

01. Industrial Archaeology. European approach to recovery productive memory

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Mara Capone, Noelia Galván Desvaux Luis Agustin-Hernandez, Lucas Fernández-Trapa

Industrial Archaeology European approach to recovery productive memory

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BLENDED INTENSIVE PROGRAMME

Industrial Archaeology. European approach to recovery productive memory

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Ombù: an innovative example of industrial building reuse project in Madrid by Foster + Partners

Gianluigi Freda

An abandoned industrial site is not an archaeological site, but an opportunity for a new urban development

For many years, in the cultural language code concerned with Architecture and urban heritage studies, the term "industrial archaeology" has been used when referring to abandoned industrial artifacts that retain architectural and stylistic features of a certain value. In reality, the use of the expression "industrial archaeology" becomes inappropriate when one focuses on the temporality to which the archaeological condition refers (Casamonti, 2022). The ancient or archaic time that permeates the existence of archaeological remains has nothing to do with industry and its production apparatus, which are essentially a modern legacy. Nor is the mystical aura glimpsed among the ruins of a classical temple comparable to the rust that invades the many industrial residues, rendered unproductive just a few decades ago and destined for a degradation that appears increasingly irrecoverable.

However, many of these abandoned buildings still possess spatial qualities and formal characteristics that are very valuable to the contemporary city. Moreover, they belong to collective memory and to the history of places, and reintegrating them into a new cycle of life appears to be a solution that aligns well with the contemporary sensitivity that the culture of architecture design is demonstrating towards the concept of urban circular reuse. The transformative approach, which represents its theoretical and practical foundation and is applied to the revitalization of

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Fig. 1. Exterior view of building. Originally built in 1905 by the architect Luis de Landecho, the building once supplied energy to the surrounding areas. It later fell into disuse until ACCIONA acquired it in 2017, saving it from demolition, a fate that other similar structures in the area had experienced in recent years (image: © Nigel Young / Foster+Partners). abandoned industrial sites, replaces the traditional linear model of "take, produce, dispose" with a regenerative system that seeks to minimize waste and maximize the value of resources. Within this approach, abandoned industrial sites, once unproductive and sterile, become the new hubs of a dynamic ecosystem of material flows, energy exchanges, and resource utilization.

Adaptive reuse and regeneration of industrial sites also make urban renewal efforts more effective in terms of environmental sustainability and Ombù: an innovative example of industrial building reuse project n Madrid by Foster + Partners Gianluigi Freda



cultural heritage preservation, using innovative design strategies through the intrinsic qualities of existing structures to minimize environmental impact and maximize the potential for social and economic revitalization. The reuse of abandoned industrial buildings, which exhibit conditions favorable to balancing the energy expended in their reactivation with the actual benefits for residents and the city in economic, functional, and environmental terms, is a design action that goes beyond mere physical transformation. It becomes an operation of high symbolic value,

Fig. 2. Historic industrial building built in 1905 by Luis de Landecho (image: © Rubén Pérez Bescos / Foster + Partners).



Fig. 3. The lightweight structure inserted inside the space is made from sustainably sourced timber from local forests and allows for spatial flexibility (image: © Nigel Young / Foster+Partners). especially when the buildings to be reactivated are located in marginal areas. These containers resurrected to new life trigger a process of revitalization for the entire neighborhood, generating new forms of productivity aggregation, especially of cultural origin.

The need to promote regenerative processes in architecture also contributes to the preservation of urban identity and represents a response sensitive to environmental issues. The reuse of industrial structures, adapted to new functions, indeed provides a sustainable solution to the excessive use of land and the progressive and unstoppable depletion of resources. For many years now, international urban policies have promoted the development and sustainable use of resources. Europe is particularly sensitive to this issue, given the potential of reusing the many industrial buildings scattered throughout the territory in terms of safeguarding and saving land in historic centers. There are many documents produced by the EU that focus on deepening this topic. Among these, the Sustainable & Circular Reuse of Spaces & Buildings Handbook emphasizes that:

"As the available land is often scarce in cities and the urban sprawl is burdensome and costly, re-using existing buildings emerges as an alternative. Promoting re-use practices will help to ensure more sustainable urbanisation, with multiple benefits not only for managing authorities, but also for all citizens" (Urban Agenda for the UE, 2019, p. 12).

In light of this political approach, sensitive to environmental and urban issues, which materializes in the reuse of disused industrial heritage, there are many architectural project experiences moving in this direction in Europe. Some of these experiences have been carried out by internationally renowned firms that have also been able to interpret the theme of reuse in an innovative and exemplary manner for future projects. One of fhe most significant in this regard was the redevelopment of an industrial building in Madrid, elaborated by Foster+Partners Office in 2022.

