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Louis Vuitton Foundation

Courtesy Paul Gaudriault

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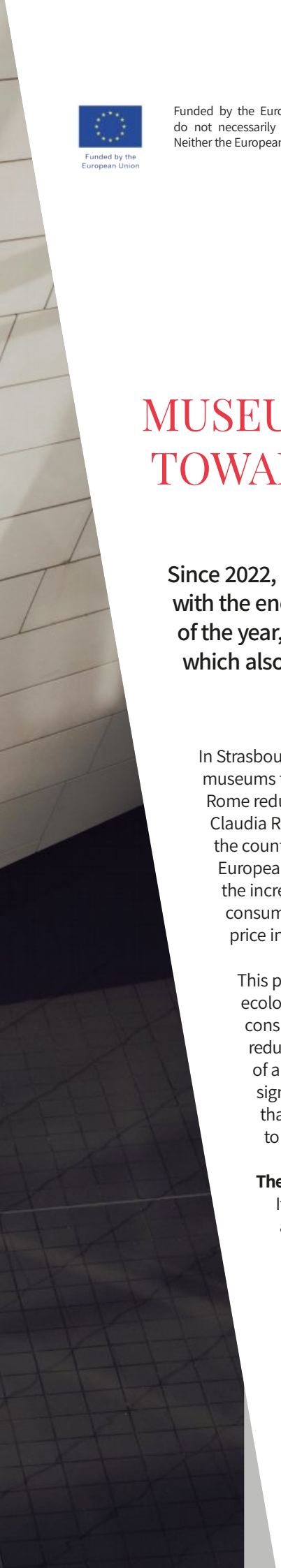

MUSEUM ARCHITECTURE: ON THE WAY TOWARDS SUSTAINABLE DEVELOPMENT?

Since 2022, European museums have reported difficulties in dealing with the energy crisis. As the situation has become critical at the beginning of the year, institutions are compelled to scrutinise their expenses, which also reside in the architecture and the very structure of their buildings.

In Strasbourg, the decision last October to close the city's museums two days a week caused quite a stir. In Italy, the MAXXI in Rome reduced its opening hours by two hours, while in Germany, Claudia Roth, Minister of State for Culture, vowed to maintain the country's cultural offerings at all costs. Since the end of 2022, European institutions have had to take measures to cope with the increase in their energy expenses, as much due to intense consumption peaks since the end of the health crisis as to price increases resulting from the war in Ukraine.

This pressure has highlighted the interest in an accelerated ecological transition to reduce costs induced by energy consumption, where the use of renewable sources and the reduction of carbon footprint go hand in hand. As the activities of a museum involve a large number of elements requiring significant and continuous amounts of energy, it is clear that the very architecture of buildings has long neglected to take such issues into account. What about today?

The first museums

It was during the 18th century that the first museums appeared in Europe, built around curiosity cabinets and private collections. By the end of the century, two models emerged: the Pio-Clementino Museum in the Vatican and the Museum Fridericianum in Kassel. They combined functional principles — in the display of works with, for example, paintings associated with rooms and sculptures with galleries — and symbolic principles — embodied by the dome, reflecting the sacred space of knowledge and memory.

In 1802, the ideas of architect and theorist Jean-Nicolas-Louis Durand gave birth to new institutions in Europe and introduced new materials such as iron in their construction. In the mid-19th century, this momentum found its concrete forms in the use of glass, cast iron, or steel. The space and architectural ambition of museums allowed for real revolutions in the urban landscape.

The expansion and gradual diversification of inalienable museum collections raised the issue of storage and conservation space. In the mid-20th century, Le Corbusier offered modern solutions with the concept of the "museum of unlimited growth," the possibilities of internal rearrangements allowing it to adapt to any evolution.

Contemporary museum architecture oscillates between a neutral framework aiming to enhance the collections it contains and the architectural work, like the spiral structure of the Guggenheim in New York, built in 1959. Following the same trend, the Guggenheim Bilbao, created in 1997, was designed by Frank Gehry, who has been involved in numerous museum projects where form dissociates from function: the Louis Vuitton Foundation in Paris or

— Diotima Schuck

Guggenheim Bilbao

Photo Pedro Sanz

the LUMA Foundation in Arles. He is, of course, not the only one. Because the museum also allows its architect to propose a vision, their own. But what place is given to ecology and sustainable development in these projects?

