VOL. 11, NO. 2 (2025)

CONSTRUCTION AND ITS INTERCONNECTIONS

TEMA
Technologies
Engineering
Materials
Architecture

e-ISSN 2421-4574
DOI: 10.30682/tema1102

Cover illustration: Mode Gakuen Cocoon Tower in the Nishi-Shinjuku district (Tokyo, Japan) by Kenzō Tange, external view. © Riccardo Gulli, 2018

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Technologies
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e-ISSN 2421-4574
ISBN online 979-12-5477-692-6
DOI: 10.30682/tema1102

Vol. 11, No. 2 (2025)
Year 2025 (Issues per year: 2)

Publisher:
Ar.Tec. Associazione Scientifica per la Promozione dei Rapporti tra Architettura e Tecniche per l'Edilizia
c/o DICATECH - Dipartimento di Ingegneria Civile, Ambientale, del Territorio, Edile e di Chimica - Politecnico di Bari
Via Edoardo Orabona, 4
70125 Bari - Italy
Phone: +39 080 5963564
E-mail: info@artecweb.org - tema@artecweb.org

Publisher Partner:
Fondazione Bologna University Press
Via Saragozza 10
40123 Bologna - Italy
Phone: +39 051 232882
www.buponline.com

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e-ISSN 2421-4574

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TAXONOMY OF CONSTRUCTION

TEMA
Technologies Engineering Materials Architecture
e-ISSN 2421-4574
Vol. 11, No. 2 - (2025)

Andrea Donelli

DOI: 10.30682/tema110019

This contribution has been peer-reviewed.

Abstract

The study presents a synthesis of the research conducted on building construction in Italy during the early years of the twenty-first century. The primary focus is on the analysis of the structural description. This analysis has been incorporated into a systematically organised collection of fundamental terms with defining attributes: character, decoration, compliance, and rehabilitation. The lexical structure can be traced back to the building environment from which it originates. Furthermore, this framework intrinsically engages with processes of reconstruction and the exposition of diverse construction techniques. Through this approach, it has been possible to recognise morphological and typological traits embedded in distribution characteristics. In this context, the knowledge of building restoration and recovery is assessed through architectural drawing and surveying methodologies. These elements directly contribute to research and analytical processes. The taxonomy of construction defines an overarching system that organises practical criteria for recovery and reconstruction, linking them to the various phases and experiential knowledge of building and structural techniques. In doing so, this system ascribes meaning and value to contemporary conservation practices. In particular, it recognises the historical importance of heritage that is vulnerable to speculation or destruction.

Keywords

Building rehabilitation, Structural restoration, Architectural documentation and construction, Reconstruction and restoration, Traditional construction elements.

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1. OPENING

The research paper begins by considering, through analogy, the position of the composer Webern in the history of twentieth-century music, a subject worthy of scrutiny, particularly in terms of its connections to this musical era. This topic warrants examination with specific attention to its relationship with the concept of *Negative Denken*. Webernian speculation posits that the attitude of the *Negative Denken* engages with the concept of the repressed, which classical musical culture had previously obscured and diminished. According to a Weberian perspective, the attitude of Negative Denken engages with the concept of the repressed, a dimension that classical musical culture had previously obscured and diminished. Particularly in architecture, the multiplicity and complementarity of research related to Avant-Garde culture, not entirely attributable to the Modern Movement, has

translated into contemporary practices that embody an attitude of heteronomy, diminishing the autonomy of the distinct character of buildings. This has reached a point of contradicting the notions of morphology and typology in architecture and engineering. The taxonomy of construction refers to direct methodologies that maintain complexity, capable of responding to the fundamental principles and purpose of construction, which reveals and manifests itself in form (thought and structure) and in the inseparability of descriptive and structural relations, whether morphological, typological, technical, or structural, capable of establishing unifying facts. The building system is understood as a cohesive fusion of the various technical and formal aspects that compose it, determining its characteristics, which are organised in a construction system. The principle upon which the analysis informed the design process, recognising itself, allowed the cognitive process to assess the suitability of the concept of space and structure. The relationship between thought and structure underlies the experience of the analytical path through which the project is articulated and defined. The twentieth century, with the convictions of the Avant-Garde, disrupted the traditional relationship between art and the science of building. The diverging influences of art and society, mass culture, and social individualism have, at first, weakened and then eradicated the indissoluble connection that has pertained to construction, ultimately leading to a crisis in theory and design, including recovery and restoration. The current state of art regarding the artistic stance of the Avant-Garde and the culture of the Modern Movement acquires further critical contributions from the legacy of the nineteenth century, culminating in the twentieth century with the concept of *Existenzminimum,* which was revealed, including its negative aspects, following the CIAM conference of 1951 and the one in Darmstadt organised by German architects. Within this context, Heidegger, as a philosopher and thinker, delivered a speech entitled *Building, Dwelling, Thinking* [1]. A cultural commitment emerged that contributed to healing the relationships between methods and objectives inherent in the themes of dwelling and the city, even within the same "tradition" of the Modern Movement. However, the trends that have developed from the twentieth century to the present have mirrored a notion of necessity founded on advanced communication technology, which has evolved over the past century and is understood as a forward-looking concept. Architecture, alongside much of engineering, has progressively tended towards a form of self-censorship regarding its stability, as a condition of "enduring stability", thereby breaking and severing the bond that connected it to memory and serving as a social response. The disintegration of the arts into the continuous and provisional ideas arising from formal novelty signifies the loss, for example, of critical reasoning regarding what is feasible, useful, and essential as the foundation for determining what Gregotti succinctly defines as the Four Virtues: precision, simplicity, organicity, and order [2]. However, in our technological and digital age, architecture and engineering have ceased to be the technical marvels they were, as exemplified by Gothic cathedrals in history [3]. In the built environment, addressing construction systems through simplicity, systematic organisation, standardisation, regularity in the construction system, and, in the case of recovery, "rehabilitation" [4] also means performing a precise task. It involves acting according to a systematic classification methodology, where codified multi-scale architectural drawing models attest to the value of the construction itself. Understanding construction also entails contributing to defining its principles, components, and construction capacity, and revealing an art defined here in terms of "technical expertise" and the science of techniques, as the frequently used definition of "art and science of building" could prove misleading. Of particular interest, concerning this statement, is the chapter "Construction" by A.R. Burelli in the illustrated critical dictionary edited by Luciano Semerani. «In what is called the art of building, one of the two is usually lacking: either art or construction» [5]. The issue concerns not confusing the aesthetic aspect with the structural one. Ornamentation and decoration deceive if the verification of the construction process is lacking, without seeking to interchange the excrescences or elements with true structural regularity. The character of the building, its compliance, and decoration constitute the taxonomic research, which synthesises the classification process useful for understanding and recognising what is repeated in the story and history of the artefact.

The standardised technical drawings demonstrate that drawing and surveying, as scientific disciplines, enable us to specify and document the structural relationships between components. Tradition and conservation are evident in the work, in the artefact, where unequivocal meanings are called into question to establish the fundamental and taxonomic role of the construction itself.