Ombù: an Ark of innovation and environmental sensitivity

Not far from Madrid's Atocha Station, along Calle del Ombù, stands the majestic brick building stretching about a hundred meters in length, built in 1905 by the Basque architect Luis de Landecho on behalf of the Sociedad Gasificadora Industrial (Fig. 1). The large structure, characterized by neo-Gothic decorations, was intended to house the engine room, which, along with other industrial buildings in the area owned by the same company, provided power to part of the city.

Fallen into disuse and destined for demolition, in 2017 it was acquired by the Spanish infrastructure company ACCIONA, which commissioned Foster+Partners studio to transform the large empty shell with steel

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Ombù: an innovative example of industrial building reuse project n Madrid by Foster + Partners Gianluigi Freda



trusses into its office headquarters.

As stated by the studio, the retrofit operation aims to reintegrate a disused industrial building into the city's life and productivity cycle, preserving its historical and cultural identity.

At the core of the design intervention is the intention to preserve the integrity of the facades and to intervene only internally without modifying the layout volumetrically. Additionally, the project utilizes the existing load-bearing structure that supports the inclined steel trusses. The large interior space (Fig. 2), that seems to be a reminiscent of a cathedral nave, is cleared and restored, and within it, a large three-story wooden structure (Fig. 3) is placed to house the functions required by the client. Similar to an ark, containing precious objects, this structure is made from timber sourced from sustainably managed forests in northern Spain, providing spatial flexibility and integrating lighting, ventilation, and other services. The structure is supported by wooden pillars that free up space on the ground floor, allowing for unrestricted circulation Fig. 7. Exterior view of building. One of the most sustainable projects by Foster + Partners, the project was presented at COP26 in Glasgow as a case study for the World Green Building Council. Its environmental impact is compatible with the original 2°C aim of the Paris Agreement and its carbon footprint has been carefully measured and controlled. (image: © Nigel Young / Foster+Partners).

Fig. 4. The lightweight structure inserted inside the space is made from sustainably sourced timber from local forests and allows for spatial flexibility, while also integrating lighting, ventilation and other services (image: © Nigel Young / Foster+Partners).

Fig. 5. Interior view of building. The lightweight structure inserted inside the space is made from sustainably sourced timber from local forests and allows for spatial flexibility (image: © Nigel Young / Foster+Partners).

Fig. 6. The lightweight structure inserted inside the space is made from sustainably sourced timber from local forests and allows for spatial flexibility, while also integrating lighting, ventilation and other services. The timber structure will save more than 1,600 tonnes of CO2 and is recyclable and demountable. A central skylight brings natural light to the interior, reducing the need for artificial lighting, while the glazing incorporates photovoltaic technologies that generate electricity (image: © Nigel Young / Foster+Partners).

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Fig. 8. Courtyard adjoining the building. Taking advantage of Madrid's temperate climate, the new courtyard offers the option to comfortably work outdoors (image: © Nigel Young / Foster+Partners).



(Figg. 4, 5), while existing windows in the envelope and a skylight in the pitched roof provide natural lighting and ventilation, ensuring great comfort during office hours.

The reuse and redevelopment operation, which finds its strongest symbol in the wooden structure placed inside (Fig. 6), also has a significant impact on the external areas, treated as a large surface in continuity with ACCIONA company's workspaces (Fig. 7). Carefully selected local flora minimizes water usage, drawn from nearby water basins. Therefore, the design of the outdoor space allows for extending the workspace outdoors, considering that for much of the year, Madrid's climate allows for pleasant outdoor stays. For the large 12,400 square meter park with 350 trees, only local species have been selected to reduce water consumption, sourced from local reservoirs (Fig. 8).

The park (Fig. 9) not only aims to increase comfort and enhance the quality of the workspace but also serves as an intermediate space between the building and the city, creating a continuity that had been denied until now

Ombù: an innovative example of industrial building reuse project n Madrid by Foster + Partners Gianluigi Freda



and allowing the community to have another large green and sustainable space at its disposal.

The project actions guided by a strong environmental ethic, supported by Foster+Partners studio, which has always been sensitive and at the forefront of this issue, can serve as a model and guide for future projects involving the reuse of disused industrial sites. In fact, the decision to preserve the industrial building, besides safeguarding the historical identity of the place, is the first action in environmental protection, as it allowed for the preservation, and therefore not dispersing into the environment, of over 10,000 tons of original bricks, thus immediately reducing the environmental impact (Fig. 10). The entire project aims to mitigate the environmental footprint, that is, the impact of human activities on the ecosystem. In addition to those previously mentioned, there are many design actions that ensure the offices designed by Foster+Partners have a very high quality in terms of safeguarding environmental resources, which can become an operational model for future reuse projects, not only for abandoned industrial buildings but also for the many disused urban containers present in the urban areas of many European cities.

