SEDATEX REFORM: ADAPTATION AND RENOVATION OF AN INDUSTRIAL SPACE FOR NEW USES

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Categories: Energy and sustainability, FULL, Low Density, Picharchitects, Project, Territory and mobility, Urban Paradigms

Tags: Active Public Spaces, Agency of Urban Organization, Architecture's challenge, Catalonia, Context, Energetic Approach, Future Urban Legacy Lab, Industrial context, Production, Project, Regenerated industrial facility, Renewal, Spain, Territorial Approach, Textile industry, Urban Legacy, Urban Paradigms, Urban renewal

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The design is for the renovation of an existing textile factory, located in an industrial area 20 kilometers outside Barcelona.

The factory was built in 1974, for industrial use exclusively. At that time, the lack of digital technology in manufacturing, difficulties in urban and metropolitan mobility, as well as differences in labor conditions for workers required differentiated treatment of industrial production facilities and their complementary services.

The offices were located in the city, where clients were received and the necessary business services were handled. Work directly related to industrial production took place outside the city.

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Today's resources, both in terms of technology and horizontal operation processes – where interaction, versatility and production speed are a necessary service that clients demand – permit new spatial typologies and communications between tasks that were once fragmented.

Hierarchy is disappearing in favor of an interaction of the knowledge and values associated with different disciplines and types of work. The specialization of production systems, which are increasingly flexible, helps and supports creative processes and sales practices. Knowledge exchange promotes the discovery of new production and service systems.

This reality necessarily has to influence how businesses work and the spaces they occupy. It should also force a serious reconsideration of city planning, which is currently governed by the

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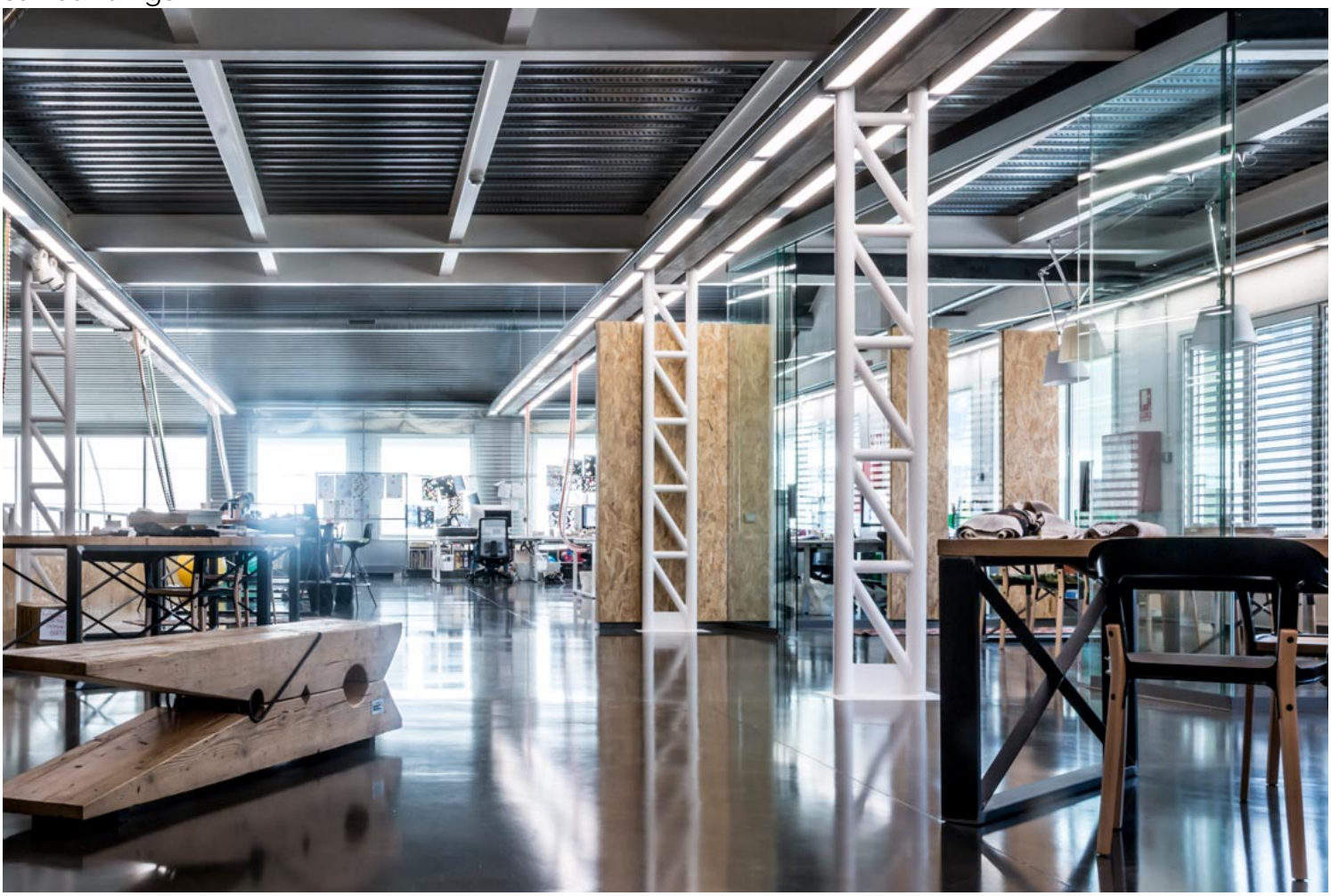
segmentation of uses. Industry is evolving toward clean technological production, which is compatible with urban life. The famous industrial estates of the 20th century are no longer territories where noise, pollution and heavy transport relegated them to the outskirts of cities. They need urban designs that can organize spaces to be experienced, both in the interior and in the exterior surroundings.