1.1. METHODOLOGY

A research program has been initiated, concentrating on the variations in residential architecture and cultural context within the historical framework of the first half of the previous century. The study also had to ensure that the data gathered (especially fundamental graphic works) were relevant and, despite challenges, comprehensive. The investigation and research methodology further defined additional methods utilising tools to analyse the data and ensure that the findings align logically with the hypotheses that arose during the research process. The essay presents a segment of the research focused on aspects that have stimulated (*curiositas*) the lexical significance of the terms encountered and situated within the context of ongoing experiences. Utilising the term taxonomy (originating from the Greek *τάξις*, *tàxis*, meaning order, and *νόμος*, *nòmos*, meaning rule), the recurring activity of identifying, documenting, and classifying structural components and categorising the observed construction elements during the phases of drawing and surveying has been documented, guiding the assessment of facts for the recovery and conservation of the structures. In historical culture, the term "taxonomy" originally referred to the classification of organisms. In the 18th century, the term acquired a scientific connotation, aptly recognised as an essential discipline for naming, describing, and categorising, for instance, plants, animals, and microorganisms. This led to the establishment of taxonomic units referred to as "taxa", with *taxon* being the singular form, which in biology denotes a collection of one or more populations of organisms identified by taxonomists as forming a collective unit. Once acknowledged as belonging, each *taxon* was given a formal, scientific designation, organised according to a set of nomenclature codes, delineating the correct scientific name and characteristics for a specific grouping. "The built heritage in the digital age" is depicted through a unique synthesis resulting from the processing of digital architectural models, which incorporated a range of case studies (Figs. 6–7) related to the holiday residence from the 1950s, the INA Casa housing from the late 1950s, and the historical Alpine rural house. These represent different categories, examined for their distributive properties, unified by historical context and their morphological design-drawing, particularly in their construction rationale. Therefore, the expertise acquired through graphic-geometric morphological modelling has marked an advancement in knowledge within the domain of technical representation. This subject has been addressed in other contexts, in the crucial methodology known as BIM, which is organised within an interdisciplinary framework and specifically in the IPDB (Integrated Project Database-Delivery-Bim) programming. It takes the form of a summary, where the concept of taxonomy has established a systematic approach in analysing buildings and their "particularities" using the terminology applied and subsequently outlined in the following sections. This necessity also arises in construction, as the descriptive examination conducted through drawing and surveying facilitates the accurate identification of the components of the building structure, which can be documented and categorised in proper definitions within the conceptual and comparative method, thus supporting an "empirical" taxonomic stance.

1.2. OBJECTIVE

A central theme in architectural discourse is the concept of "memory", understood as an experiential dimension that establishes the "presence of time". This notion shapes the forma mentis through a continuous and identifiable creative process inherent in every architectural work. Within this dynamic lies a dual relationship with reality: one that is grounded in the specificity of place and time, and another that transcends it through abstract formal gestures. These abstractions emphasise the uniqueness of each work, characterised by its active engagement with complexity and its capacity to organise itself around multifaceted contextual

parameters. This approach necessitates the activation of elements that have become increasingly synthetic and taxonomic. Gregotti identifies the "Four Virtues" as the foundation: precision, simplicity, organicity, and order, as essential to architectural synthesis. In his analysis of early 20th-century non-restricted housing, he further introduces four additional virtues: character, decoration, compliance, and rehabilitation. These intersecting principles inform both the theoretical and practical dimensions of architectural "energy", revealing how time, memory, and rationality are embedded within formal structures. They also encompass notions of measure and grandeur, contributing to a distinctive architectural language that prioritises not only narrative but also the descriptive condition of construction in the "digital age". The relationship between matter and form is governed by immutable natural laws, as articulated by Paul Schmitthenner in *The Built Form* [6], where he describes them as inseparable entities, essential syntheses of relational dynamics.

Valéry posits that form organises itself internally, almost miraculously, provided one possesses the tools to decode, comprehend, and reconfigure this intricate language. Goethe similarly observes that while «matter is visible to all», its true value is discernible only to «those who engage with it directly» [7]. In the context of evaluating "Building Heritage in the Digital Age", the technical-scientific paradigm necessarily incorporates "Building Information Modelling (BIM)". This methodology aligns with traditional interpretations, representing a finite yet integral component of the broader digitisation of construction knowledge. However, BIM is frequently misinterpreted or conflated with software-centric terminologies that suggest more horizontal, tool-based values. The analysis of representative case studies focuses on the processes of architectural representation, examining models developed through Computer-Aided Design (CAD) and BIM methodologies. The research framework is structured around key thematic and disciplinary dimensions, including the codes and symbology essential for accurate content transmission across various drawing scales, digital imagery, and vector graphics. It explores the epistemological foundations of Descriptive Geometry while engaging with statics, construction science, and technical methodologies, particularly concerning conservation and restoration practices. As a concluding reflection, it is essential to acknowledge the diverse perspectives within the ongoing disciplinary discourse, particularly those that reflect evolving interests in critical and contextual architectural culture. These perspectives underscore the importance of integrating historical awareness with contemporary digital tools, fostering a more nuanced understanding of architectural heritage and its future trajectories.

1.3. CHARACTER

The architectural form of the building aligns with its structural system design, particularly evident in ancient constructions that respect the close relationship with the site topography and terrain morphology. This observation highlights the significance of both synchronic and diachronic variations in typology. Architectural typologies undergo continuous evolution in response to shifting functional requirements and specific historical contexts, a process that often entails the integration of new functions or, conversely, the suppression and removal of pre-existing ones. However, these shifts are often subtle and nuanced. It is essential to note that the building's programmatic function, or its intended use, is not the primary factor determining its typology. The original function indeed shapes the typological features that serve it. When examining typological and distributive characteristics, both are tied not only to compositional and architectural elements but also to a construction-structural system (Fig. 1). It seems plausible that the dichotomy that has characterised typological studies in the past can also be attributed to these two conditions of separation between the architectural and structural themes. After extensive research in typological studies and acknowledging the foundational insights from literary traditions, a clear definition of architectural typology in buildings emerges, emphasising that structure plays a vital role in architecture. Consequently, typological characteristics analyse a typological system and its basic units, while distributive traits help clarify their relation to the typological system, indicating how and why variations occur.

