Proceedings of the International Conference on Adaptive Reuse. Volume 1
Crudeli A., Molle F., Carrai E. (Eds.), STH Press, 2026. ISBN 9791281661141
Paper DOI – https://doi.org/10.65686/FVAO2080

Stratigraphy as an Adaptive Tool for Building Heritage

Parallel Reading of Three Ongoing "Adaptive Reuse" Projects

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Abstract

Can a superficial layer determine the deeper meaning of a project? The epidermal character of an artifact can reveal not only its final appearance but, through its thickness, the modes of relationship between an interior and an exterior. This is by no means a superficial approach. It is an archaeological work carried out within the wall's cultural thickness. It is an anatomical work, an architectural tomography, a revelation of the most hidden and intimate layers of an artifact. Stratigraphy, understood as a tool for reading and interpreting the built environment, represents an operational key for adaptive reuse strategies. Through three projects involving the rehabilitation of abandoned buildings—examples of a young architectural heritage dating from the mid to late twentieth century—the contribution analyzes the value of stratigraphy as a design tool, interpreting its potential starting from the epidermal level of the building. Each disused structure preserves material and temporal traces which, when critically examined, become active elements of transformation. The three case studies—A House Without a Roof, Legler Cotton Factory, and SAB Bus Depot—demonstrate how design can act upon the different layers of a building, revealing its intrinsic values and defining intervention strategies capable of preserving, reinterpreting, or rewriting the built matter.

Keywords: Stratigraphy, Young Heritage, Adaptive Tool

Introduction

Stratigraphy, within the field of architectural design, can be understood as a lens through which to read and interpret the existing built environment. The collection of marks, traces, and transformations that time deposits on a building constitutes a material testimony of its history, but also represents an operational potential for contemporary design. The theme of adaptive reuse plays a central role today in the transformation of the architectural heritage. Particularly that of the "young" buildings constructed in the second half of the twentieth century, which are often abandoned or underutilized. In these cases, stratigraphy becomes not only an analytical tool but a true design device, capable of guiding decisions regarding conservation, addition, or subtraction, and of defining new forms of relationship between the pre-existing structure and contemporary intervention.This paper explores this approach through three adaptive reuse projects, all characterized by a careful analysis of material and temporal stratifications: A House Without a Roof, Legler Cotton Factory, and SAB Bus Depot.

Fig. 1. Photographs of current condition (Vacuum Atelier, 2025)

House Without a Roof

The project A House Without a Roof is located on the outskirts of the historic center of a town in the Bergamo area, in a transitional zone between urban fabric and natural spaces. Currently in a state of ruin, lacking parts of the floors and the roof, it represents a threshold between the built environment and nature.

The generative idea of the project is to maintain and amplify the ambiguity between interior and exterior, nature and artifice. The limits of the outcome thus become a design opportunity, reopening previously sealed conditions. The objective is to inhabit the ruin without erasing it, preserving the space reclaimed by vegetation and establishing a relationship of mutual interpenetration between architecture and landscape. The design intention includes inserting new volumes within the existing walls that, on the one hand, allow the historic walls to remain visible with their traces intact and without saturating the volume; on the contrary, these new volumes leave open spaces and courtyards within the perimeter also useful for lighting the interiors. Courtyards and gardens become elements

of light and air, mediating between natural and domestic spaces. Seismic interventions are integrated within the walls, embedded within the existing material stratifications. The new metallic volumes take on the hues of time, relating to the aged surfaces while keeping the traces of the ruin legible. Inhabiting the ruin thus becomes an act of coexistence between memory and contemporaneity, where stratigraphy is simultaneously document and design. The new technological envelope contrasts with the existing walls, identifying itself as a stripping down of the masonry mass, reduced to thin metal sheets.

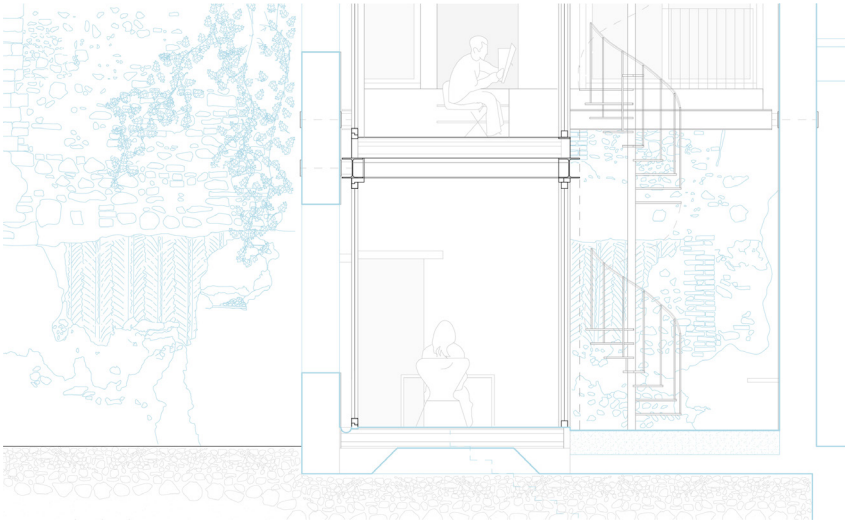

Fig. 2. Drawing, House without a roof (Vacuum Atelier, 2025)

Legler Cotton Factory

The former Legler industrial complex is located along the Brembo River in Bergamo, within a context of high historical and landscape value. Morphologically, the complex appears as a collection of independent buildings constructed at different times, each bearing the architectural characteristics of the period in which it was built.

