

# Themes of Light: Aalto's Libraries from Viipuri to Mt. Angel

*Virginia Cartwright*

Associate Professor of Architecture  
University of Oregon  
Eugene, OR 97403  
USA  
vcart@uoregon.edu

Publisher Alvar Aalto Museum  
ISSN-L 2323-6906  
ISSN 2323-6906

[www.alvaraalto.fi](http://www.alvaraalto.fi)  
[www.alvaraaltoresearch.fi](http://www.alvaraaltoresearch.fi)

It has been noted that Aalto's architecture can be considered typologically,<sup>1</sup> and that "[instead] of starting anew with each design project, Aalto based his design on the knowledge gained from past solutions to related problems."<sup>2</sup> It is appropriate therefore to study Aalto's lighting strategies typologically, and chronologically trace the evolution of the characteristics of the apertures and their spatial disposition.



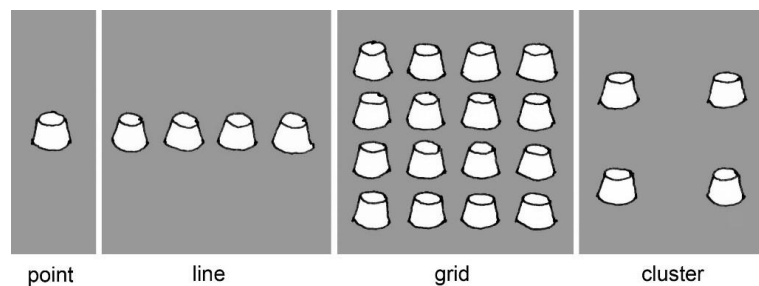
Viipuri Municipal Library

Mount Angel Abbey Library

In the design of the Municipal Library at Viipuri, 1933, "Aalto clearly establishe[d] his own personal architectural language, not the language of other men or movements."<sup>3</sup> He gave form to the themes of light and spatial composition that he subsequently developed over the rest of his career. Aalto wrote "It is possible in a scientific way to ascertain what kinds and what quantities of light are ideally the most suitable for the human eye, but in constructing a room the solution must be made with the aid of all the different elements which architecture embraces."<sup>4</sup> The main reading room in Viipuri uses a regular grid of conical skylights. Elsewhere in the building, Aalto designed windows appropriate for the interior activities. The auditorium has a long strip window starting about seat height and extending above the undulating wood ceiling. The office level above has a series of windows that run from column to column. In the periodical room and the children's library, the windows are approximately square and located high on the wall. This variety of apertures demonstrates Aalto's deliberate crafting of light to activity and architectural circumstance.

Architectural critic Donald Canty describes Mount Angel Abbey Library, 1964, “The heart of the library is [the] central multilevel space, seemingly always in motion and somehow restful and lavishly luminescent. Descending into it is descending into a world apart, a world of books, which is exactly what Aalto had in mind.”<sup>5</sup> Mt. Angel Library has a variety of lighting and spatial themes. It has a curved reading room lit by a large, light monitor. Clearstories are located along the perimeter wall, providing light to the carrels beneath them, and in the auditorium. Conical skylights are used to direct movement and provide emphasis. Located in the offices, and the periodical room, strip windows bring in light and give opportunity for view. Wood slats cover the windows in the south facing offices, the lower level carrels, and the clearstories in the auditorium.

Only two of Aalto’s many luminous strategies will be considered here: the conical skylight, with a horizontal opening; and the roof monitor, with a vertical or near vertical opening. Aalto used the conical skylight in 4 distinct ways: a single skylight, or point; a row of skylights, or line; an array of skylights, or grid; and, a cluster of skylights. Each of these arrangements has a spatial relationship, and a design role within Aalto’s lexicon. The point creates a single pool of light, giving emphasis to a single location. The line relates to the elongated geometry of its space, suggesting movement or division. The grid provides an even, diffuse light over a large area, creating stasis. The cluster defines a small area, of secondary importance, usually within a larger space.