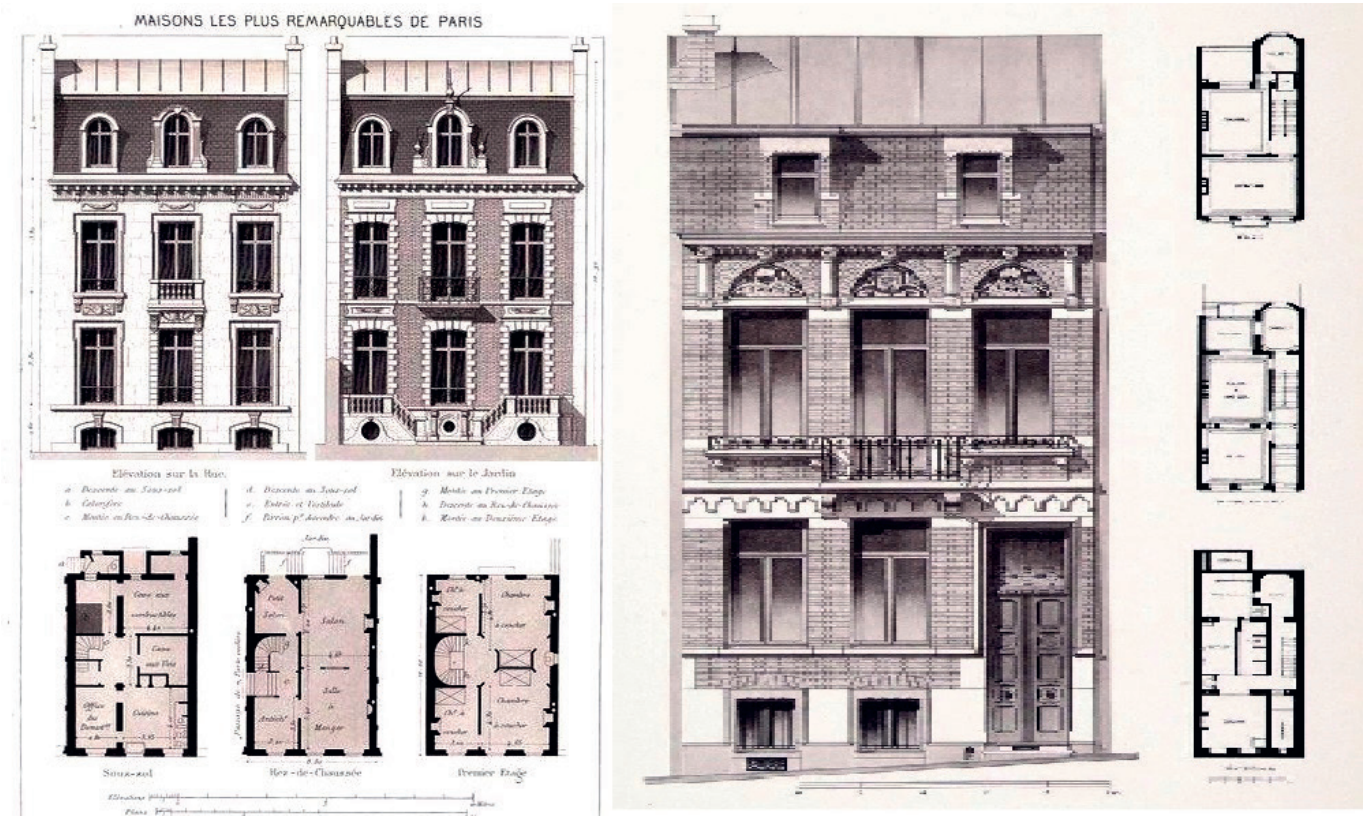

Fig. 1. *Comparative studies of the character of the buildings, drawing: maison les plus remarquables de Paris. Hòtel Rue d'Amsterdam n. 73, free and open source, access with accreditation. Source: https://it.pinterest.com/pin/508766089178018790/.*

Distributive elements can clarify their ongoing relevance in the typological system, explaining their variations and reasons for change. The structural integrity of the building is revealed as a logical process that reinforces the structural typological conception. This understanding is essential for comprehending typological and distributive characteristics, as well as any modifications the building may have experienced. Such insights invigorate the investigation into the typology, the type, and the basic units. Thus, the methodical development of this analysis fosters a unified and precise approach, reflecting proper terminology usage. This does not excuse past tendencies among scholars to isolate research on methods and terms; instead, it aims to use the collected data and findings for broader, integrated actions and a deeper understanding of the topic. Noteworthy examples that highlight the typological characteristics of buildings in terms of their functionality, composition, construction, and structure can be found in Roman amphitheatres and theatres. Particularly during the medieval period, many of these structures lost their original theatrical function; architectural and structural modifications transformed them into residential spaces. Despite these changes, the morphological and typological essence of amphitheatres has largely remained intact, as seen in examples such as the amphitheatres of Lucca, Formia, and Florence in the Santa Croce district, as well as the Berga theatre in Vicenza (Fig. 2) and the Theatre of Marcellus in Rome. The structural materials are only partially recognisable due to historical alterations. What has fundamentally changed is their usage, although it is noted that «the theatre can be considered a collective house» [8]. The original form, along with some distributive characteristics, persists, still interpretable within the structural features that ultimately shaped the division of spaces. The interplay of diachronic and synchronic elements is evident in the structural framework that gives rise to the new system. Ultimately, morphology and, secondarily, typology, are both more indubitable than any function of use; the latter can change while morphology maintains its original recognition and reciprocity. Typology can be traced through rigorous analysis, and although types may adapt

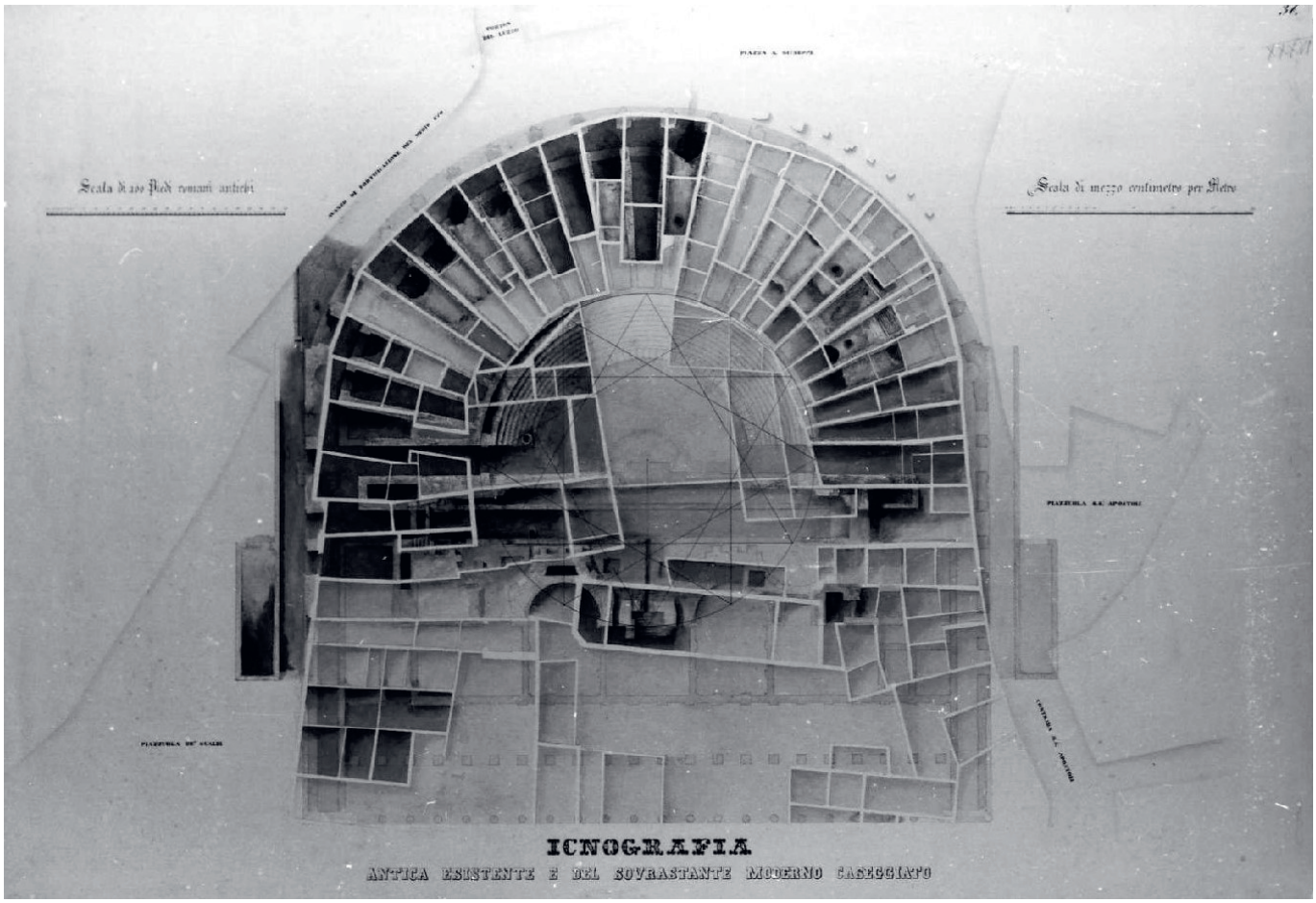

Fig. 2. *Giovanni Miglioranza (1798-1861), "Graphic-geometric, architectural, and structural relationships reconstruction of the Berga Theatre in Vicenza". Source: open source image, BCS, Civic Museums of Vicenza (Italy), Palazzo Chiericati, inventory number: D 4245.*

to human needs, they generally preserve their character, influenced primarily by the structural framework and the innate qualities of the land. The relationship between ancient buildings and an urban system with distant origins can also be verified through typological studies, which reflect their variations. Furthermore, in-depth analysis reveals the interconnectedness of lands and buildings at both small and large scales, illustrated by the geometric principle of foundation planning, which captures the inherent relationship between the land, subsoil, and the wisdom of building.