Environmental awareness

In museums, the issue of the environment emerges in the 20th century. Initially presented in the form of scientific knowledge, climate is introduced through its role in the various stages of the planet's transformation. The human impact on it is not yet considered, and knowledge remains limited.

While the environment is present in the themes addressed by the museum, it appears in an informative and educational context. The social role of such an institution truly emerges in the 1960s. It then becomes a place of education, pedagogy, and opens up to ecology, stimulated by the nascent dialogue between the exhibited works and the public.

In 1992, the UNESCO-ICOM Museum Information Centre published a list of works dealing with the subject. The discourse turns towards ecological awareness and awakens to the direct impact of museum practices on the environment. In the United States, the American Alliance of Museums (AAM) created the Committee on Environment and Sustainability in 1994 — which became the Green Alliance in 2008 — and proposed sustainable development standards in good museum practices. The same year, the Association of European Museums (AEM) undertook steps allowing a report on the sustainable museum to be published.

Although museum networks and organisations have committed to reducing their environmental impact and adopting sustainable practices since the 1990s, there remains a gap between widespread awareness and its implementation. It is not until the 2000s, at least, that the ecological impact of museum architecture can begin to be taken into account, as demonstrated by the Pompidou-Metz Centre in France, opened in 2010.

Energy expenses

Initially constrained by the capacity of their reception spaces facing an ever-growing audience and by their storage potential for works of art, museums now also undertake renovation projects to meet the need to develop more sustainable practices. In particular, old buildings represent significant challenges, often requiring costly restructuring.

Building operation and maintenance, lighting and temperature control, artwork transportation… A museum's activities require significant and continuous amounts of energy. From a sustainable development perspective, all these elements need to be analysed and rethought, including the building's thermal performance, heating and air conditioning systems, internal and external human circulation, water and fluid management, waste production… even the products offered for sale in the museum shop or its dining area.

Similarly, artwork conservation raises questions: how can museum architecture take into account the expansion of collections over the long term and their progressive deterioration? Because if it is to be sustainable, the museum's structure must not only provide the most ecological reception space possible but also inevitably take into account the objects it contains.

Sustainable museum

For museums, the concept of sustainable development is closely linked to the implementation of preventive conservation policies. As the raison d'être of these institutions, the works they contain are heavily dependent on the environment in which they are preserved: it is about taking care of the outside to protect the inside.

First developed by the International Council on Monuments and Sites (ICOMOS) in 1980 within the framework of international conferences on the conservation of cultural heritage, the concept of preventive conservation emphasises measures against deterioration. It is no longer just about limiting conservation to artwork restoration.

To achieve this, a museum's structure can take into account a variety of parameters that allow it to respect the environment while protecting its collections as best as possible. The architect can optimise the natural terrain, use natural ventilation, or install photovoltaic panels. The construction materials generally strike a balance between durability, non-toxicity, recycling, renewability, and low-pollution manufacturing. However, insulation remains a problem, as animal- or plant-based insulators are flammable and attract insects. Finally, the structure's modularity sometimes comes into play in the design to allow for interior rearrangements.

The "High Environmental Quality" (HQE) approach, established in France in the 1990s, facilitates the implementation of such principles in architecture. The initiative has international repercussions, later integrated into the BREEAM environmental certification system for buildings in the United Kingdom. Today considered a benchmark in sustainable construction, it is often one of the criteria in architectural calls for projects for museums, as was the case for the Quai Branly Museum in Paris.

Many museums around the world have not yet embarked on this transition — notably, the Guggenheim Museum in Abu Dhabi has faced significant criticism for its construction — however, ecological initiatives are increasing, and research for sustainable development is constantly evolving, posing new challenges for architects. Although this awareness is still recent, it is indeed gaining momentum, whether among the public, cultural actors, researchers or engineers, all in search of new solutions.

Fondation LUMA

Photo Clemens van Lay

Centre Pompidou Metz

Photo Frederic Lo Brutto