Aalto first used the conical skylight in the Turun Sanomat Building, 1928, developed it in the Sanatorium at Paimio, 1928; and refined it the Municipal Library at Viipuri. Three cylindrical skylights are grouped in a line in the Sanomat building. They are located in the large printing room, positioned against a wall. Here, they wash the wall with light, marking its location at the end of the long room. The changes that Aalto made to these skylights subsequently were both specific to the skylight itself, and in the manner of its deployment.

Aalto’s use of conical skylights at the Sanatorium at Paimio goes beyond their use at the Sanomat Building. The skylights are used in two distinct locations, most notably, in the entrance lobby. Here, there are four skylights in a line, spaced apart, each located in the center of a structural bay. The effect creates four subspaces within the lobby, as well as a threshold into the building.

Elsewhere in the building, Aalto employed a single circular skylight over the examining table in the treatment area. This skylight has a diameter equal to the length of the examining table centered below it and is shallower than it is wide.<sup>6</sup> Drawings indicate an electric light located inside the volume of the skylight over the examining table, an early example of Aalto’s integrating electric and day light.

The library at Viipuri represents the maturity of the conical skylight. Aalto designed a grid of skylights over the main lending and reading rooms of the library. The skylights are proportioned to eliminate direct sun, always providing diffuse daylight. Sun angles were drawn to help determine the ratio of

width to depth. Aalto noted that, “The ceiling has 57 round, conical openings, 1.8 meters in diameter, which function as skylights. The principle is as follows: the depth of the cones ensures that no light rays can penetrate at an angle of 52° or less. Thus the lighting is indirect all year round.”<sup>7</sup> The ceiling is divided into two parts, aligning with the change in floor level between the circulation area and the lower reading room. The grid is uniform over the varying depths of the spaces below. The skylights here are conical rather than cylindrical, which diffuses the light over a greater area. The number of skylights ensures that each location in these two rooms enjoys light from multiple sources, giving a shadowless light.

There is one more conical skylight in Viipuri. Located in the entry space of the lecture hall, just beyond the restrooms, this skylight brings light into what otherwise would be a dark corner. Its light washes the walls adjacent to it. This skylight works to draw people from the entrance to the antechamber of the lecture hall.

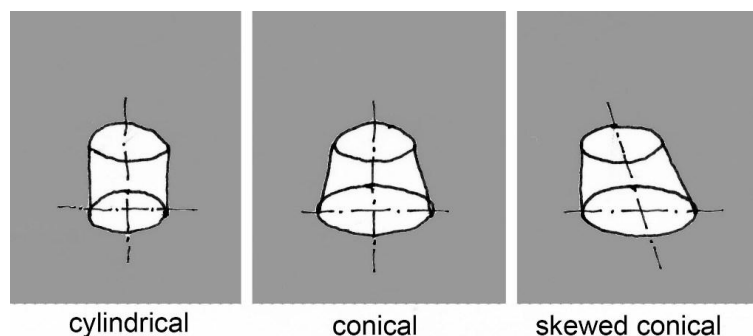
Aalto designed the Finnish Pavilion for the Paris World's Fair in 1937. The main exhibit space is lighted by a grid of cylindrical skylights. As with Viipuri, the result is a diffuse illumination, with no hierarchy. An innovation introduced here is the electric lighting located on the roof, over each skylight. With electric lighting external to the building, the interior ceiling is free of interruptions. It is now a flat white plane with 30 glowing disks.

Shortly after this project, Aalto designed the Villa Mairea, 1938. There is a conical skylight located over the children's area on the second level. This single skylight marks space, giving an implied center to the playroom. As an architectural device, its solitude gives it importance, and its use is akin to that in the surgery at Paimio.

In the design for Baker House, 1945, Aalto used the conical skylight again. A grid of skylights, this time 4 by 6, marks the roof of the dining area. As in Paris, each skylight is given an exterior electric light. The grid is not centered in the volume of the dining pavilion, but rather aligned with the lower level dining area, adding a subtle shift in emphasis.