The potential interweaving of spatial, architectural, and structural relationships contributes to the recognisability and identity of both urban and rural environments. To more effectively articulate these relationships, one may employ illustrative, even hypothetical, drawings that highlight both natural topographical features, such as terrain formations, planting patterns, and agricultural rows, as well as built environment features, including site orientation and the placement of historical structures. These elements collectively establish a network of reciprocal relationships, defined by measurable parameters and spatial correlations, which underscore the distinctiveness of a given habitat or locale. In such contexts, one can assert the emergence of a concept of strong permanence and legitimacy between nature and the built environment. The character of a building thus becomes both the rationale for its existence and the expression of its evolution. An indissoluble bond in which, through the morphological configuration, the deposit of the history of the city and the artefact, as well as the community itself, is recognised. The character of a building is determined by its form, both morphological and typological, as an expression of its permanence; that is, by the settlement patterns, typological frameworks, and construction-related relationships that underlie its constitution and structure, from which its constituent elements and historical development emerge.

1.4. DECORATION

Giorgio Grassi discusses decoration, stating: «Decoration is precisely this: conception, plastic fact par excellence, which finds its reason for being in itself» [9]. In Italian, decoration is succinctly defined as: "Finishing, embellishment, ornamentation". When examining studies related to surveying experiences, it was found that these investigations not only provided measurements and drawings of the analysed structure but also sparked additional questions, leading to focused consideration of decoration. Direct and indirect comparisons with survey themes have generated conjectures, leading to hypotheses that suggest a potential integration of ornamentation and structural elements. Analysing this phenomenon theoretically uncovered a discourse regarding decoration, revealing a correlation with the testimonies gathered from ancient constructions. From the history of architecture, more specifically construction, great ancient masters such as Francesco di Giorgio Martini, Falconetto, Raphael, Peruzzi, the Sangallo brothers, Serlio, Palladio, and Sanmicheli support the idea that decoration is intertwined with construction. Additionally, this viewpoint aligns with other instances reflected through research methods that engage the design dynamics of acquisition and redrawing in the works of the *École des Beaux-Arts*.

The anonymous or vernacular Alpine building exemplifies how Alpine dwellers integrate decoration with structural and load-bearing elements. What appears to be purely formal simultaneously fulfils decorative and constructive roles – its very structure and harmonious composition embody techniques and methodologies that are often systematically repeated, transmitted over time, and coordinated through a transparent and deliberate design process. Moreover, in literature, the modern view of architecture and the importance assigned to decoration are revealed in historical discussions initiated by the works of the most renowned architects from the early 20th century, starting with Berlage and Behrens, and extending to the notable figures of the Modern Movement, specifically not strictly the Avant-Garde, including Loos, Tessenow, Mies van der Rohe, and Oud. Their teachings embody historical influences, manifested through established principles and canonical elements, bridging tradition and contemporary practice. The Modern Movement, through its cultural lens, sought to assert a tautological principle: what is structure is foundation. This claim stemmed from a structural engineering philosophy that acknowledged what was possible and essential for "stability". From this perspective, numerous misunderstandings emerged, manifesting in functionalism and presumptions about

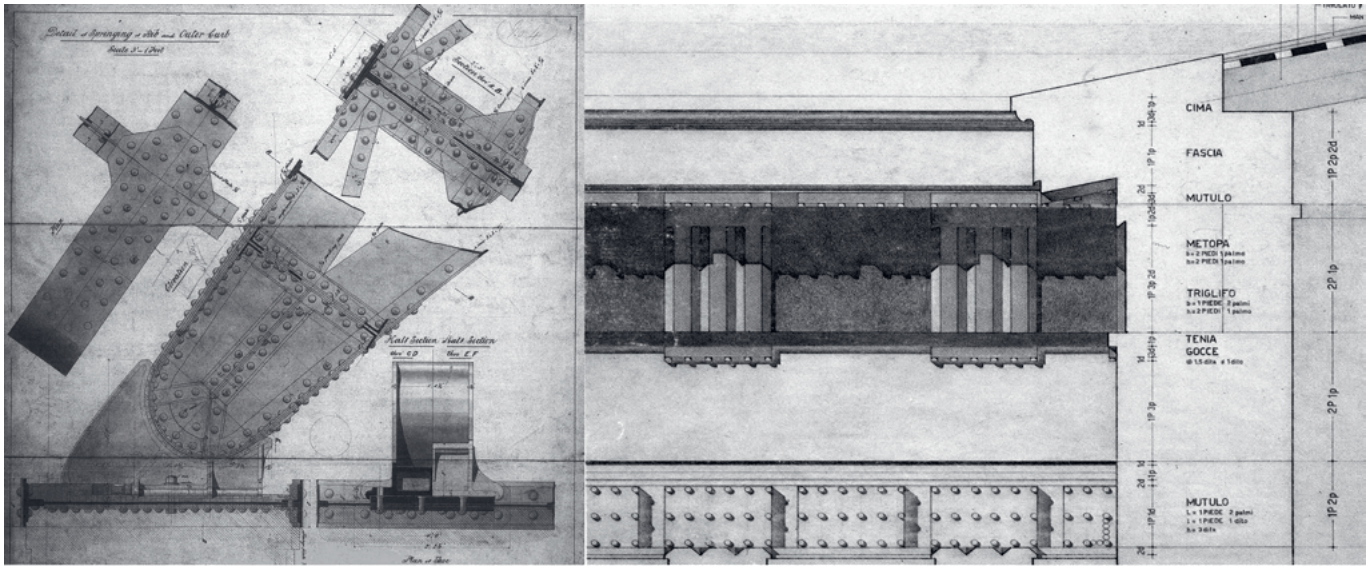

Fig. 3. *Left: the nailed and bolted border of the spring joint of the Royal Albert Hall in London compared with the crowning of the Skeuotheke in Piraeus. Source: Royal Albert Hall by Jeremy Butler, in* Casabella *574/90. Right: in the image relating to the drawing, the interposed metopes stand out, with the drop-shaped elements that, in the Doric order, are decorative elements in the shape of a small, truncated cone placed under the triglyphs and the* mutuli*, serving as eloquent examples. The classical elements, compared with the steel construction carried out with profiles, stanchions, plates, gusset plates, and bolts, constitute a clear and eloquent structural principle. Their structural, formal and systematic integrity, their reason for being and their essentiality cannot be questioned. Source: drawing of the Skeuotheke in Piraeus, by arch. Massimo De Paoli and Massimo Rizzi, group prof. Augusto R. Burelli, Iuav University of Venice – Project Archive, Studio Augusto Romano Burelli and Paola Gennaro, IUAV fund.*

materials and construction, which led to a narrow interpretation of the term "foundation". The consequences of this decree have led to a powerfully symbolic practice, particularly within contemporary architectural culture [10]. The question arises when considering the complexities and significance of expressed meaning in decoration. Decoration, as seen in ancient and modern works, embodies a structural integrity within its framework (Figs. 3 and 4). This observation may introduce an interpretive risk, echoing the roles established by hermeneutics in historicism and phenomenology. Consequently, exploring the interconnectedness of knowledge and disciplines appears to be beneficial, as it encompasses not only drawing and surveying but also construction science and techniques, including restoration in some instances. The coherence, combined with structural engineering knowledge, clarifies that decoration is part of an inherent rather than arbitrary system. This duality also leads to a perceptual detachment from the system itself. Analysing this nature as the "decorative components" is understood within its scientific specificity, suggesting that such analysis forms an essential component of the drawing and surveying discipline.

