



“The ideal school has a healthy interior climate and is made from sustainable materials. There is a place for both introvert and extrovert school pupils to work. The school building is flexible: in terms of internal arrangement, and in the interaction between inside and outside. School buildings are exciting if the inside becomes the outside and the outside becomes the inside. For instance, by studying on benches in the garden and by bringing trees into the school”.

Michaela Stegerwald
Verstegen (2009: 128)

“Ask people and they remember their school building. The rooms, the light, the routing through the building, the materials and the visual axis

Michaela Stegerwald
Verstegen (2009: 129)

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fig.7.1. Open Air School in Amsterdam

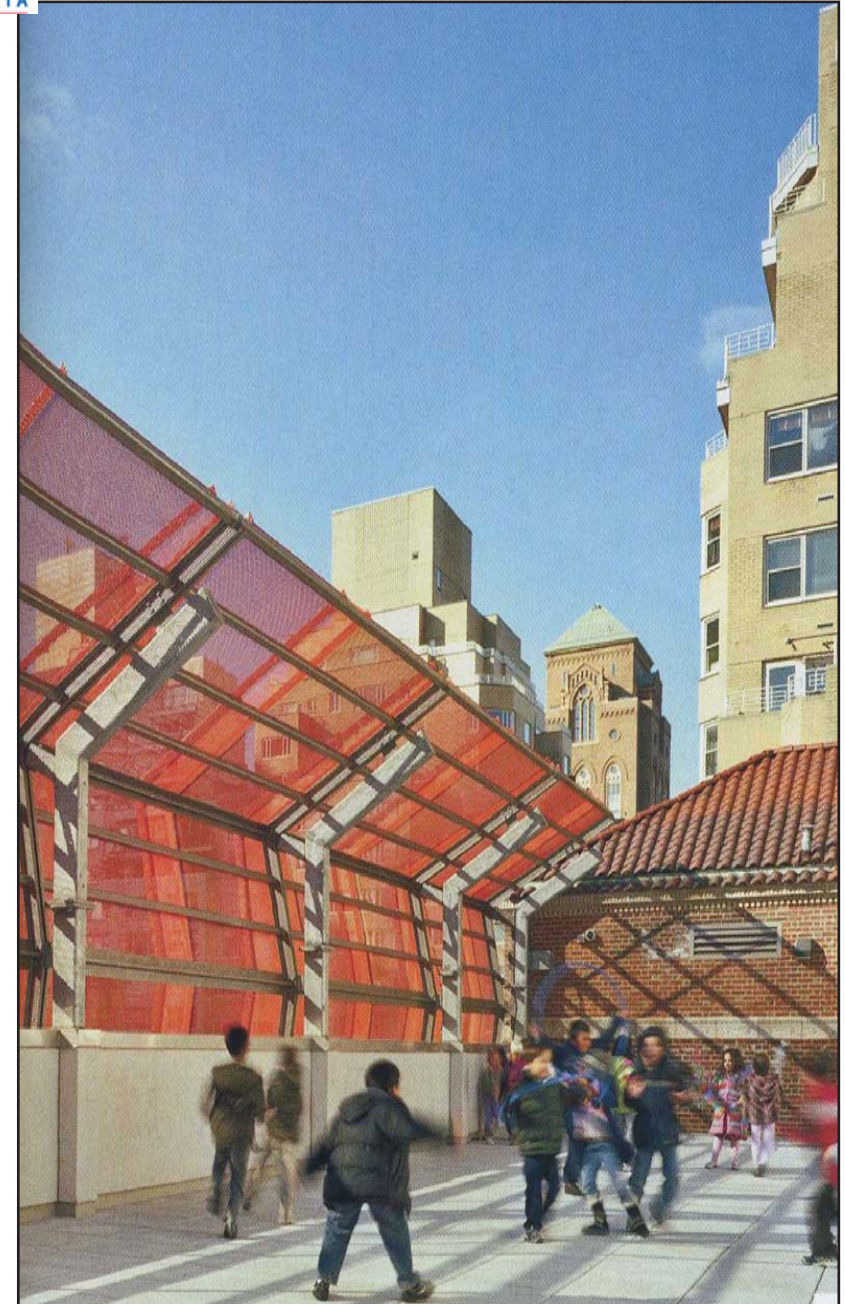


fig.7.2. Rooftop Playground of The Beekman Hill International School, New York

Chapter 7

Precedent Studies



Hampden Gurney Church of England School (2002) England, London

Anthony McGuirk, Building Design Partnership



fig.7.3. Partially covered rooftop playground

In this vertical school, or “children’s tower”, students “move up” the school as they progress through the years. The school has been created over six levels, with the classrooms on three levels above the new ground floor nursery, a state-of-the-art library and multimedia room on other levels, and a group teaching room on the roof. The classrooms on each level are linked to open-air play decks that provide safe weatherproof play and territory for each age group, accessed by a