In the National Pensions Building, 1953, Aalto orchestrates a number of lighting strategies. The conical skylight makes an appearance in a number of ways, as a line, a grid, and paired to create a point. Over the small two-room library is a grid of conical skylights. These rooms have been likened to Viipuri Library, but at a smaller more intimate scale and with a sunken pit dedicated to reading rather than circulation. One variation in these skylights is that their interior edges are rounded, which softens the gradation of light from the skylight well to the ceiling.

Of particular note are the conical skylights in the dining room. The 22 skylights here are distributed in clusters. Fifteen of the skylights are located in the kitchen, distributed according to the separate task areas. In the main dining area, four skylights are located in a line, in an area that is used for self-service. The remaining three are distinct. Two are almost touching, while the third is a short distance away. However most noteworthy is that these 3 no longer have a vertical axis, but are skewed to the southeast with an asymmetric well. In the ceiling plane they are no longer circular, but are oval. This first step toward modifying the geometry of the skylight is significant in the transformations to the skylights that will occur in later building designs.



The library in the Jyväskylä Institute of Pedagogics, 1951, includes conical skylights, but here they are not the dominant lighting type. The six conical skylights mark the entrance. In the work area, the skylights form a square in keeping with the shape of the space.

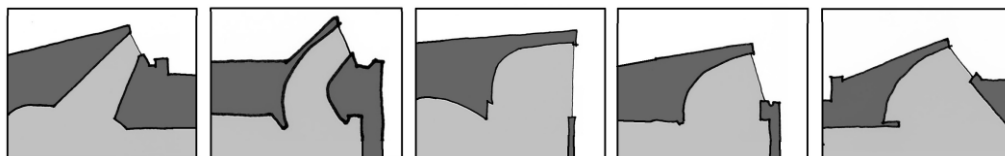
In Studio Aalto, 1954, he used a single circular skylight to highlight the lone column in his own office. The skylight is circular at the roof, but triangular at the ceiling. The circle is not centered in the triangle, but tucked in the apex. The splay of the skylight well is also asymmetric, biased towards the column. This has the effect of directing most of the light to the column.

The library within the Cultural Center in Wolfsburg, Germany, 1958, has several daylighting devices assigned to the different activity areas within the library. While they are all in one large room, there is a distinction between the stack area, reading area, and the lending desk as defined by light. The circular skylight is present, now located over the sunken reading well, the lending desk and the card catalog room. The skylights are arranged in a grid with a triangular shape over the reading well. A line of five conical skylights starts over the lending desk and leads to the periodical room. A line of six conical skylights illuminates the elongated card catalog room.

The conical skylight is used again in the library in Rovaniemi, 1961. They are used in public areas, such as smaller reading rooms, the periodical room and work areas. These lights are used in two ways. One is to balance the light levels provided by windows and other devices. The other is as the sole means of daylighting the room.

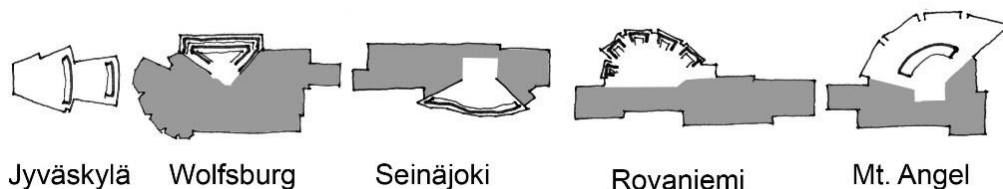
Finally, Aalto's design for the library at Mount Angel Abbey includes a number of conical skylights. These are located in the entrance lobby, the corridor of the office area, in the catalog area, and over the lending desk. All of these skylights have exterior electric lights located above them. The four skylights in the lobby and, just beyond the glass partition, in the library, serve to connect the separate spaces, drawing one into the library. In the office hallway, the line of four skylights measures the movement into the work area. The two skylights over the lending desk emphasize its location while providing working light. The dropped, slatted-wood ceiling reinforces the emphasis. The lower reflectance level of the ceiling strengthens the contrast of the pools of light.

