The Vertical Campus
Brings the Outdoors In

By Peter Gisolfi, AIA, ASLA, LEED AP

Photos by Robert Mintzes

The first academic campuses were European; later they thrived in the United States, and evolved as an American tradition. According to Paul Venable Turner, the author of Campus: An American Planning Tradition, most American campuses are derived from three precedents: the Village Green, the Roman Forum, and the Medieval Cloister. Frequently, American campuses are patterned after two or three of these prototypes.

How can we describe a campus? An academic campus is an arrangement of buildings and open space — the physical manifestations of an academic institution. Typically, the campus includes quadrangles, buildings that surround quadrangles, athletic fields, access roads and parking, and other elements that allow the institution to function.

What is a vertical campus? The vertical campus is a catchphrase that describes a recent phenomenon. The piazza at the cathedral in Amalfi is arranged vertically at multiple levels and served as inspiration for the first interior vertical campuses.

In a vertical campus, the functions of the outdoor spaces of a traditional campus are accommodated inside, in vertically arranged space. The social and communal spaces we might ordinarily find outdoors, such as quadrangles, greens and courtyards, are organized within the building to support the school's curriculum and, more importantly, to enhance the school's sense of community.

Occasionally, outdoor terraces and rooftops are employed for recreational and social purposes. Vertical campuses are particularly advantageous in urban settings, where land is virtually unavailable and where building sites can be amazingly small and unreasonably expensive.

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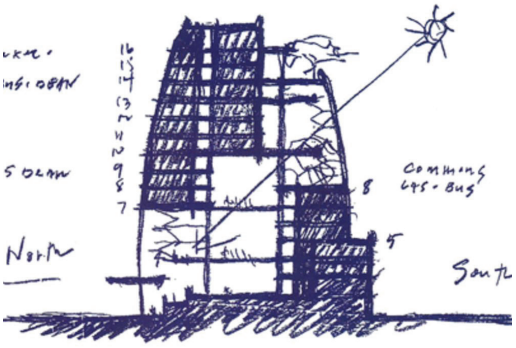
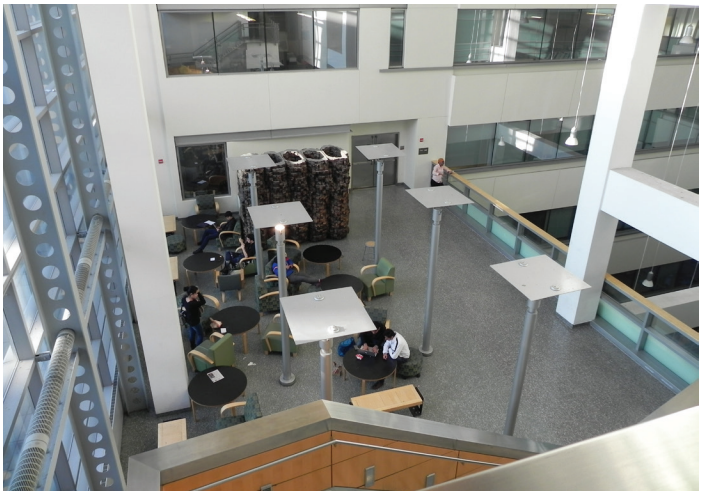
The amphitheater in Herman Hertzberger's Apollo Schools was inspired by the vertical arrangement of public spaces in Italian hill towns (photo from www. studyblue.com)



Baruch College, Manhattan: Conceptual section of the campus shows the great shaft of vertical space (Kohn Pedersen Fox Associates drawing)



Baruch College: Common space, from above, at the south wall. (Photo by Peter Gisolfi)

An Innovative Idea in Amsterdam

Perhaps the originator of the vertical campus is Herman Hertzberger, a Dutch architect who created structures with many levels of interior space. His inspiration for this vertical arrangement came from the public spaces — the piazzas — located in Italian hill towns, where there were dramatic changes in grade. He observed that those sloping settings supported lively communal activity. Even when standing on a balcony overlooking a piazza, one could still be a part of the communal happenings below. Hertzberger applied this idea to schools and other public buildings in Amsterdam, and it evolved into what we now call the vertical campus.