bridge across the central light well. The design offers good northern light for each classroom and the prospect of open-air classes on warm days. (It has to be mentioned that this project is located in the Northern Hemisphere that means that good southern light will be the equivalent in the Southern Hemisphere.) All the classrooms are naturally ventilated utilizing the stack effect of the central light well. Close attention was paid to maximizing available natural daylight.

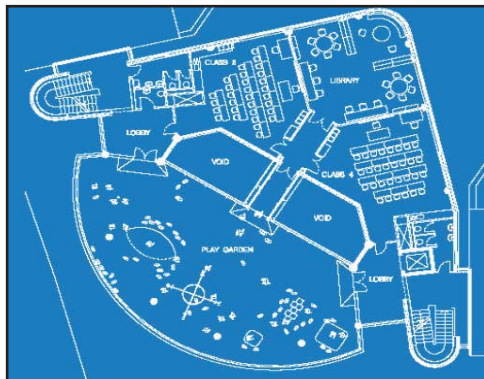


fig.7.4. Typical Floor plan layout (not to scale)

The Beekman Hill International School (2008) USA, New York City

Ehrenkrantz Eckstut & Kuhn



fig.7.5. Protected Rooftop Playground

This K-5 school’s temporary new home inside a former hospital annex building on Manhattan’s Upper East Side is the result of a unique public-private partnership. The architects converted diminutive dormitory rooms into flexible classrooms with areas for small group learning; and narrow, fixed corridors into lively circulation zones with nooks for storage and informal breakout spaces.

The decision to locate the gymnasium on top of five levels of classrooms necessitated robust structural and acoustical interventions. Existing interior columns throughout the floor were removed, and perimeter columns and transfer beams added in their place.



fig.7.6. Gymnasium on 6th floor

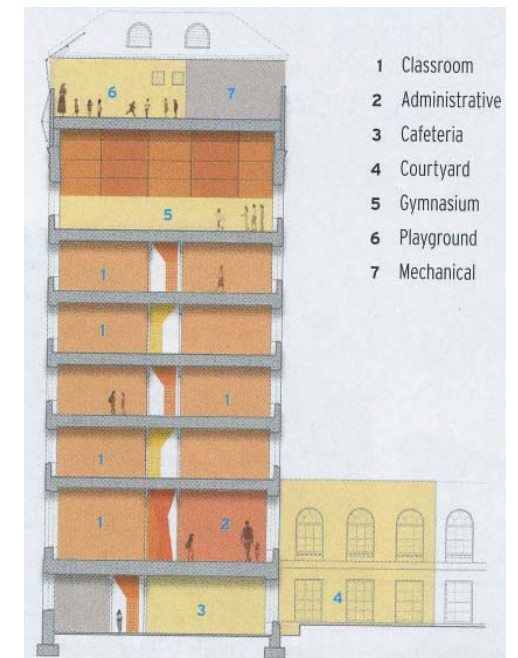


fig.7.7. Vertical composition of school (not to scale)

Centraal Beheer Office Building (1972)

Netherlands. Apeldoorn

Herman Hertzberger (with Lucas & Niemeijer)