Similar to the conical skylight, the evolution of Mount Angel's arced north-facing light monitor can be traced back to earlier Aalto buildings. Each building represents a step in the evolutionary path of Aalto's monitors. His light monitor originated in the Turun Sanomat Building as the flat elongated skylight, which illuminates the north edge of the printing room. It was composed of a series of rectangular flat skylights, which washed light down the basement wall behind the presses and the mezzanine.



Aalto incorporated two monitors in the theater of the Pedagogical Institute at Jyväskylä. The seating area of the auditorium is divided into two sections. Monitors were located in each section, which reinforced the idea of subdivision. The internal shape of the well of the monitors is similar to that of the conical skylights, that is a conical shape tilted to the north. An important feature of these monitors is that each follows the curve of the seating below, reinforcing the arc of the amphitheater. Electric lights were placed inside each of the wells. Thus a number of key features of Mount Angel's curving monitor were introduced: a monitor rising above the volume of the space, the curved face oriented to the north; and, the integration of electric light within the well.

In the Cultural Center in Wolfsburg, Aalto used similar daylighting monitors in the five theaters. The monitors break the line of the roof in straight lines oriented toward the south. Aalto curved their section interrupting the passage of sunlight, further assisted by internal louvers.



Two monitors outline the major spaces of the library. One runs along the perimeter wall of the library, where most of the bookshelves are located. The second line traces three edges of the large reading well, where shorter bookshelves are located. As in the auditoria, the section of the monitor is curved, though the orientation is determined by the location of the monitor, facing primarily east.

Aalto's design of Seinäjoki Library, 1960, has a highly articulated ceiling section. A monitor, sitting above the lower roof of the entry bar, lifts up the entire roof of the main library room. The interior surfaces of the ceiling are sloped and vaulted responding to the light source and the spaces below. The crescendo is the high south-facing clearstory with its half-vaulted ceiling space. The form of this vault can be seen as a derivation of the curved section of the Wolfsburg Cultural Center, at a larger scale.

In the Rovaniemi Library, Aalto fragmented the north wall of the library into facets. The five facets are each illuminated by a U-shaped monitor. These monitors have a section similar to that at Seinäjoki, but their shape is closely aligned with those at Wolfsburg. They are associated with the bookshelves rather than the reading areas.

At Mount Angel Library, Aalto again used the faceted plan form that he had used in Wolfsburg, but here the monitor is pulled into the interior of the plan and is associated with the reading well. The north-facing curved monitor has a section, not unlike that at Rovaniemi, but follows the smooth arc of the well. With this gesture, Aalto created a “grand reading room” in the center of the library. The vault of the monitor lifts the ceiling while the dropped floor increases the volume of the space.

Only two lighting strategies have been presented here, and not in the depth they deserve. Each of Aalto’s lighting strategies can be studied as these have been. With a shift in placement, or an increase in number, Aalto used lighting devices “to crown or accent spaces, to denote movement from place to place in light, or to punctuate activities...”<sup>8</sup> His skill with this language grew over time, allowing him more subtle and nuanced statements. Understanding the type of aperture, its relationship to function, and its effect on the experience of the space gives us a lexicon for reading his entire architectural works. As we develop a better understanding of Aalto’s lighting language, our appreciation of its range of vocabulary and subtlety can only deepen.

---

1 1 Miller, William C., “Alvar Aalto: From Viipuri to Mt. Angel”, *Architectural Association Quarterly*, vol 10 no 3 1978, pp. 30-41

2 Miller, p. 34

3 Miller, p. 33

4 Aalto, Alvar, “The Humanizing of Architecture”, Schildt, Goran, *Alvar Aalto: In His Own Words*, 1998, Rizzoli, p. 106

5 Canty, Donald, *Lasting Aalto Masterwork: The Library at Mount Angel Abbey*, 1992, p. 16

6 Norvasuo, p.

7 *The Architectural Drawings of Alvar Aalto 1917-1939* vol. 3 1994, Garland Press, p. 266

8 Peters, Richard, “Masters of Light: Alvar Aalto”, *AIA Journal*, September 1979, p. 53