This leads to viewing a specific type of analysis as essential in drawing and surveying. In this context, it emphasises that in formed structures, the aspect of the form holds significant influence, impacting the meaning and importance beyond what is already captured in construction (building) and the work (structure). This insight arises from structural engineering expertise, exemplified in the restoration and rehabilitation of the Roman theatre of Sagunto by Giorgio Grassi: «[…] with a cer-

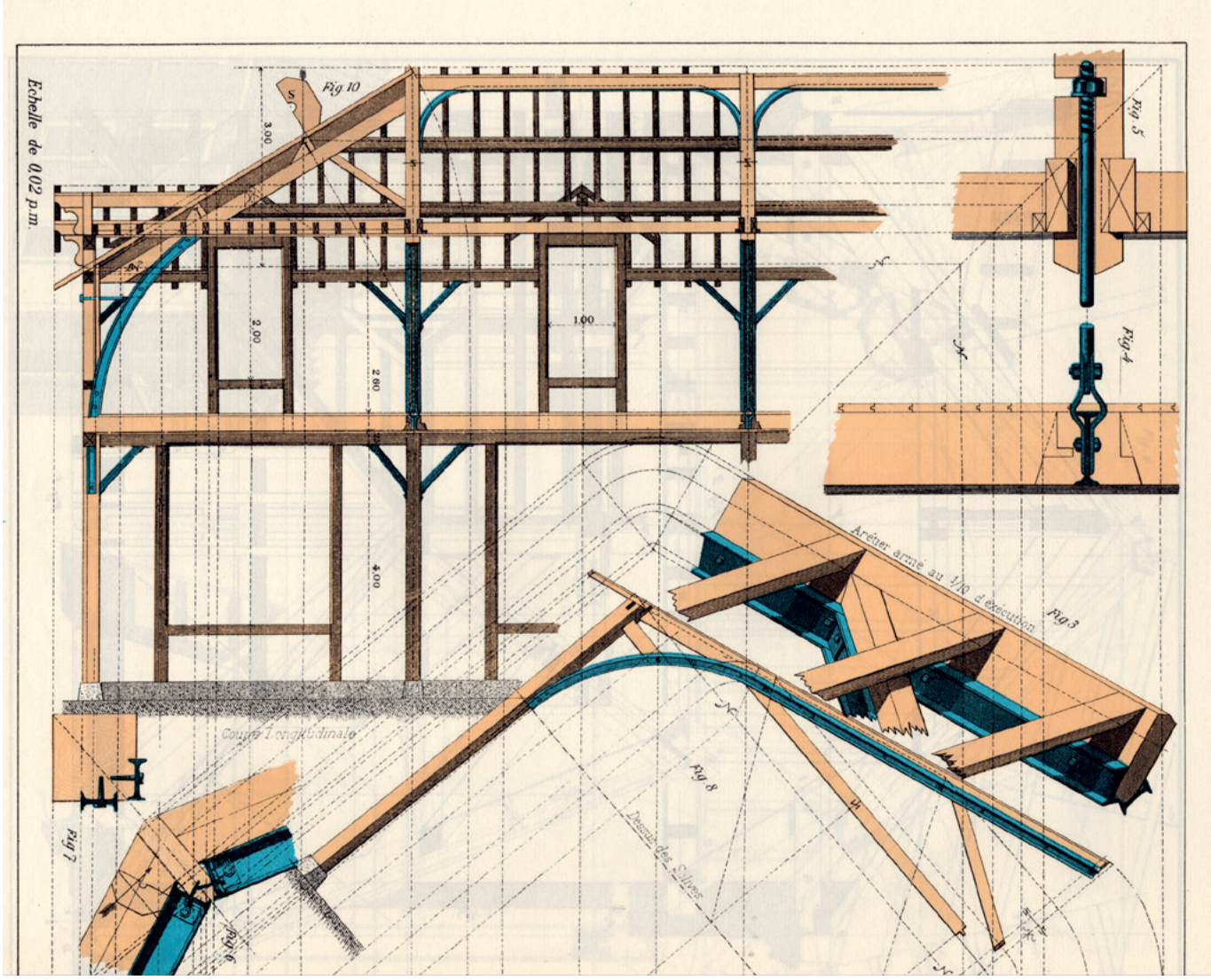

Fig. 4. *Louis Mazerolle (1885 quatrième edition), "Theoretical and practical treatise on carpentry". Source: [11].*

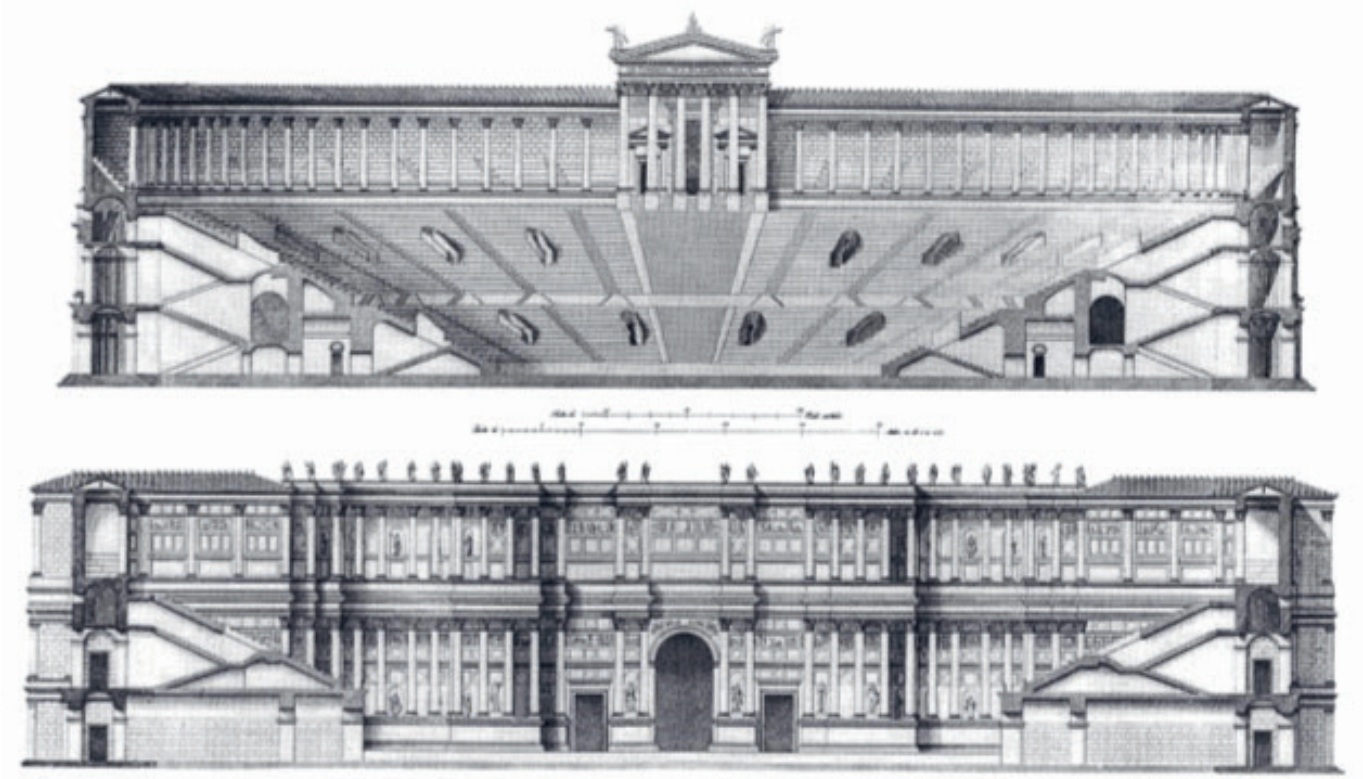

Fig. 5. *Luigi Canina, "Sections of the Theatre of Pompey". Top: looking west toward the* cavea *and the Temple of Venus Victrix. Bottom: looking east toward the* scaenae *frons (Canina 1848, vol. 4, Pl. 155). To assemble a theoretical reconstruction of that monument, Luigi Canina, a famous Roman architect and antiquary of the first half of the 19th century, then combined these ruins with Vitruvius' well-known description of a Roman theatre. Source: https://pompey.cch.kcl.ac.uk/Excavations_EarlyStudies.htm, open source.*

tain surprise, we must recognise that, if everything that belongs to the first order of the scaenae frons (Fig. 5) is useful (to the theatrical scene), everything that rises above it is, in reality, necessary: a splendid, mocking contradiction of the scaenae frons» [12]. Here, functional requirements and structural necessity embody the essence of decoration, acting as a bridge between these two concepts. In the initial phase of investigation through drawing, decoration becomes tangible through relief, which facilitates control and understanding. In the following analytical phase, the focus shifts to observing the data, as the quest for simple truth (the outcome) addresses an undeniable fact linked to the constraints of analysis. This analysis reveals the ingenuity of engineering and its ironic critiques; these dual aspects promote a clear and wise comprehension of building. Ultimately, revisiting the themes related to drawing initially, and especially the relief, thereafter, elucidates the understated phenomenon of decoration. This phenomenon reveals perplexing ambiguity in ancient, modern, and contemporary architecture (decoration versus ornamentation), making categorisation challenging unless based on specific criteria. Decoration must demonstrate the rationale behind its existence.