Apollo Schools

Netherlands

Herman Hertzberger



fig.7.8. Personalized working platforms cantilevering into the central atrium

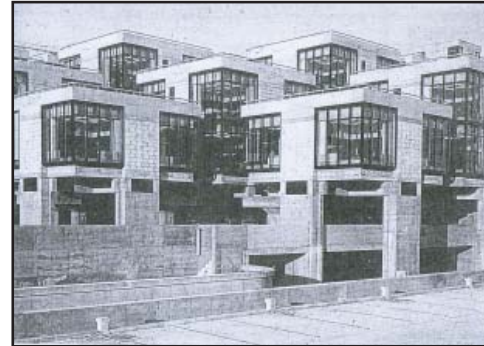


fig.7.9. Group working areas seen from the exterior

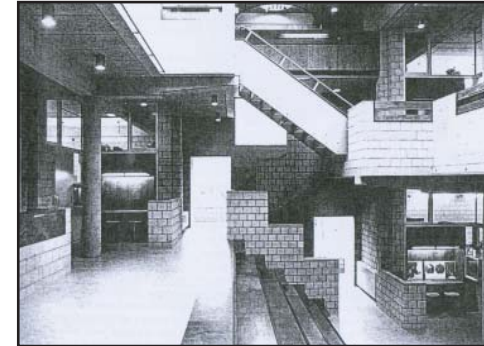


fig.7.10. Central communal staircase as versatile and interactive space

The Apollo Schools classrooms are grouped around a central communal space. Hertzberger (1991: 213) suggests that when the children leave their classrooms, they automatically converge in the centre and that this creates much opportunity for casual and spontaneous contact between children of different ages. He remarks that this might even stimulate ideas for doing things together.

Apollo Schools have a split-level amphitheatre like organization, which increases the range of visual contact. Hertzberger (1991: 213) states that on this 'amphitheatre', situations of players and audience arise easily and spontaneously: children sitting on the treads of the stairs connecting the two levels soon behaving like an audience, thereby challenging the players on the lower level to give what you might call a performance.

Hertzberger (1991: 195) states that the articulation of space was the principle underlying the Centraal Beheer insurance office. The point of departure was that all work, as well as all recreational activity, takes place in small groups, not individually but not collectively either.

The interior has been left as unfinished grey blocks. The aim being that users of their specific environments take ownership of that environment and given the opportunity to personalize that space.

Small group working platforms cantilever into a central atrium. The enclosing brickwork of every working platform is kept very low. This improves visibility from all levels overlooking the atrium. The presence of a variety of personalized spaces gives this space a unique character that changes with time.

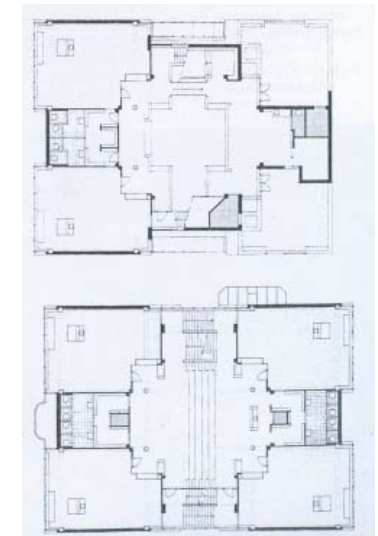


fig.7.11. Spatial composition of structure (not to scale)

De Evenaar Primary School (1986) Netherlands, Amsterdam Herman Hertzberger

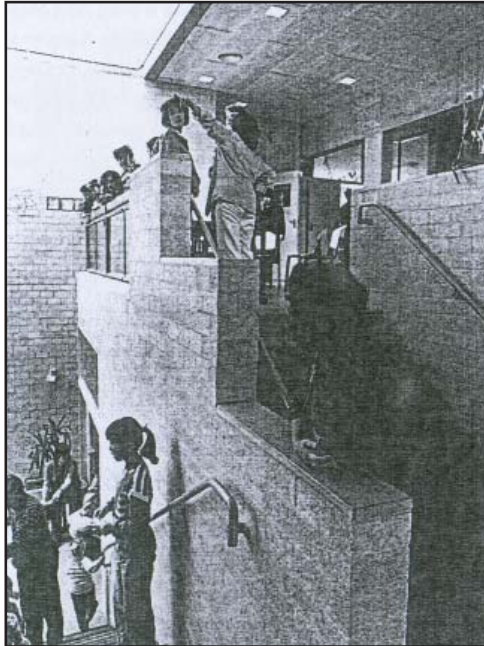


fig.7.12. Stepped parapet next to staircase overlooking central space

In 'De Evenaar' school, two adjoining classrooms were placed behind a curved section of the facade, hereby creating a communal bay. The wall dividing the classrooms comprises at one end, where it meets the facade, a sliding partition. When it is closed, the two spaces are both visually and audibly separated, but when it is opened, the two classrooms easily blend into one area embraced by the bay. The view of the outside world from each classroom is also considerably widened when the partition is opened.