That is the context for our project. It focused on the renovation of two industrial buildings to house the company's office spaces, which were formerly on a different site in the city of Barcelona. The clients requested that we combine the productive uses (fabric printing) with office spaces that could not only house the administrative services associated with the industrial activities, but which could also handle the company's services related to design, sales, customer relations, and liaisons with

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national and international suppliers.

The factory, which employs a production system that currently offers near immediate delivery, aimed to make it possible to show customers the designs as well as the production possibilities and final products all at the same time. The option of informing customers about manufacturing processes as well as the different printing and color alternatives facilitated comprehensive assessment, as well as transparency and flexibility, with the added value of shared decision making.

The basic idea was to humanize the factory environment, adapt the entrance area, and renovate existing spaces to allow for receiving clients, creating spaces where service and manufacturing could be compatible with one another.

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The project consisted, therefore, in developing a visitors' parking lot, clarifying pedestrian accesses, and adapting two warehouses for office spaces.

The design identified and outfitted a parking area for visitors, separate from the heavy transport access. To adapt the entrance to the office reception area, a path was created using polished concrete, with strips of green, white and gray that continue along the exterior lateral façade, enlivening the route between the parking lot and the reception area. The main entrance is signaled

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by a pergola. Landscaping also adds variety to the access path.

The area dedicated to office space is concentrated in the buildings that once held the factory's administrative services, storage areas and the former dining room. The intervention had to avoid affecting the factory's operations, nor could the existing machinery be relocated.

Internally, the surface area affected by the design amounted to 1,903.72 m2, plus an expansion within the existing footprint of a further 330.86 m2.

A new outdoor parking area of 1,820 m2 was created.

The design focused on two existing warehouses: one for a foyer, reception and new spaces for creative staff; and another allocated to the administrative services necessary to complement the production activities.

The first warehouse served to relocate the people who had previously worked off site, isolated from the industrial reality; in their new location, they can interact daily with the manufacturing processes. Design and manufacturing now work horizontally.

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A fully renovated ground floor houses the foyer, reception, waiting areas, an exhibition space, and the connections to the other spaces. The design maintains an existing loft space and creates an open central space spanning the full height of the building, bordered by a green wall on one side and a split level on the other, dedicated to public space on the ground floor and work spaces for the creative staff on the first floor. A second loft space on the top floor lets visitors overlook the manufacturing area. A lightweight staircase and a walkway connect the first floor and the overlook.

