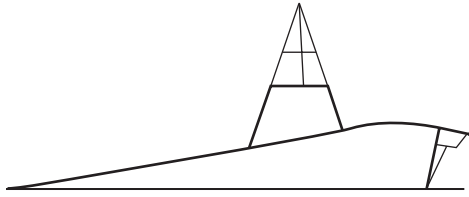


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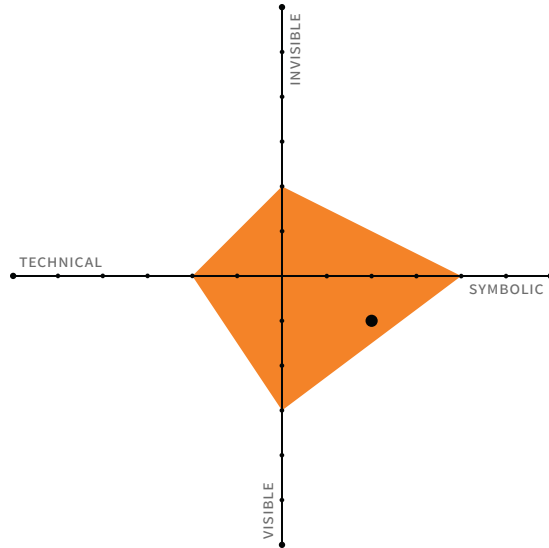


# Delft University of Technology Library

Mecanoo

Delft, Netherlands

1998



*Founded in 1984 in Delft in the Netherlands, Mecanoo aims “to create identity in a world of globalization.”<sup>1</sup> The architectural firm, which now also has offices in Manchester in Great Britain, Washington D.C. in the United States of America and Kaohsiung in Taiwan, is adept at observing the cultural and climatic particularities of different locations around the world and designing unique buildings accordingly. Mecanoo is known for its playful architecture and clever contrasts.*

**“A vast lawn opposite the Brutalist concrete auditorium is tilted at one point; the library slides into the resulting space underneath.”**

– Mecanoo<sup>2</sup>

Built for the Delft University of Technology in 1998, the new campus library creates a dialogue with its surrounding architecture. Facing the neighbouring auditorium, the library is housed underneath an inclined lawn surface. It is almost completely covered by a slanted green roof that seamlessly connects to the lawn behind it, allowing students to walk up – and even sled down it in the winter. The green roof is thus easily accessible and can be enjoyed by everyone.

Its design began in 1993, just a few years after the building of the first European *Passive Haus* in Germany in 1990, and the launch of the BREEAM building energy efficiency rating system in Europe. It also closely followed the Environmental Protection Agency (EPA) Act of 1992, the launch of the Energy Star program in the same year, as well as the forming of the United States Green Building Council (USGBC) in 1993.



Fig. 1: Aerial view of the Delft University of Technology Library

*“A cone, the symbol of technical engineering, pierces the lawn and library, attaching them like a pushpin.”<sup>22</sup>*

Even in its simplest form, a green roof carries a great amount of meaning and symbolism. In this case, this is emphasized not only by the fact that it encompasses the entire building, but also by the continuity it creates, uniting both roof and ground. Additionally, it is visually and experientially connected to the auditorium, a building by Van den Broek and Bakema. In designing the library, Mecanoo went to great lengths to complement and connect the existing architecture surrounding the library's site. Instead of competing with the imposing presence of the brutalist concrete auditorium, the library becomes part of the landscape and its angles even flatter those of the



Fig. 2: Under the cone.



Fig. 3: Glass facade



Fig. 4: Students taking advantage of the green roof.

auditorium. The contrast between the towering concrete auditorium and the adjacent expansive green roof of the library form a formally balanced whole.

A cone-shaped structure which houses a spiralling staircase pierces out of the library and through the green roof, providing a large skylight, Mecanoo's signature characteristic. The cone is a symbol of technology and is metaphorically suggestive of a pushpin affixing the landscape to the library underneath.

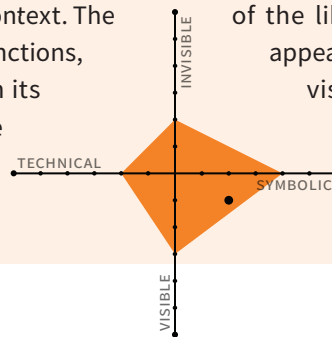
At the other end, slanted glass façades create a uniform and bold surface, allowing abundant sunlight to penetrate the building. The glass façades are equipped with high-performance glazing for climate control. Along with the columns in the central hall which provide structure, heating and lighting, the underground heating and cooling storage also magnify this feature. To top it off, the green roof was renovated in 2009 to include cellular glass insulation.<sup>3</sup>

## Mapping

Despite the technical features, the library's overall environmental expression succeeded in maintaining a balance between form and content. The architectural discourse supported the grand gesture of the extensive green roof. It was referred to, not as a key environmental feature, but rather as one that is intended to encourage social encounters and activities throughout the year. The library does not convey a message of a building designed through a technological lens. It instead imbues a strong symbolic sensibility that seems to be achieved through the sensitive integration of the building into its context. The design is focused on the library's functions, and perhaps more importantly, on its appearance and its relation to the *aula* — the brutalist neighboring auditorium. As such, the library

is ranked relatively high along the symbolic side of the architectural rhetoric axis, with a slight emphasis along the technical side.