The project under consideration focuses on the renovation of the riverfront building. It aims to restore vitality to the complex through temporary and flexible functions promoting a model of participatory regeneration. Internal flexibility, ensured by movable elements, allows the spaces to adapt and enables the cross-contamination of different activities. Following the principle of minimal intervention, the project acts exclusively on the interior spaces, removing superfluous additions and incongruous partitions to restore the original spatial quality. These interventions include suspended ceilings, floors, or partitions that were added over time to adapt the building to various functions. The goal is to make the accumulated stratifications legible, supporting free and reversible use. The project operates between respect for existing stratigraphy and the act of overwriting, thereby creating a new stratigraphy itself. While abandonment is usually considered a sign of decay and material deterioration, it is equally true that such a process becomes revelatory, exposing

previously hidden layers and components, moving from a superficial condition to the very "flesh and bones" of the architecture. In this case, stratigraphy is read and presented without overwriting: the historical layers are preserved and made visible, while the new insertions are limited to emphasizing and enhancing the existing material. The project thus becomes an act of interpretation rather than transformation. The few added partitions, constructed in drywall, maintain the underlying material exposed, with minimal plastering, halting the construction process before the finishes to approach a state suspended in time, characteristic of the building. This represents a condition between ruin and renewal, between construction and dismantling, within a logic of continuous transformation. Similarly, the new technical suspended ceiling remains fully visible in its mechanisms, revealing the body of the intervention.

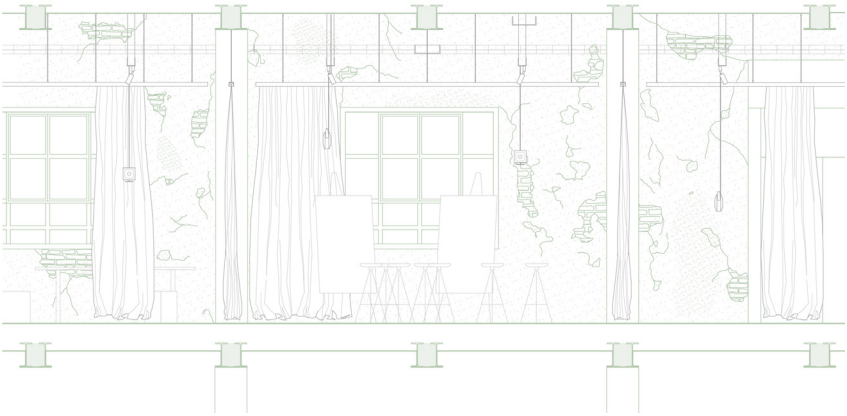

Fig. 3. Drawing, Legler cotton factory (Vacuum Atelier, 2025)

Sab Bus Depot

In the case of the SAB Bus Depot project, located in the province of Bergamo, near the town square, the complex consists of two buildings of different nature: a large vaulted reinforced concrete volume, originally used as a bus depot, and a three-story residential building.

The first, characterized by a wide spatiality and a unique concrete vault, without pillars and beams, currently has partially missing systems and requires replacement and upgrading interventions. The adjacent residential building, with a load-bearing masonry structure, is in a state of decay but retains its original volumetric identity.

The project is based on the intention to preserve the existing buildings as part of the urban fabric. The choice of adaptive reuse responds to a dual need: economic—reusing what already exists instead of constructing anew and cultural—acknowledging the memory embedded in materials and forms.

The main design action does not construct within what exists, but with it, operating through addition and reinterpretation. The existing state is already a project; it only needs to be revealed. The intervention includes the preservation of the main volume and the replacement of the roof, with the insertion of skylights. The connection joint between the

depot and the residential building is demolished and replaced by a new public entrance, designed as a tubular steel volume that links the city to the new complex. The load-bearing walls of the former residential building are maintained, and support beams are inserted where necessary to allow for an open-plan layout.
The façades are redefined in a layered design approach, closing inappropriate openings and creating new ones. A single coarse-grain plaster will cover the office volume, keeping the distinction between old and new openings visible, forming a design stratigraphy. The project strategy is to keep the stratifications visible on the external façades, while the interior side is dedicated to insulation and a technical cavity. In this way, stratigraphy becomes both a technical and conceptual device: the internal wood fiber insulation, applied to the existing walls, acts as a new layer that does not erase but enhances the pre-existing material.
The project therefore works through controlled layering, reinterpreting the concept of the building skin as a dynamic interface between past and present. In contrast, the vaulted concrete spatiality is left in its natural state, emphasizing structural honesty.
The project aims to give value to a building for its physical presence, independently of its presumed formal or aesthetic qualities. From this perspective, the building is considered in terms of its internal spatialities and external stratifications. The objective is to confer value on construction aspects and systems that, although realized with minimal resources, represent the identity of an era, similarly to other historical masonry.