It is estimated that the wooden structure located in the center of the space of the large industrial building, recyclable and dismantlable, will save more than 1,600 tons of CO2. Additionally, the central skylight,

Fig. 9. Section sketch by Norman Foster. The building connects to a large 12,400 square-metre park with 350 trees featuring outdoor working spaces and areas for informal meetings sheltered by a green canopy of trees (image: © Norman Foster).

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Fig. 10. Interior view of building. The historic building envelope has been retained to conserve over 10,000 tonnes of original brick and mitigate the environmental impact. The lightweight structure inserted inside the space is made from sustainably sourced timber from local forests and allows for spatial flexibility (image: © Nigel Young / Foster+Partners).

bringing natural light inside, reduces the need for artificial lighting. Furthermore, the windows incorporate photovoltaic technologies that generate electricity.

As the studio itself declares, Ombù is one of Foster+Partners' most sustainable projects and has already become, despite its short existence, a virtuous case study for the World Green Building Council. To the benefit of project initiatives for reusing existing buildings, as an alternative to the desire to produce new volumes where not strictly necessary, the London-based studio estimated that the Ombù project is capable of reducing carbon production by 25% compared to a new construction for the entire duration of the project, also taking into account future renovations. Additionally, it has been revealed that operational energy is actually 35% lower than normal expectations [1].

Voids are resources for the culture of Architecture design and for the protection of the environment

As often happens with great works, Ombù holds not only the value of being a prestigious piece of architecture but also the significance of generating a new awareness towards methods of reusing abandoned buildings. Foster+Partners' project, by bringing back to life a disused building, ensures the recovery of the area in which it stands, reactivates the involvement of the local community, and ultimately establishes a new paradigm for sustainable urban development. In this way, Ombù sets a model for an interpretation of architectural design that will increasingly appear necessary for the cities of the future.

Along this path of development and taking renowned experiences like those conducted by the London-based studio as a model, Architecture Schools can also propose and experiment with the exploration of innovative concepts and approaches for the revitalization of disused industrial heritage. Within universities, educators guide students through interdisciplinary collaboration and research-driven inquiry to develop new visions for adaptive reuse and regeneration of abandoned sites, aiming to provide a sustainable future for the historical heritage of cities. Moreover, architecture schools serve as a connection point between the academic world and the professional realm, offering students the opportunity to directly engage with real-world issues and stakeholders. Through internships, workshops, and community partnerships, future architects gain practical experience and delve into the complexities of a design-sensitive topic such as the regeneration of disused sites, learning to navigate the political, economic, and social dynamics that are essential aspects of industrial sites redevelopment.

This cultural horizon tied to the project of disused heritage also aims to foster a new sense of responsibility and ethical management in the new generation of architects, promoting attention to principles of sustainability, resilience, and social equity.

This design approach is even more significant when observed from the perspective of Mediterranean areas, where the legacy of industrialization intersects with the rich cultural heritage of the region and its diverse economic landscapes. In these areas, the adaptive reuse of disused buildings takes on additional significance: the Mediterranean basin has always been characterized by the presence of port cities, as well as vast inland areas with abundant resources that have historically generated substantial industrial dynamics. However, changes in economic dynamics, evolving industries, and ongoing transformations in industrial management policies have emptied places that for decades were symbols of productivity, economic progress, and urban and social development. This has not only left these big architectures to their solitary fate but also left communities grappling with unemployment and the urban decay that has inevitably enveloped these abandoned places.

In this context of economic transition and the need to develop a new environmental sensitivity in the field of architectural design, the reuse of abandoned industrial buildings emerges as a promise of a new development model for Mediterranean areas.

As already happened in some Mediterranean cities, repurposing these structures for new uses, such as artisan workshops, professional studios, cultural venues, or as in the case of Foster+Partners' project, offices for private companies that look towards collective development, allows the Mediterranean region to draw upon its rich cultural heritage and millennia-old entrepreneurial spirit to create new opportunities for employment and economic growth. This contributes to broader goals of sustainable development and environmental conservation by minimizing the environmental impact of urban development and promoting efficient use of resources.

Finally, the revitalization of industrial sites can breathe new life into neglected urban neighborhoods, fostering social cohesion and the reconstruction of a collective identity for the places where communities can continue to recognize themselves.

Notes

[1] https://www.fosterandpartners.com/projects/ombu> (accessed 12 May 2024).

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