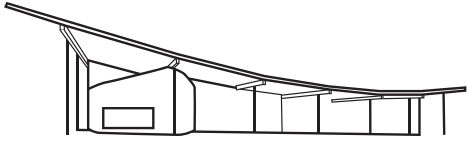
However, the green roof may reduce the library's visual articulation to one that expresses an environmental agenda. However, its accessibility to users emphasizes more of a socio-cultural intent. Aside from the green roof, the building boasts a series of invisible eco-strategies, like underground storage for heating and cooling and high-performance glazing. The distinguishability of the library's environmental approaches appears to be perfectly balanced between visible and invisible components, as the score along the environmental expressiveness axis indicates.



## Awards

1998 National Steel Construction Prize,  
Dutch Steel Building Institute

2000 Award for the Millennium, Corus Construction.

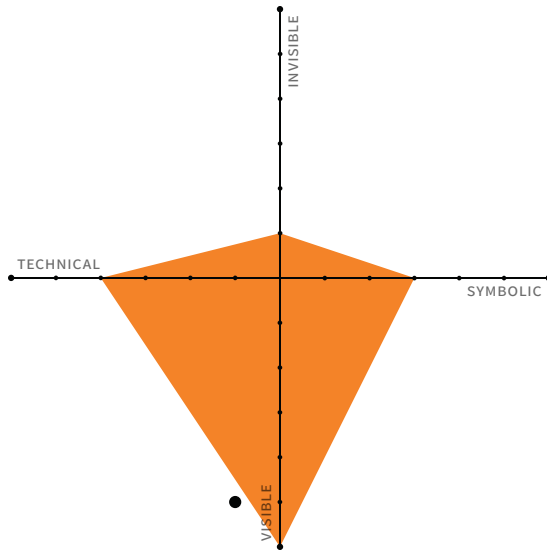


## Ballard Library

Bohlin Cywinski Jackson

Seattle, Washington, USA

2005



*Based in the United States with offices in Wilkes-Barre, Pittsburgh, Philadelphia, Seattle and San Francisco, Bohlin Cywinski Jackson is an architectural practice known for its emphasis on the relationship between building, place and user, and its elegant, humane and sustainable designs. Carefully considering the specifics of a site's distinct climate to make the most of its sunlight, wind and land, they view sustainable design "as the right thing to do ethically, but also as an opportunity to make a richer, more powerful architecture."<sup>4</sup>*

Built in the Ballard neighbourhood in Seattle in 2005, the Ballard library's key feature is an upward-curved green roof, supported and shaped by wooden beams. The roof extends over both the library and the civic center. Supported by tapered steel columns, the roof also extends outward providing protection from the weather to passing pedestrians. The architects' attention to the neighbourhood's Scandinavian cultural heritage and maritime tradition can be seen in the extensive use of wood and especially in the muslins that extend beyond the roof's edge.

***"An illustration of green building on a modest budget, this project shows what benefits are realized when sustainable design is combined with extraordinary architecture."***

*– Bohlin Cywinski Jackson<sup>5</sup>*



Fig. 5: The sheltering curved green roof of the Ballard Library

The Ballard library acts as a showcase of environmental features. The team went to great lengths to make the symbolic green roof visible, not only from above, but also from below. A small windowed room protrudes to give visitors a panoramic view of the roof, and a periscope was built into one of the walls to allow people to see the planted roof from the lobby. The patrons of the library do not, however, have access to the roof. It is essential for a variety of environmental benefits, such as to reduce stresses in the city's drains, to help maintain the temperature inside, and for its potential to add biodiversity to the neighbourhood. The green roof, containing 18,000 low-water plantings which help absorb a great amount of storm water, is an important feature in such a rainy city.



Fig. 6: Green roof

*“Designed with a deep, welcoming front porch and a green roof, this highly visible building has become an icon for the community and a statement of its values.”<sup>5</sup>*

The roof's upward sweep helps the building in several ways. The extended overhang fosters an inviting building entrance, equally providing shelter to the exterior space underneath it. Since the roof rises to the North, it allows indirect light to stream in, reducing lighting and cooling requirements. This results in rich interior daylighting, perfect for a reading environment.

In addition to the light coming in from the roof, the building's façade, mostly covered in glass, lets plenty of natural light in.