Hertzberger (1991: 186) suggest that parapets bordering staircases are usually placed slantwise, following the direction of the handrail. But in a situation where a parapet is so positioned that it offers a view of something, as in "De Evenaar" where it offers a view into the communal staircase space, it invites people to lean their elbows on the top, or even to sit on it.

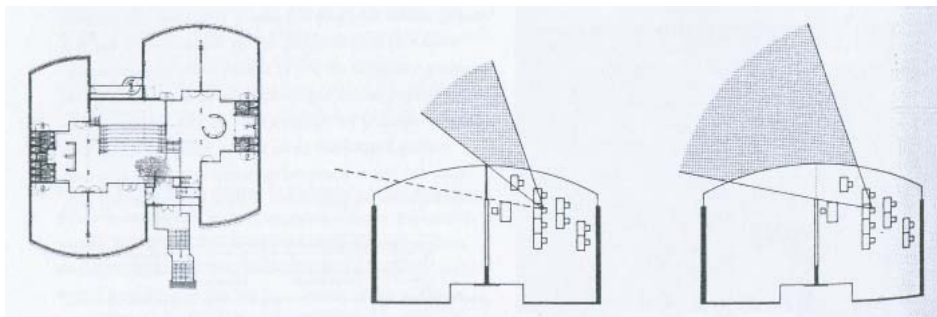


fig.7.13. Openable section between two classrooms (not to scale)

Open Air School (1930) Netherlands, Amsterdam J. Duiker



fig.7.14. View of the Open Air School with its outside learning spaces on the upper levels



fig.7.15. View into the school from street level

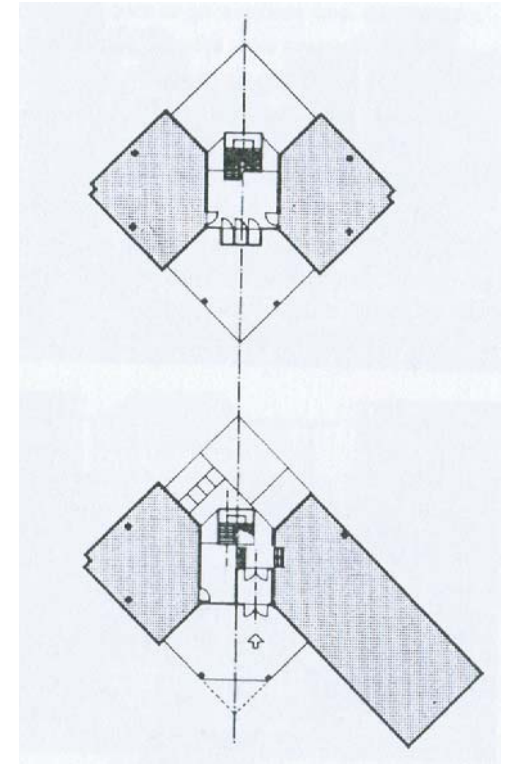


fig.7.16. Typical floor plan layout

The building consists of layers of two classrooms on each floor, each which could thus share one outside classroom, grouped around the stairwell. Hertzberger (1991: 246) states that the glass facades makes visibility from the inside-out, but also from the outside-in possible and a strong connection is thus formed between the surrounding environment and the learning "classroom" environment. Boundaries between the school as a separate entity and real life is thus blurred and becomes one.

Technikon (1955) Netherlands, Rotterdam H.A. Maaskant



fig.7.17. Aerial view of the Akragon and Technikon

The Technikon in Rotterdam is a school cluster in which the separate educational institutions hardly share any facilities. Each school in this complex for technical and professional education has its own entrance and lift. The large auditorium, with a capacity of 500, and the canteen also function independently. The striking Akragon sports tower, an intriguing monolith in the Hofplein, accommodates a swimming bath, a large sports hall, and six ordinary gyms. This sports tower also functions autonomously.