1.5. COMPLIANCE

The term compliance signifies a correspondence or similarity in design and structural systems, implying regularity in this context. It pertains to placing an object, such as an artefact or building, in an optimal position that allows it to engage coherently within its environment, facilitating the recognition of its character, form, and purpose. An essential fact arises concerning the artefact or factory; it is related not only to the typology of the building but also to the broader context of the architectural structure. Indeed, the structural components influence both the typological interpretation and the understanding of structural typology, where details elucidate the understanding of materials, particularly the mechanical forces involved in the structure. Components such as masonry, thickness-defined structures, and materials, along with

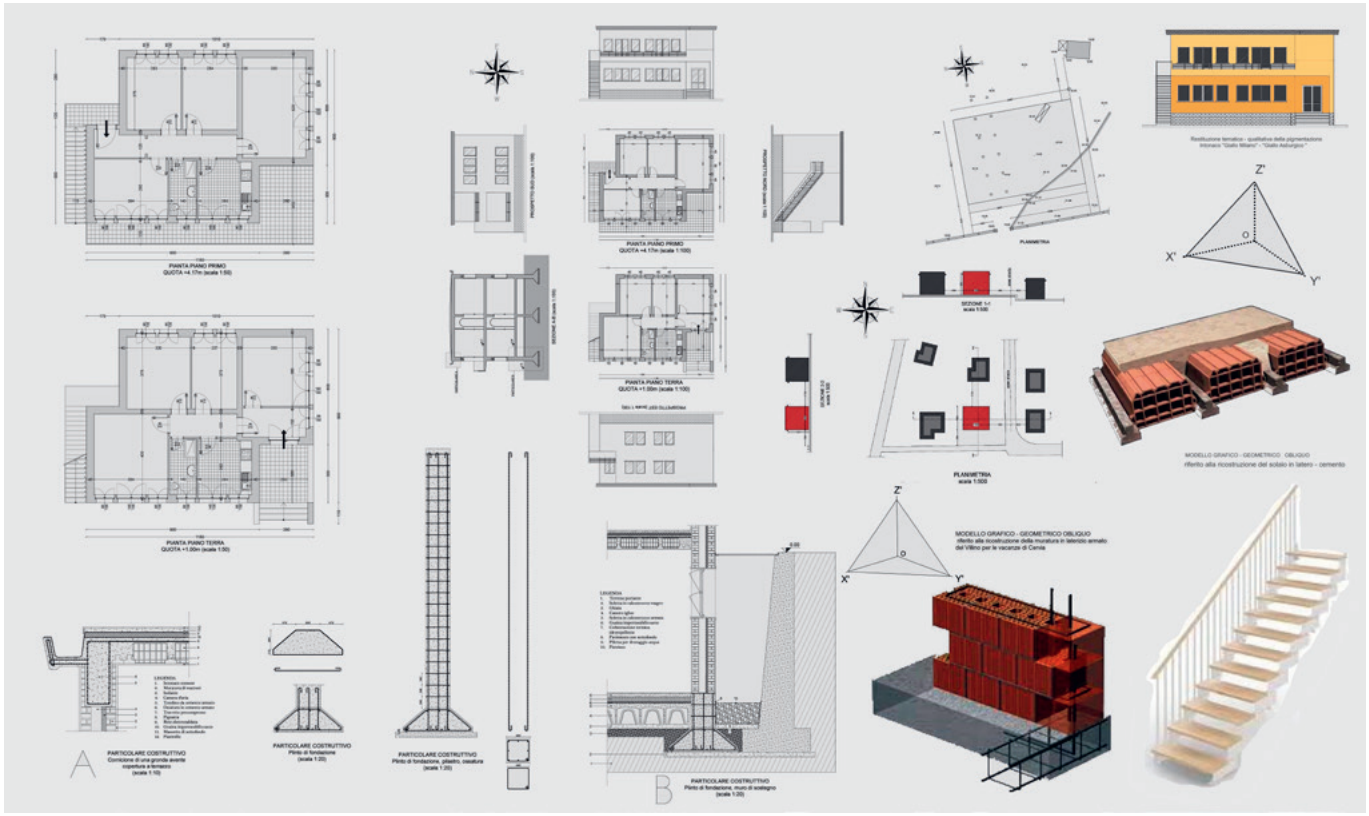

Fig. 6. *Left: villa from the 1950s, drawn in AutoCAD. Source: © Anna Tebaldi, Alma Mater Studiorum - Università di Bologna. Right: oblique model of the reinforced masonry created with Rhinoceros software (Rhino 8). Source: Author.*

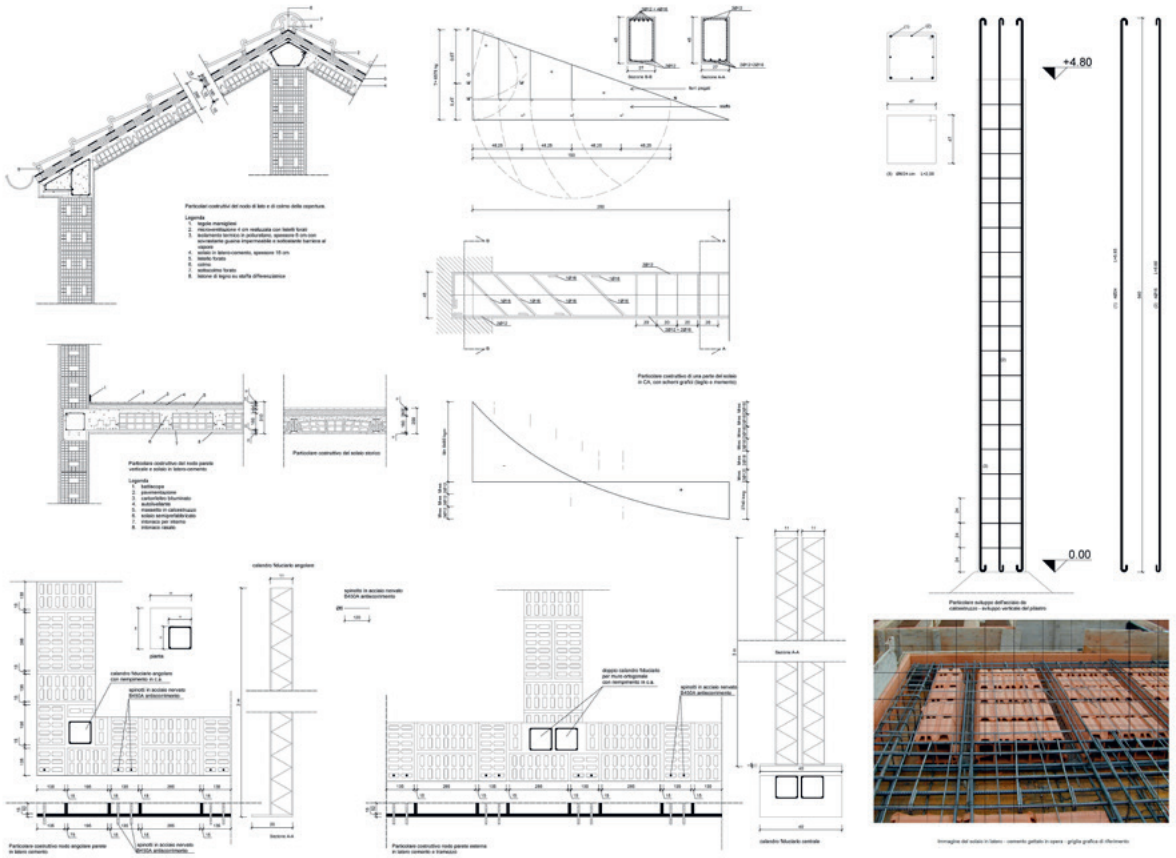

Fig. 7. *Construction details and particulars of a 1950* INA Casa *house, drawn in AutoCAD with the image of the brick and cement floor. Source: © Sofia Fabbri, Alma Mater Studiorum - Università di Bologna.*

floors, trusses, and roofing frameworks, culminate in construction details that result from these junctions.