A row of photovoltaic panels on the roof serve as an educational tool, though they do not provide energy for the operation of the building. Paired with an array of sensors



Fig. 7: Lookout on the green roof



Fig. 8: Evening view of the Ballard Library

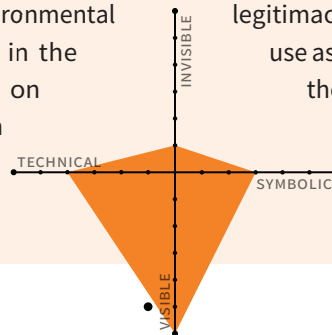


that can read environmental conditions, they transmit information to a digital artwork placed inside the library which uses LEDs to display an abstract interpretation of the weather above. The photovoltaic panels, which are equipped with a meter to indicate solar gains, are located in the

southwest windows to help reduce heat gain. The visible meter readings help demonstrate the effectiveness of solar energy, particularly in the Pacific Northwest. The skylights are among these sustainability features intended to be seen by the patrons of the library.<sup>6</sup>

## Mapping

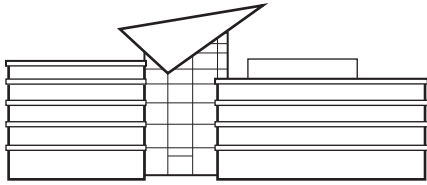
In assessing the library's environmental design approach, the team not only chose to describe this library in terms of its extensive technical achievements, but they ensured that many of these were clearly visible to patrons and passers-by. The demonstrative nature of these features places the Ballard Library high along the visible side of the environmental expressiveness axis. Aside from a few references to Ballard's cultural background, the architectural description revolves around the multitude of environmental features that have been included in the library. The library relies heavily on the many technical merits in order to express its qualities and much less on the symbolic



development. The spatial intents and meaning of the project are much less developed in terms of how the architects describe the project, as well as in the material, spatial and constructive choices made. This is indicated along the architectural rhetoric axis where more weight is given on the technical side. This building received a plethora of awards, specifically in the category of green building awards. Does the spectacle character of this environmental architecture add to the legitimacy of its environmental strategies? Its use as an educative means is key to sensitize the community regarding its responsible design, but may not accomplish much more than raising awareness of the eco-technologies.

## Awards

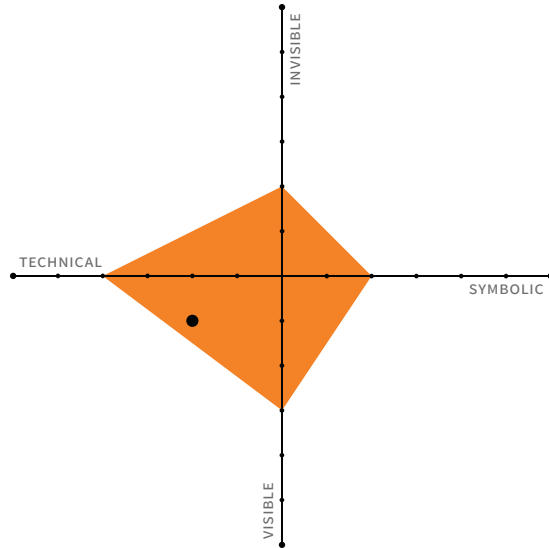
- 2009 Beyond Green Award (Sustainable Buildings Industry Council)
- 2009 Green GOOD DESIGN (The European Center for Architecture and The Chicago Athenaeum)
- 2008 Award for Excellence in Place Design (Environmental Design Research Association and Metropolis Magazine)
- 2008 Special Award (Wood Design Awards)
- 2007 Merit Award for Design (AIA Northwest and Pacific Region)
- 2007 Design Award (AIA/ALA Library Design Awards)
- 2006 Green Roof Award of Excellence—Extensive Institutional Category (Green Roofs for Healthy Cities)
- 2007 Award of Commendation for Design (AIA Seattle)
- 2007 National Honor Award for Design (American Institute of Architects)
- 2007 Top Ten Green Projects (AIA, Committee on the Environment)
- 2005 Honor Award for Civic Design (AIA Washington Council)
- 2003 Commendation for Design Excellence and Innovation (Seattle Design Commission)



# Minneapolis Central Library

Pelli Clarke Pelli

Minneapolis, Minnesota, USA  
2006



*Founded in 1977 and based in Connecticut, Pelli Clarke Pelli Architects have designed some of the world's most recognizable buildings. The firm renounces any signature style and instead prides itself in their individualized attention given to each project. They have been designing environmentally sustainable projects for over a decade, and consider aspects of sustainability that surpass technical concerns of energy efficiency, taking into account economic and cultural factors surrounding each project.*

Located between the business district and the arts district of downtown Minneapolis, the new Central Library and its extending “wing” aim to be a landmark for the city. Built in 2006, it replaces the old library dating from the 1950s.

The library's design is inspired by the city planning of the site surrounding it. The building is situated between two connected street intersections which come together at slightly different angles. So, the building is composed of two main rectangular blocks, each rotated to align with

***“The building's highly sustainable design—the result of a collaborative, public process—reinvigorates the idea of the grand urban library for new generations.”***

*– Pelli Clarke Pelli <sup>7</sup>*