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The contrast between the industrial space and the foyer and reception area provides a gradual incorporation into the company's main service area.

The design is intended to transform and dignify the atmosphere of the old warehouse, making an effort to respect the existing structure while improving the quality of the envelope.

On a structural level, the original trusses are maintained. They are concrete frames with metal tensors, prefabricated on site and then raised using mechanical systems. Both their polygonal forms and the loads they supported were optimized and executed with the minimum weight and minimum material. The existing loft space, which is recovered for new uses, is supported by concrete pillars.

The same structural elements are used for the new intervention, reinforcing supports where the structure was damaged or where new loads were generated – as in the case of the new exhibition space and the overlook, which is supported by the existing structure.

The new structure of the top loft space is supported by round metal pillars, creating a span of 3 meters above the triple-height space. The floor structure is also resolved with a lightweight structure of sheet metal, wood panels anchored directly, with a layer of acoustic insulation between the wood and the horizontal metal structure. The top finish is particle board treated with parquet varnish.

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The existing roof made from Uralita fiber-cement was disassembled and replaced. The new one consists, on the exterior, of curved corrugated sheet metal in white lacquered aluminum to prevent overheating and absorption of sunlight and, on the interior, perforated sheet metal, beneath 12 cm of mineral wool. The existing skylights, in simple polycarbonate, have been replaced by corrugated polycarbonate. Underneath, the perforated sheet metal is continuous to ensure proper sun protection. The layout of the skylights has been modified to provide natural lighting, although indirect, in the areas where vegetation has been planned. In contrast, the natural light from the skylights has been reduced in working areas, which are already sufficiently lit by openings in the façades. The perforation of the interior sheet metal absorbs echoes and muffles noise. The roof is ventilated by 3 vents.

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The construction managers tested the roof's insulation using thermography. Areas that were not executed with enough care were pinpointed, and critical sections where difficulties in execution had not guaranteed the required quality were revised.

In addition to the roof, some of the façades were adapted, providing insulation through 8 cm of polystyrene in the interior and replacing existing windows with 6/10/8 double panes. New retractable and adjustable aluminum slats now control sun exposure.

All the construction systems were designed to provide light, ventilation and natural comfort to the interior, with a consequent reduction in the buildings' overall energy requirements. This also reduced the energy necessary for running the air conditioning, as well as the use of building systems during a large part of the day.