For example, at the Apollo Schools in Amsterdam (1980-1983), Hertzberger used wide, amphitheater-type steps, which also function as seating for small groups as well as large gatherings of children. The informal amphitheater is located in a vertical space, which allows for observation and participation from above. The space mimics the Italian hill town piazzas that Hertzberger admired.

A Vertical Shaft Idea in Manhattan

An example of a large-scale vertical campus is Baruch College in Manhattan. This building, completed in 2001, was designed by the architecture firm of Kohn Pedersen Fox Associates. The essential idea of the campus is a vertical shaft through the center of the building, from the first level to the 13th floor. The space is illuminated by natural light from the north in the lower part of the vertical space, and from the south in the upper part; it includes open spaces where students can congregate, read and socialize. Each floor includes a mix of classrooms and offices around the vertical shaft. The drawing (top left) is a conceptual section of the campus showing the great shaft of vertical space.

Although some of the communal functions of an outdoor campus are accommodated within Baruch's interior spaces, other functions are less successful. For example, the bookstore and cafeteria are connected to the vertical shaft; the recital hall, gymnasium and swimming pool are located in a basement level and are not part of the vertical system.

A Fully Realized Vertical System

A later example of a vertical campus is the Trevor Day School on E. 95th Street in Manhattan, designed by my firm, Peter Gisolfi Associates, and completed in 2015. It is a more modest undertaking than the Baruch College example, but it deals with many of the same ideas.

The site is only 100 x 100 ft, or 10,000 sf, which is slightly less than a quarter of an acre — smaller than most suburban residential building lots. Yet the new school, which includes 15 stories and rises 210 feet above the ground, encloses 110,000 sf of academic space. Almost 9,000 sf of usable exterior space is created on rooftops at three different levels.

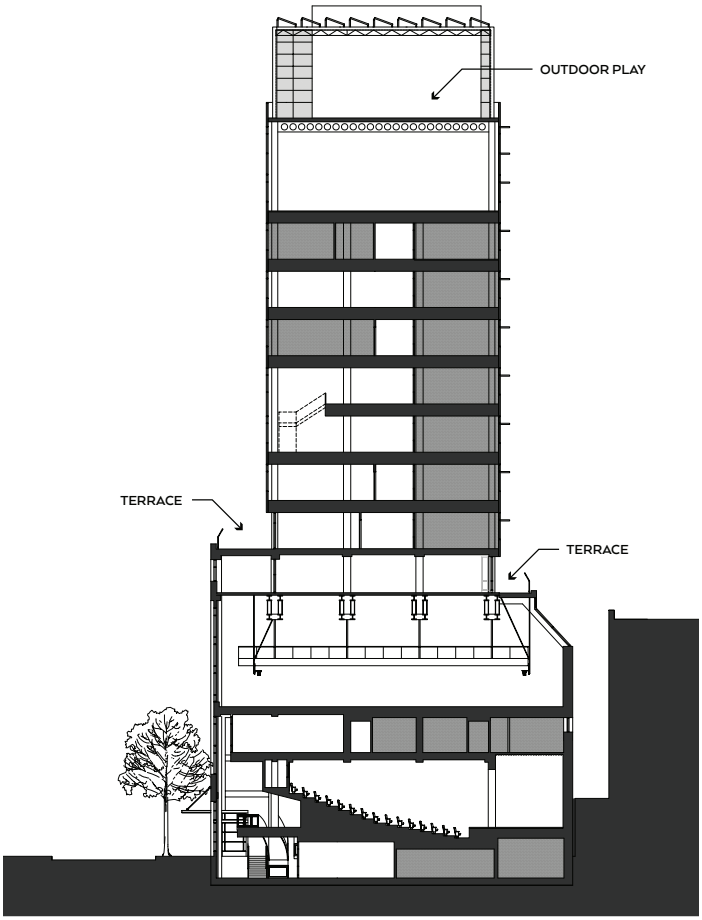
The middle school/high school, which occupies this building, is committed to an "inquiry-based" education. This teaching and learning style calls for academic classrooms to be organized around common open space that includes workstations for faculty and informal study areas for students. Such an arrangement encourages interaction between students and faculty.