Furthermore, finishing applications, such as light false ceilings or infill of *masonry infill*, extend beyond mere description, establishing precise and regular methods for analysing the building. In literature, the concept of structural regularity encompasses simplicity and compliance, enabling the development of a graphic analytical model that accurately defines and represents structural behaviour, thereby enhancing safety margins in calculations. Referring to the building analysis zone enables structured analysis and compliance, allowing for static verification through analytical and diagnostic methods. This phase evolves alongside an understanding of the building's construction history within a city or location, aided by physical and mathematical laws that underscore foundational principles governing the building. The term "compliance" conveys the intention to implement construction practices, not just ideas, but a thorough understanding of the building. The "professionals" and workers involved in recovery or restoration recognise that lost artefacts may seem valuable yet are often neglected within daily life. However, closer attention, through disciplines such as drawing and surveying, reveals the intricate craftsmanship and functionality inherent in these structures (Figs. 6 and 7). Compliance reveals and expresses not only the past of the structure, but also provides critical guidance and strategies for its restoration and preservation. This unique interplay of norms, functional requirements, and construction techniques, particularly in the context of building recovery, has centred on the concept and practice of rebuilding – rehabilitation.

1.6. REHABILITATION

The unique cultural norm surrounding the practice of remaking acts as a *punctum dolens*, especially in terms of its consequences that have not been understood through the lens of conformity principles. Historically, this has affected the Alpine region of Northeast Italy, particularly Cadore, Comelico, Auronzo, and Oltrepiave, which underwent significant architectural transformations from the late nineteenth to early twentieth centuries. The initial regulations designed to govern building practices emerged in the late eighteenth century, starting with fire regulations outlined in the Habsburg-issued *Feuerpolizeilichen Vorschriften*. These regions, once mainly composed of wooden structures, have now been entirely reconstructed in masonry according to new standards, also influenced by nineteenth-century public health and hygiene principles. Consequently, the ancient construction techniques have largely been replaced by modern civil engineering methods. Residential buildings and farmhouses have been organised into a systematic layout based on regulated plans, known as *Reconstruction plans* of the rehabilitation, whose regulations imposed the use of stone in construction to reduce the risk of fires that devastated the buildings, almost all of which were built in wood (Fig. 8).

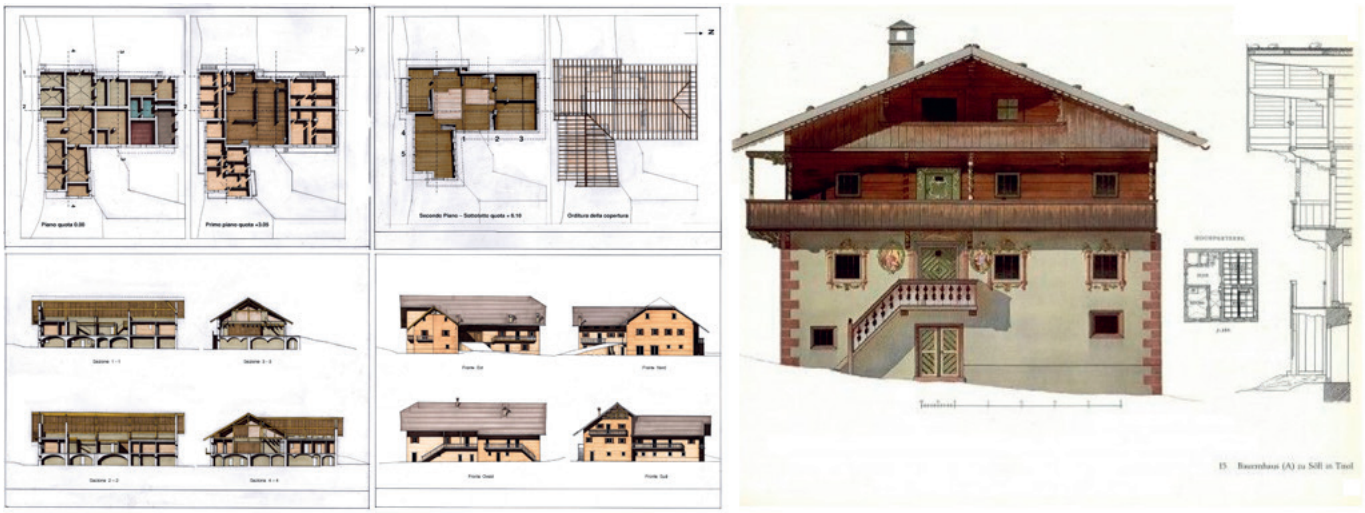

Fig. 8. *Left: restitution drawings of the* Casa Fiemmese. *Source: drawing and survey by the author. Right: Volume #41, Bart Lootsma. The Tyrolean House: Invented Tradition or Simulacrum? Verein für Heimatschutz in Tirol, Gründungsurkunde, Innsbruck, 1908, and Johann W. Deininger, Das Bauernhaus in Tirol und Vorarlberg, München: Callwey Reprint, 1979.*