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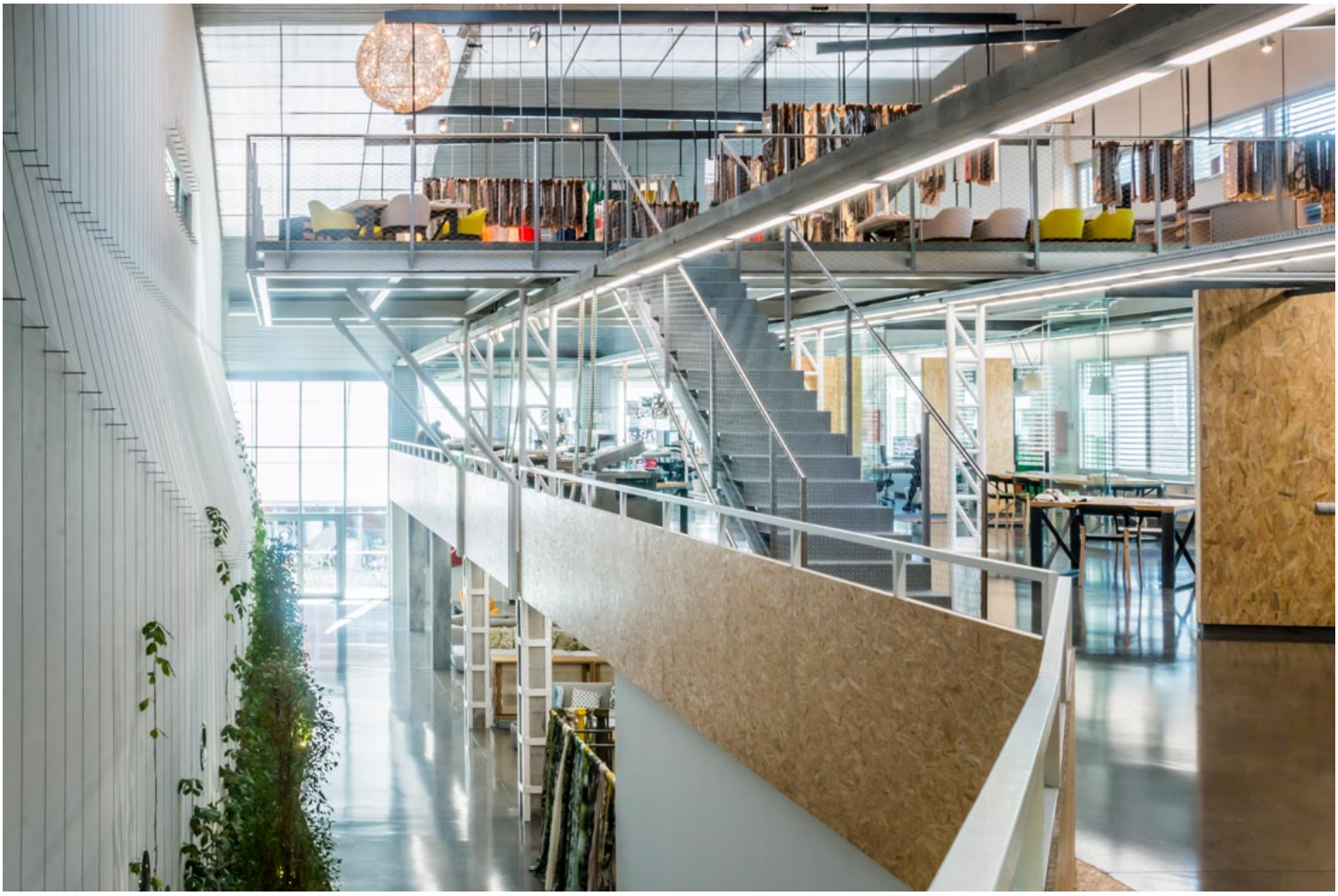

As for the communications between spaces, the existing stairway providing access to the first floor of offices is maintained. From there, a new circulation path is created to communicate with the other warehouse outfitted with offices, along a metal walkway that provides views over the space, while responding to the functional needs of the company's different departments.

The walkway has the same composition and the same finishes as the new loft space: a metallic structure, with load-bearing sheet metal and anchored wood panels.

A straight staircase provides access to the new overlook. Steps made from folded diamond plate galvanized sheet metal are held up by UPN profiles supported against the new structure and the floor below.

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The air conditioning system has been outfitted with a heat pump and interior floor consoles built into the furniture, generally distributed along the main façade. A ventilation system has been installed using exposed galvanized circular ducts.

The lighting design is based on the use of LEDs.

The voice and data network, essential in this type of office, uses category 7 cable, with exposed metal trays that guarantee a maximum of flexibility in the work spaces.

A wall, running the entire height of the space, divides the offices from the industrial warehouse. It is a sculpted divider, made of plasterboard, which makes the new area feel spacious without affecting

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the existing machinery. This large wall directs visitors toward the reception area. Time will transform this division between service spaces and production spaces into a green wall. A series of planters run along the entire length of the wall, and cables stretching to the ceiling provide a climbing structure for vegetation. The plants' need to stretch up toward the light from above will do the rest. Evaporation from the vegetation will help provide the necessary humidity and natural comfort that air conditioning and ventilation systems sometimes do not achieve.

The design respects the existing materials and enhances the spaces with finishes, furniture and lighting that humanize them. All the materials are left exposed: particle board is combined with lightweight metallic elements. The building systems are all in plain sight. The spotlight is on the office furniture and textile materials: the company's main focus. Some antique industrial elements have been maintained, having become obsolete over time.

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