From a wider point of view, the building is most easily understood in section. The 85-foot high base of the building hugs the northern property line of the site, along 95th Street. The major communal spaces within the building are arranged within the volume of that base. They are connected with balconies, mezzanines, and open staircases, which extend from the lowest level of the building (six feet below street level) up to the gymnasium and the gymnasium mezzanine, which is used as a fitness center.

The building's occupants can move vertically via elevators, the open staircases, and fire stairs. They see other occupants on levels above and below them. Most of the mezzanines and balconies are located along the northern wall, so that 95th Street is always part of the view. Within this portion of the building, the library is transparent to the dining hall and its south terrace, while music rehearsal rooms overlook a three-story lobby, which serves the theater, the main entrance, and the spaces for admissions. The plan allows those within the building to be aware of the many activities taking place at the same time. This transparency strengthens the communal nature of the school.

Above the 85-foot base of the building is a glass tower that rises another 125 feet. The spaces in this portion of the building include classrooms, laboratories, studios, offices, and common study areas. Four of the seven academic floors in the building are vertically connected to other floors. At the top of the tower is a half-sized gymnasium and, above that, an outdoor play space on the highest roof — 210 feet above street level.

Overall, the building accommodates the usual functions of interior academic spaces and simultaneously accommodates most of the functions that would be located outdoors on traditional academic campuses.



Trevor Day School in Manhattan: the public interior spaces are shown in white; the classrooms are shown in gray (Peter Gisolfi Associates drawing)

Trevor Day School: Most of the mezzanines and balconies are located along the northern wall. (Photo by Robert Mintzes)

Conclusions and Observations

It is clear that Herman Hertzberger is an innovator. The success of the Hertzberger projects is in the smaller-scale connections between levels that allow for visibility, and that allow students to inhabit the stairways and occupy the vertically changing space.

The success of the Baruch College project is the shaft of space, lighted from both the north and the south, which visually connects the interior of the building. The deficiency here is that there are few actual spaces for communal activity. Three of the major gathering spaces — the gymnasium, the swimming pool, and the recital hall — are not part of the vertical shaft.

The success of the Trevor Day School project is in creating the smaller-scale vertical connections (similar to the Hertzberger scale) within a vertically attenuated space. The great opportunity that the Trevor Day School had that Baruch College did not have is the accessibility of the large communal spaces — the athletic spaces areas, the dance studios, the auditorium. All of these spaces are above ground because the water table at this site is only eight feet below street level, and it was not feasible to construct a basement.

The other subtlety is the culture of the school. The Trevor Day School is based on enhanced interaction between the faculty and students, which takes place within the common study areas, the library and the cafeteria, as well as in the many lobbies and mezzanines distributed throughout the building. The gymnasium embraces the urban space of 95th Street to the north; the mezzanine is directly above.

And finally, the outdoor spaces — the terraces and rooftop playground — function in harmony with the indoor spaces to create a communal indoor and outdoor vertical campus within a multistory building. Somehow, In this setting, the absence of a traditional outdoor campus is not a drawback. The building connects visually to the long views of midtown Manhattan to the south, the East River to the east, and to the urban environment of 95th Street to the north. The vertical campus is a viable prototype. When employed effectively, the spirit and function of the traditional campus of buildings and outdoor spaces can be captured in mostly interior settings.

Trevor Day School: All spaces are above ground and are easily accessible to the student body, including such large communal spaces such as the gymnasium. (Photos by Robert Mintzes)

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His articles and essays have been widely published nationally. His book, *Finding the Place of Architecture in the Landscape,* expresses his ideas about architecture and landscape architecture and their relationship to setting.