

At Full Scale. Mock-ups and Project Temporalities

Lorenzo Renzullo^{1*}

¹Department of Architecture, University of Naples Federico II, Naples, Italy

Abstract. The research investigates the architectural mock-up as a full-scale (1:1) projective device, redefining its role beyond representation and technical verification. Rather than treating the mock-up as a subsidiary artefact within linear design processes, the study interprets it as a temporal construct that mediates between ideation, construction, use, and after-life. Through a critical historiographical revision—from eighteenth-century normative models to twentieth- and twenty-first-century experimental practices—the paper traces a shift from the model as an instrument of conformity to the mock-up as an operative and cognitive tool embedded in non-linear temporalities. The methodology combines bibliographical research, archival investigation within Italian and French contexts, and primary sources, including interviews with architects and researchers. Case studies demonstrate how mock-ups function as experimental interfaces where materiality, scale, perception, and performance are negotiated in real time, revealing discrepancies between projected intentions and built reality. Particular attention is given to the multiple “lives” of mock-ups, including their reuse, adaptation, exhibition, and regulatory codification across different national frameworks. The research ultimately positions the mock-up as a central instrument of architectural projection across times, proposing a taxonomy that links different types of mock-ups to specific temporal roles—anticipatory, iterative, verificatory, and residual—thereby framing architecture as an open, time-based process rather than a fixed outcome.

1 Investigating the Mock-Up: A Methodological Framework

Working through the mock-up goes beyond the representational and abstract intentions underlying modelling, as it introduces a dimension of experimentation and situated knowledge within the design process. This condition is clearly articulated in *Prototyping for Architects*, which states that “there is nothing like working in the field to provide a balance between theory and practice” [1].

The paper addresses the following research question: how can architectural mock-ups be understood as devices operating across the design and construction process? This question emerges from a critical reconsideration of the relationship between model and idea in architectural design — or, following Kenneth Frampton, the inversion of the *Idea as model* [2] — allowing the mock-up to be interpreted as an active cognitive and projective device.

* Corresponding author: lorenzo.renzullo@unina.it

While the use of prototypes and mock-ups is widespread in contemporary design practice, their historiographical reconstruction remains fragmented and affected by persistent ambiguities — etymological, chronotopic, typological, ecological, and normative.

Several publications [1,3,14,15,26,28] have contributed to extending the research framework by identifying design references in well-known architects of the twentieth century (Mies van der Rohe, Frank Lloyd Wright, Otto Wagner, Eero Saarinen, Albert Speer, Pier Luigi Nervi, Arturo Danuso, Sergio Musmeci, Richard Rogers, Renzo Piano), yet only sporadically have they examined the role of the mock-up within the circular relationship between process and construction. In response to this gap, the paper proposes a taxonomy of five temporal roles of the mock-up — anticipatory, iterative, negotiative, verificatory, and residual — through which its evolving functions can be interpreted. These categories are not intended as fixed classifications, but as overlapping conditions that emerge within specific design situations.

The research adopts a systemic and scalar methodology combining: (i) a critical review of existing literature; (ii) the analysis of selected case studies, primarily within the Italian and French contexts, based on archival research; and (iii) the examination of primary sources, including interviews and direct testimonies from researchers and practitioners. The selection of case studies focuses on situations in which the mock-up actively mediates between design intentions and construction processes. The limited number of bibliographical studies on this topic does not clearly define the nature of mock-ups, nor the nuances distinguishing them from “prototypes”, “full-scale models”, “samples”, “1:1 scale models”, and other analogous terminologies. Understanding and documenting the role of full-scale mock-ups in the design process therefore required an investigation of designers’ direct sources (correspondence, technical design reports, structural calculations, contractors’ inventories).

These materials make it possible to reconstruct both the technical function of mock-ups and their position within broader design processes, establishing a connection between historical practices and their contemporary reinterpretation. The contemporary relevance of the mock-up is further explored through selected testimonies from researchers (Salome Schepers, David K. Ross, Nicholas Martin Diaz, Fabio Colonnese) and practitioners (Shunji Ishida of RPBW, Santiago Espitia Berndt of Herzog & de Meuron, Nick Gelpi of Gelpi Project Florida). These contributions are not treated as isolated evidence, but are selected for their capacity to clarify specific conditions under which the mock-up operates today — particularly where it connects representation, construction, and decision-making processes. The combination of archival sources and contemporary testimonies allows the paper to establish continuity between historical uses of the mock-up and its present-day transformations, addressing the gap between historiographical reconstruction and current design practices. The research ultimately investigates how the mock-up operates across different phases of the architectural process, examining how it anticipates, verifies, negotiates, and extends the project over time, including its afterlife, and supporting the formulation of a taxonomy of its roles.

