dimensions (depth/width/height)	6,9 m / 8,6 m / 3,2 m
room area	58,9 m ²
floor	linoleum, 21%
wall	plaster, 60%
door	painted timber, 39%
ceiling	white paint, 66%
table	coated timber, 62%
blackboard	green coating, 13%
window frame	painted timber, black, 18%
chair	stained wood, 6%
east facing window	double clear glazing
west facing window	double, light diff. wired glazing, zenithal 45°
lamp types	fluorescent lamps
installed power density	19,7 W/m ²
control strategy	manual switching

facade		
	east facade	west facade
data	orientation	108° (288°)
	glazed area	14,4 m ² 8,4 m ²
	opening index	0,53 0,31
function	daylighting	● ●
	view outside	● -
	ventilation	● -
	operable	● -
	shading	● ●
function systems	redirection	□ ●
function	sun shading	● ●
	glare protection	□ ●
	redirection	□ □
location	inside	□ □
	window pane	□ □
	outside	● ●
	movable	- -
fixed	● □	