Fig. 4. Drawing, Sab bus depot (Vacuum Atelier, 2025)

Three Ways of Inhabiting Stratigraphy

The comparison between the three projects allows for the identification of different ways of using stratigraphy as a design tool.
In A House Without a Roof, stratigraphy becomes a habitable environment: the project does not intervene on the ruin to reconstruct it, but inhabits it as it is, amplifying the coexistence between construction and nature. In this case, the stratigraphic reading goes beyond the material dimension and becomes a spatial experience, a new way of living the continuity between time, decay, and reuse.

In the Legler Cotton Factory, stratigraphy is interpreted as a text to be read and preserved. Here, the project acts as a mediator between time and function, restoring legibility to historical transformations while limiting interventions to the essentials. It is an act of revelation, where stratigraphy becomes a language of authenticity.
In the SAB Bus Depot, stratigraphy is treated as an operational layer: new technical and spatial additions are superimposed onto the existing material in a logic of controlled rewriting. The intervention acts updating, producing a new "skin" that coexists with the original one.
These three experiences delineate a field of possibilities: from superimposition to conservation, from mediation to cohabitation. Stratigraphy thus emerges as a flexible concept, capable of assuming different roles depending on the context and the intensity of the intervention: technical, linguistic, and landscape.
It becomes the meeting point between memory and design, where time is an active material of transformation. The stratigraphic condition becomes a method through which to interpret the artifact, in a logic that simultaneously preserves and questions.

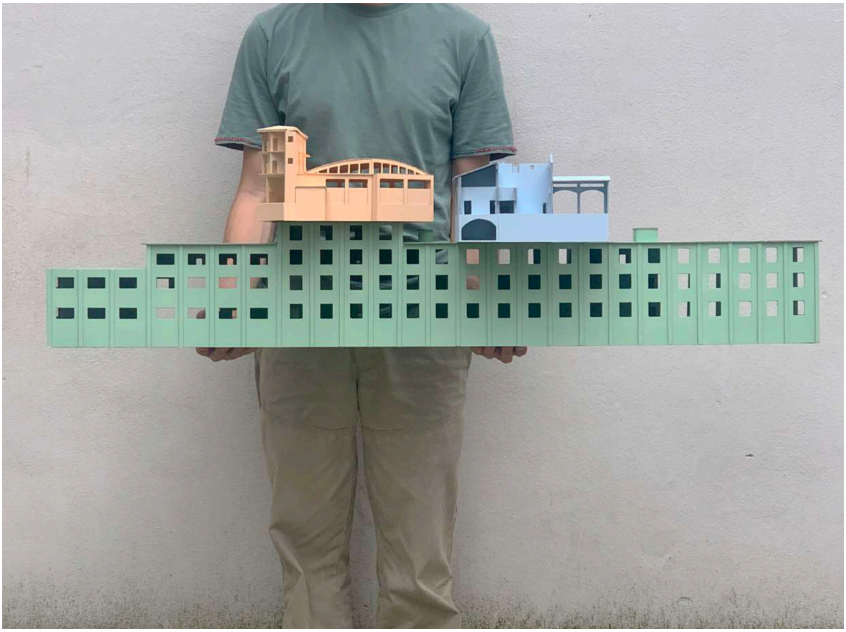

Fig. 5. Models (Vacuum Atelier, 2025)

Conclusions

The stratigraphic reading of the built environment today proves to be both a methodological and cultural device for contemporary design.
In an era marked by the need to reduce land consumption and enhance existing heritage, adaptive reuse offers a sustainable approach, capable of combining resource efficiency,

identity of places, and architectural innovation.

The three case studies demonstrate how stratigraphy can simultaneously operate on technical, perceptual, and conceptual levels. From a technical perspective, it improves building performance through interventions that respect the original materials. From a perceptual perspective, it conveys to the user the complexity of time and transformations. From a conceptual perspective, it constructs a critical discourse on the legacy of modern architecture and the meaning of building in the present. From an analytical tool, stratigraphy thus transforms into a design instrument: a device that allows reading, reinterpreting, and inhabiting time. It is no longer a matter of choosing between conservation and innovation, but of conceiving design as a continuous process of stratification that links every intervention to the history of the place.

Adaptive reuse grounded in stratigraphic reading therefore proposes a new ethics of building: an architecture that does not erase its origins, but embraces them as raw material for a conscious transformation, where past and present coexist within the same design gesture. Through the reading and interpretation of material stratifications, the three projects demonstrate how time becomes a design resource. In adaptive reuse, stratigraphy is not merely evidence of the past but an active device capable of guiding technical, aesthetic, and conceptual choices. From a simple surface layer, it transforms into a strategic design element, defining a new way of understanding the continuity between construction and transformation, between permanence and innovation.

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