2 Are You a Model? Historical and Contemporary Critical Debate

From a historiographical perspective, the architectural model — and in particular the mock-up — provides a lens through which to analyse the transformation of the relationship between idea, representation, and construction from the eighteenth century to the present. This section establishes a continuity between historical uses of the model and contemporary practices, clarifying how the mock-up progressively acquires an operational dimension.

In the eighteenth century, the model was situated predominantly within a normative and imitative theoretical framework: it was conceived as an instrument of formal and technical control, grounded in iterative processes of revision and correction [4], ensuring the correct

translation of the design idea into the built work. Encyclopaedic and treatise-based definitions from the seventeenth and eighteenth centuries portray the model as a stable mediation between design and execution. As Werner Oechslin observed with reference to Penther, “the model was no longer limited to the imitative relationship between model and copy, but assumed an active function of completing and correcting the project” [5]. Similarly, Blondel, in the *Cours d’architecture* (1771–1777), attested to the usefulness of full-scale models — *maquettes à la grande échelle* — as instruments capable of ensuring the precision of architectural realisation [6], citing examples ranging from Bernini’s colonnade in St Peter’s Square to the works of Lescot, Perrault, and Mansart.

In this context, the model performed an essentially illustrative and demonstrative function, oriented towards formal clarity and the anticipation of the final outcome. At the beginning of the twentieth century, this framework was progressively challenged. The crisis of the notions of norm, type, and representation produced a significant shift in the role of the model: the mock-up, particularly at the 1:1 scale, was no longer confined to a preliminary verification function, but became an experimental tool within the design process [7]. The model no longer simply precedes the work, but participates in its definition through an iterative process in which design and verification tend to overlap.

The comparison between the eighteenth and twentieth centuries thus marks a fundamental shift: from a model conceived as an instrument of rule-based design control to a mock-up understood as an operational and temporal device. In the eighteenth century, this “normative” dimension did not refer to formalised regulations in the contemporary sense, but to systems of rules, proportions, and compositional principles codified in treatises and professional practice. Models were used to verify their correct application and to ensure coherence between design intention and execution, as evidenced in the writings of Blondel and in the treatise tradition. In contrast, the contemporary understanding of the normative is largely tied to technical standards, regulatory frameworks, and procedural compliance. The use of the term “normative” in relation to the eighteenth century therefore establishes a critical parallel between these conditions: not to equate them, but to highlight a continuity in the use of models and mock-ups as devices for controlling, negotiating, and stabilising the relationship between design and construction. Within this shift, Kenneth Frampton’s reflection becomes particularly significant. In *Idea as Model* (1976), Frampton repositions the model as a critical instrument within the design process, rather than a mere means of representation or verification. The inversion implied in the notion of the “idea as model” challenges the traditional hierarchy between conception and execution, suggesting instead that the project is progressively constructed through its material and spatial testing. In this perspective, the emergence of the mock-up — particularly at the 1:1 scale — forms part of a broader transformation in architectural practice, in which the model no longer precedes the building as a fixed reference, but operates within the process itself. The mock-up enables an anticipatory evaluation of spatial, luminous, and material conditions, allowing the project to be adjusted, negotiated, and redefined over time. These tendencies become evident in twentieth-century case studies, such as the mock-up for the Villa Krölller-Müller by Mies van der Rohe (1912), or the full-scale experiment by Marcello Piacentini and Attilio Spaccarelli (1938) for the perspectival adjustment in front of St Peter’s Basilica - where the full-scale model was used to verify distances, heights, and chiaroscuro variations in relation to solar irradiation. In these cases, the mock-up functions both as a tool of verification and as a means of testing the project over time, reinforcing its anticipatory and verificatory roles within the broader framework proposed in this paper.



Fig. 1. M. Piacentini, A. Spaccarelli, Mock-up, Nobile Interrompimento, San Pietro square, Rome, 1938 (©Roma Archive, RA 125-87 D).