Verstegen (2009: 65) remarks that the advantage of this complex lay above all in the module and construction for the schools adopted by Maaskant. In a fifteen-year design process, the architect Maaskant grouped the eight schools for vocational education in an elongated volume. He is of the opinion that this gave the building not only an imposing appearance, but also an efficient ground plan for the classrooms and adds that they were designed in such a way that they could be used by one institution or another without expensive alterations.



fig.7.18. Main building and connecting area

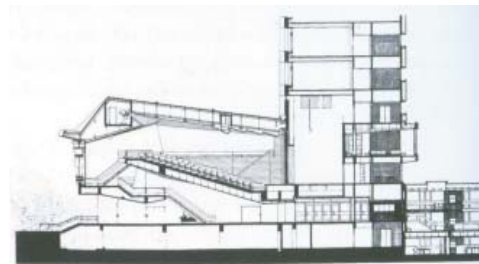


fig.7.19. Cross-section of the main hall (not to scale)

The Educatorium (1997) Netherlands, Utrecht OMA, Rem Koolhaas



fig.7.20. The structural form expresses and complements its function



fig.7.21. The transparent facade makes the interior activities visible

Its invented name intended to suggest a factory of learning, the Educatorium houses two lecture theatres, three examination halls, and a large refectory (dining hall), which also functions as an informal study area and performance venue. These facilities are shared by the University's 14 faculties and many research institutes, creating an important new centre of rendezvous and exchange.

The Educatorium occupies a corner site and abuts an existing long, low building at its east end. Van Cleef (1999: 1) describes the structure by commenting: "Like a languidly wave, it rolls away from its neighbor and swells out to the west. The ground floor rises as a continuous concrete plane through the building and rolls back to create a prominent bulge along the west facade". This folded plane is the Educatorium's main organizational device, enclosing lecture theatres above and the refectory below. Examination halls are contained in a more conventional two-storey box joined to the lecture theatres by a large central vestibule (portal).

Van Cleef (1999: 1) is of the opinion that the Educatorium acts as an extension of the campus landscape, synthesizing in microcosm aspects of university life - learning, socializing, being tested and so on - in a continuous, overlapping experience. She also states that the glass walls expose a dynamic interior realm of ramps, stairs and promenading spaces, animated by teeming hordes of students perpetually milling around the building.



Leicester University: Engineering Building (1963)

England, Leicester

James Stirling and James Gowan



fig.7.22. Bold expression of the brick clad theatre

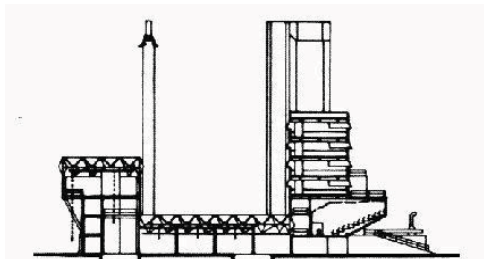


fig.7.23. Sectional Drawing (not to scale)

Walmsley (1988: 10) describes the Leicester Engineering Building as a glass building, resting on a podium perhaps twice the height of a person. She continues and comments that the primary part of the building is a large, folded, trussed rectangle that houses the workshops for heavy equipment. She states that one enters this workshop on the northeastern side through a heraldic portal that rises above some of the neighboring buildings on the campus, and displays its engineered face as a sign. It has a small footprint and is massive in conception, as a gateway should be.

Walmsley (1988: 10) comments that the brick podium gives way to an arch which straddles the entryway, on one side consisting of vertical circulation, and on the other a series of rooms stacked vertically. The archway has an equal entry directly ahead, retaining the strength of the idea.

Walmsley (1988: 10) describes the workshop as being a private affair, but that the gatehouse is for the public. She is of the opinion that from the exterior this is clearly stated, as a ramp leads up onto the podium where there is a patio that reconfirms the message sent by the tall 'portal', that of the engineer's aesthetic for handrails and exhaust pipes.

Walmsley (1988: 10) comments that from the external gathering place one can reach the theatres whose forms are clearly apparent because of the raked bottoms showing in profile, and therefore public by gesture. She comments that an access stair that is encased in glass, leading up to the theatre, is clearly visible.

Walmsley (1988: 10) states that the tertiary rooms, the offices for the staff in the most visible tower (six stories) and the laboratories in another tower behind that (four stories) are removed from the public access by resting on top of the massive theatres .