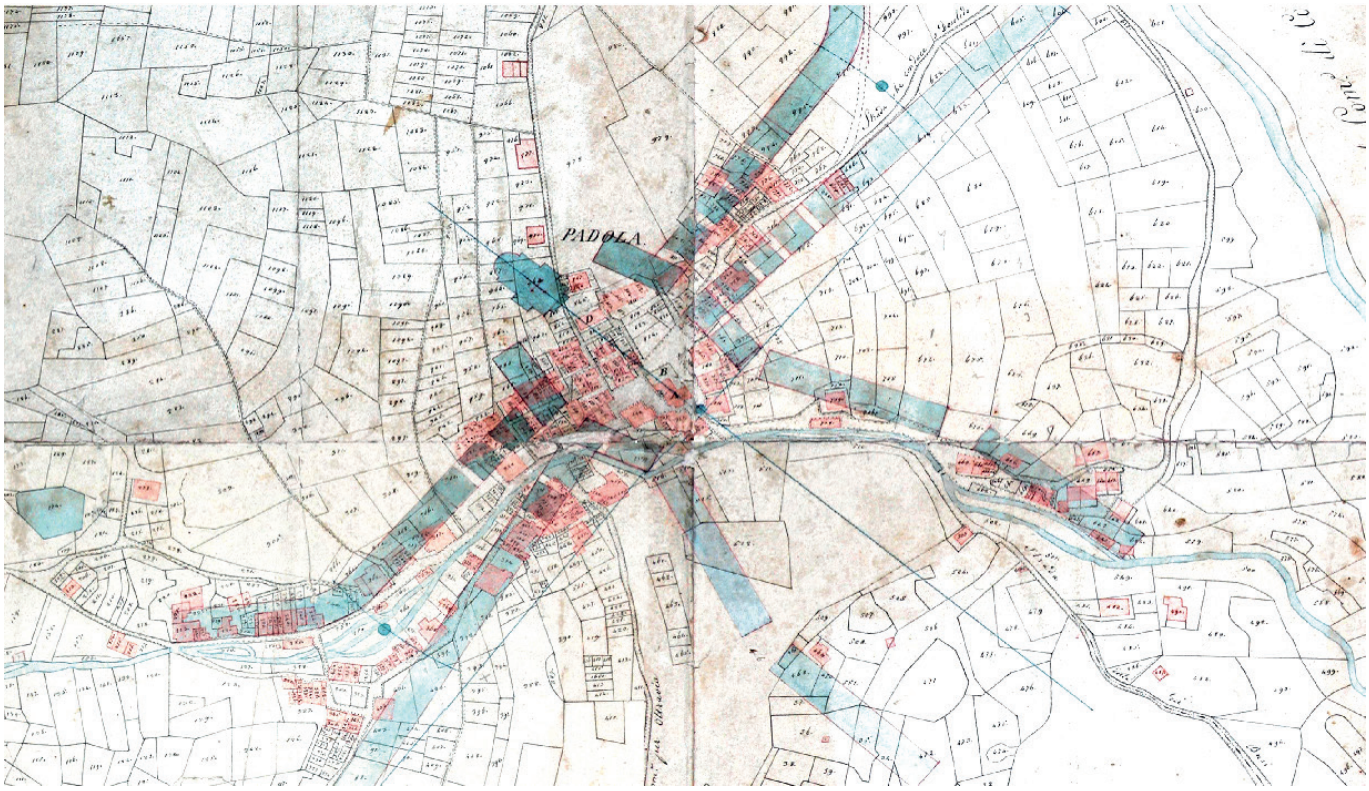

Fig. 9. *Cadastral map of the locality of Padola, Comelico, referring to the works of the re-building filled in blue, after the fire of 1845. Source: At the origins of the "reconstruction": the fire of 1845 and the reconstruction of Padola. Itineraries in the network project: for cultural tourism in Cadore, edited by Viviana Ferrario, Professor of Landscape Geography, University Iuav of Venice, Department of Project Cultures.*

The urban layout of the inhabited centres of Cadore and Comelico largely reflects the building process of the re-building program (Fig. 9). By analysing historical land records and land use planning, the "original" building styles become recognisable, revealing relationships through distribution patterns that help understand structural and construction typologies. These elements form the foundation for preservation, recovery, or restoration efforts. The idea of "building code" within refabrication tends to oppose replacing or changing traditional building styles, emphasising the importance of respecting historic construction practices. Building transformation was also driven by tourism needs and the adaptation of spaces for new uses, leading to significant changes that resulted in the loss of the buildings' organic development and the livelihood of long-standing communities. Have the questions related to the interventions carried out by the "reconstruction" plan become evident in a transformation compatible with the rules underlying the building? Moreover, the reconcilability of "restoring" what was considered old, obsolete, and nonfunctional following the problems encountered by introducing the new construction further forms of building recovery, not aligned in facts and terms, has allowed to underlie the rule, the ratio, the reason for being of the building that is the object of the reconstruction program? The transformation or modification interventions of building rehabilitation are generally oriented towards their outcome, focusing on forms of regionalist or stylistic mimesis typical of an empirical attitude, which is often an imprecise reading of the context. In this case, this is opposed to compliance. In recovery and restoration, ancient structures are used both as acquired data and as material according to the Albertian principle of "helping": «what must be done and not spoiling what has been done». Where the old, faced with new conditions and new problems, finds again its reason for being, its character, its decoration, its compliance, the systematicity of taxonomic facts. What must characterise the path inherent in the relationship of the concept of re-building affects and concerns carefully the relationship between the construction method and the building conformation, that is to say, the context or rather the dependence, the character given to the artefact and its settlement, the

choices and the construction capabilities that decree its unveiling as they are connected to the structural conception. The overlapping of historical facts that characterised the buildings involved in the reconstruction project lies in the practice in which the construction work and the specific skills, also due to the cultural and economic evolution of a place, have led to a direct relationship, which has also become synonymous with a construction and implementation model. Furthermore, the interventions achieved in this way have often expanded the territory of techniques and possible recovery, constituting opportunities for formal reuse, in the best of cases, a reuse of the existing "mummified" in the name of a generalised "constraint", never motivated and, for this reason, not accepted by the historical culture.

2. CONCLUDING CONSIDERATIONS

The epistemological framework, which concerns the methods and foundations of scientific knowledge, influences our worldview. It makes cataloguing, ordering, and recalling various forms of knowledge and experiences increasingly detailed and complex. This complexity particularly complicates the formation of a critical judgement about a continually reconstructed past driven by an ephemeral present. The concept of structural clarity, inherent to taxonomy as an experience of regularity and method, forms an inseparable unity with the rules governing shapes, ranging from soil drawing and urban planning to typology and the definition of building types. This set of elements creates a cohesive whole, despite the dual relationships involved. Character, decoration, and conformity entirely belong to the cause of building recovery, and why not also to that of architectural and engineering restoration? Consequently, the structural logic, precisely as a binding organisational ratio, cannot be reduced to simplistic forms or methods, since it is fundamentally a process of building and structural development. For example, houses analysed within the context of the garden city movement (first half of the last Century) and those built under the INA Casa programme, formerly Gescal (Fig. 10, left), already highlighted in the descriptive process the character, decoration and compliance of the type and in this, the typology returns a recognisable system. The type is not a strict model to replicate exactly, but rather a framework that guides construction. The taxonomy of construction can be summarised as a matter of structural integrity. Merely displaying morphological and typological solutions through practical experience often falls (Fig. 10, right) short without the underlying factual description that reveals the structural typology of the building. Building recovery emphasises this point: architecture's history shows that constructions are often the result of recovering or restoring existing structures, as well as of *reconstruction*. They possess the merit of having a systematic structural design in architectural and engineering thought, as well as in structural design. For these reasons, the taxonomy of construction is robust and does not reveal shortcomings.

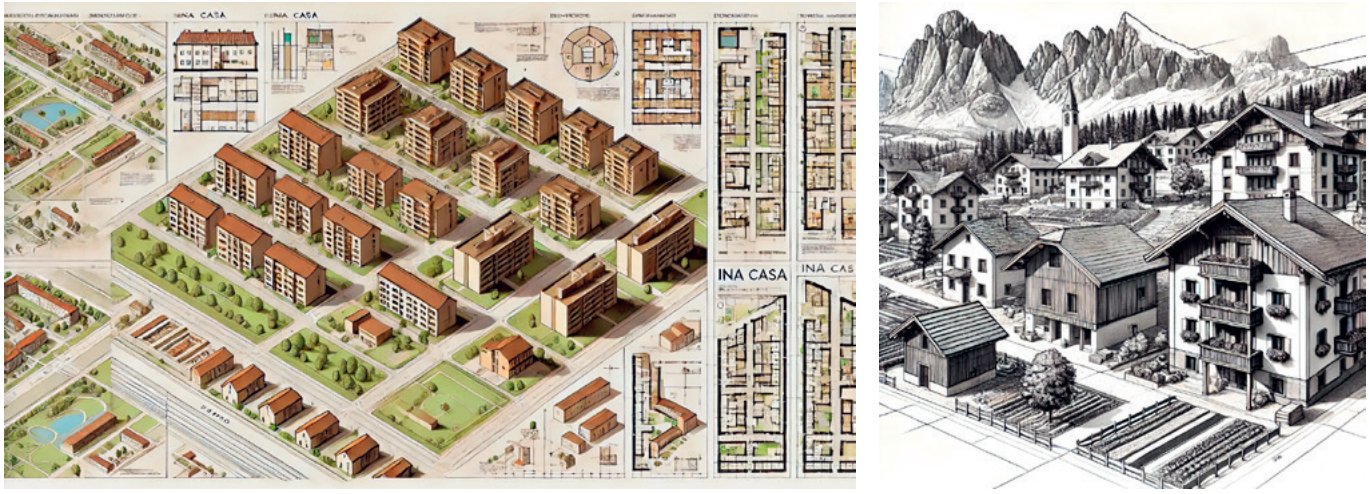

Fig. 10. *Left: the ideal image of a 1950s INA Casa residential neighbourhood. Right: the reconstruction in Cadore from the 1960s to the 1980s.*

Acknowledgements

Thanks to Dr. Fabrizio Battaglia for his advice on the English language. Thanks to Maddalena. We also thank the Archives for access to the material, especially the Museo Civico di Vicenza, for the open-source material.

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