Walmsley (1988: 10) is of the opinion that in all of this the predominance of glass is resolutely persistent. She states that on the roof its potential is exhibited in the jewel-like protruding edges of the ridges that run at 45 degrees to the walls, apparently defying the rigorous order of the podium, and at the southwestern edge it rises up even higher with all its energy to make provision for equipment to be brought through the floors, from underneath the cantilever it provides.

Walmsley (1988: 10,11) comments that on the portal the glass interrupts and overcomes the statement of the strength that it starts to make at its massive base. She describes it as wrapping around the office tower that lengthens under its constricting power. She continues and says that it oozes out of the laboratory towers and one can get a glimpse of its predominance as it has taken over the gaps between the two. She is of the opinion that it is as if it has intruded with the strength of a glacier, it defies our understanding, supporting at its highest point the weight of the water reservoir required for experimentation in hydraulics. She adds that it was as if the design had exhausted itself, but the glass had the strength to accommodate it at 100 feet above the ground.

Walmsley (1988: 11) states that the workshop is minimally partitioned internally to allow flexibility in order to anticipate development and change in equipment either through technological advances or through acquisitions by the university. She further states that the folded glass captures the north light more effectively by its angle at 45 degrees to the enclosing walls. She describes the windows as being double-glazed with a sandwich of plate and clear glass enclosing a layer of insulation.



fig.7.24. View from campus showing 45 degree angled glazing protruding from heavy brickwork on secondary tower

Dutch Embassy (2003)

Germany, Berlin

OMA, Rem Koolhaas



fig.7.25. Different lighting techniques and glazing colors reinforce the architectural intentions



fig.7.26. Part of the main circulation route is expressed on the transparent facade by the extrusion thereof

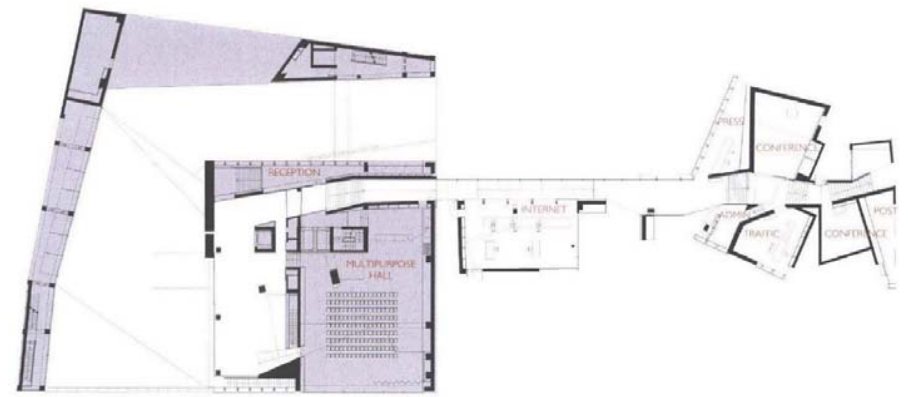


fig.7.27. Plan of 'unravelling' trajectory (not to scale)

This project's relevance lies in the transparent treatment of the structure's skin and the expression of form in relation to function. An approach where the inside activities are partially made accessible to the public and vice-versa has been followed. The bold extrusion of a circulation route in the form of a glass corridor that connects the second to third floor, creates a space that is public by nature in a visual sense. Brensing (2004: 50,56) refers to the continuous strip of 200m, or what Koolhaas calls a 'trajectory' (in effect, a succession of staircases, ramps and corridors), which snakes its way up through the building. At some points it emerges on or even through the facade (in the case of the cantilevering glass corridor), changing direction of ascent and gradient until it reaches the restaurant and roof terrace. These series of ramps, the visibility and structural expression thereof, provides an interactive and dynamic quality to the structural form, as the structure in essence is composed of a cube. Brensing (2004: 56) states that because of the deliberate spatial complexity, there is little coordination between the interior and exterior. He is of the opinion that Koolhaas pays the price for his structural maneuvering here, as he is obliged to rely on a load-bearing double facade. Where the internal zigzagging of the trajectory feigns freedom or even anarchy, the straight steel columns that run down the full height of the building indicate a necessary and more simplistic rigor.

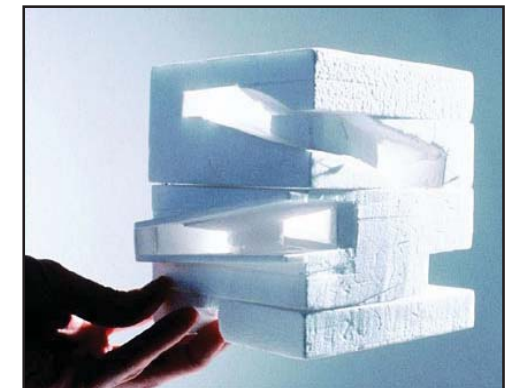


fig.7.28. Architectural Concept: Trajectories 'zigzagging' around a cube

Montessori College Oost (1993) Netherlands, Amsterdam Architectuurstudio, Herman Hertzberger



fig.7.29. A Timber clad skin conceals the main circulation volume

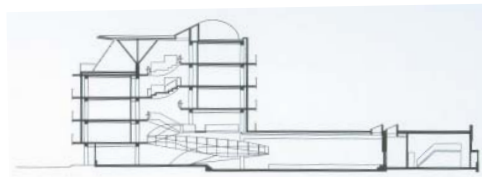


fig.7.30. Sectional Drawing showing differing floor heights



fig.7.31. Main circulation volume with 'bridges' connecting both sides

Verstegen (2009: 89) claims that Herman Hertzberger's Apollo Schools for primary education were the source of inspiration for this project. Here too the multiple use and significance of the communal domain is the guiding architectural theme.

The tall volume in-between the two blocks has four floors, arranged in a split-level system around an elongated void. This enables visual relations between the different floors and creates a strong sense of space. The void is intersected by a number of very wide bridge staircases that also function as places to meet and as alternative learning domains. Verstegen (2009: 89) remarks that the buildings variety and spaciousness suggest a square in a city, deliberately keying in with the world that the pupils experience.

Bredero College Extension (1998) Netherlands, Amsterdam De Architectengroep, Van Gameren en Mastenbroek



fig.7.33. Bredero School Building



fig.7.34. Kitchen

This new extension to Bredero College contains several classrooms for practical instruction, a hall and two gyms. The ground floor facade functions as a big showcase. Behind it is the bakery, the kitchen and the restaurant, which according to Verstegen (2009: 239) is open to the public twice a week. A glass partition has been placed between the restaurant and the kitchen. People walking past the school, or even driving, are thus aware of the activities taking place inside. This method of showcasing practical instruction makes the educational intentions accessible to all who find themselves in the vicinity of the school.



fig.7.32. Technical Classroom

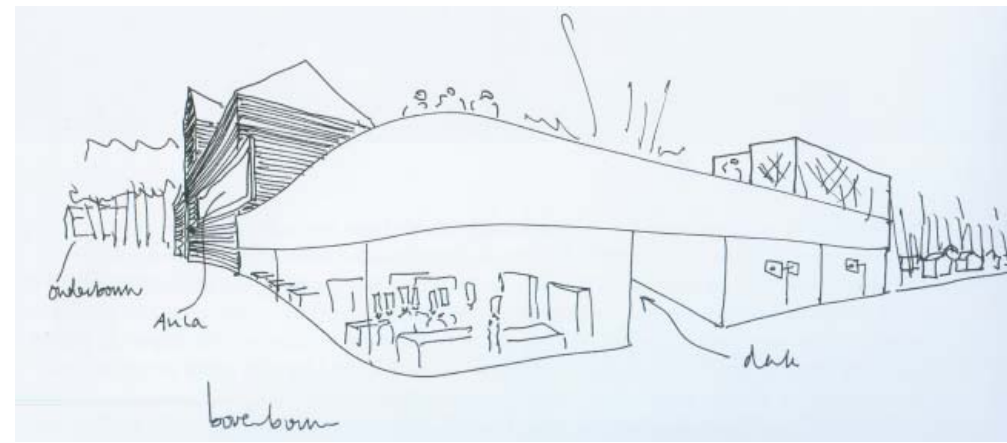


fig.7.35. Sketch Design by Van Gameren en Mastenbroek