In these examples, as Fabio Colonnese observes, from the 1:1 scale model “one expects the re-presentation of something that has not yet been built, that has been lost, or that exists elsewhere” [8]. The mock-up thus begins to acquire a life of its own, developing an autonomous temporal condition and, in some cases, converging with forms of ephemeral architecture. This dimension emerges clearly in Colonnese’s reflections, particularly in an interview conducted by the author [9], where the mock-up is described not in terms of permanence, but of temporality and use. Colonnese notes that many late twentieth-century mock-ups were conceived as temporary structures, intended to be dismantled once their function had been fulfilled. Around them, however, a collective process would unfold, involving architects, clients, engineers, and craftsmen. In this context, the mock-up operates as a negotiative device, situated at the intersection between ephemeral architecture and representational projection. This is particularly evident in contexts such as the reconstruction of Berlin (*kritische Rekonstruktion*) in the 1990s and early 2000s, where full-scale mock-ups of façades were systematically produced on site. These fragments were not merely technical tests, but instruments for reconstructing the image of a lost city, albeit through contemporary architectural forms. In this sense, the mock-up also acquires a residual dimension, as its effects extend beyond its immediate function, contributing to the reconfiguration of architectural and urban meaning over time.

The mock-up can therefore be understood both as an artefact and as a conceptual device, encompassing visual, spatial, and material potentials. At the same time, it belongs to broader theories and practices of simulation, as discussed by Jean Baudrillard in *Simulacres et simulation* (1981), where the simulacrum mediates between reality and projection [10]. Within this framework, the mock-up materialises simulated conditions, enabling the construction and manipulation of possible architectural scenarios.

Recent contributions, such as *Are You a Model?* (2024), further highlight both the potential and the limits of modelling as a means of anticipating and visualising architectural outcomes: “New methods of simulation (...) have highlighted both the potential and the limits of modelling as a means of predicting or visualising the present and the future (...). In general, a mock-up is a ‘full-scale preparatory model whose primary purpose is to test the

original idea of the building's performance or to simulate the building's aesthetics in reality" [11].

We understand that the mock-up, identified as a full-scale model, can be understood as a tool to simulate or test the "idea" of the ideal project, or rather to project the future building into present reality. The shift from the question "Are you a model?" to "Are you a mock-up?", as articulated in the essay *Let's Begin at the End* edited by Salome Schepers [12], reflects a growing attention to the operational and situated nature of these devices.

This perspective is further reinforced through an interview conducted by the author with Salome Schepers [9], whose research within Jan De Vyllder's Re-Now-Re Studio [13] is grounded in the observation of mock-ups in the city of Zurich. In this context, the transformation of the city's building stock is closely linked to the proliferation of full-scale mock-ups, which operate as both physical artefacts and critical instruments. As Schepers notes, these mock-ups are not approached solely as constructions to be produced, but as preliminary conditions of the project — a "premise" or "prelude" through which architectural ideas can be observed, questioned, and reformulated. In this sense, the mock-up becomes comparable to other representational tools, while simultaneously enabling a direct engagement with spatial and material complexity.

According to Nick Dunn (2007) [14], the etymology of the term *mock-up* — from the verb "to mock", meaning to imitate or simulate — can be traced back to the Old French *mocquer*, "to laugh" or "to mock". The term was first employed in early modern Italian treatises to describe full-scale models or simulacra, that is, representations intended to reproduce the appearance and conditions of a project at true scale. Its subsequent development within Anglo-Saxon contexts, particularly in aeronautical and military fields from the 1930s onwards, contributed to consolidating its meaning as a device capable of anticipating and simulating real conditions prior to construction. In this sense, the mock-up extends beyond the reproduction of form, encompassing spatial perception, material presence, and tactile and kinaesthetic qualities. It therefore operates at the threshold between representation and reality, allowing the project to be tested under conditions that approximate those of the built work. The definition proposed by Fulscher, and further refined by Nick Dunn, remains among the most widely shared in the literature. In *Prototyping for Architects* [1], a threefold distinction is articulated between prototype, model, and mock-up: the prototype is understood as a primary type that must conform to a standard; the model as a three-dimensional representation of an object; and the mock-up as an experimental device, intended as a practical test. Like the prototype, the mock-up serves to test specific aspects of an architectural project prior to construction, identifying potential failures or adjustments. However, unlike the prototype, it is oriented towards situational verification rather than standardisation.

Mock-ups may assume different degrees of fidelity, ranging from high-fidelity architectural and construction mock-ups to low-fidelity or "theatrical" versions, and extending to digital simulations. These distinctions are further elaborated by Nick Gelpi in *The Architecture of Full-Scale Mock-Ups. From Representation to Reality: the Novelty and Creativity of Falsework* [15], where he identifies installed, manifested, and performance mock-ups, ultimately advancing the paradoxical notion of the "building as mock-up". Gelpi's position is further clarified in an interview conducted by the author [9], where he emphasises the material and constructive dimension of architectural practice. In this context, the mock-up is described as occupying an intermediate condition between drawing and building: it is not merely a form of representation, yet it does not coincide with construction. Rather, it constitutes a "third convention", one that is both rare and costly, yet fundamental to the development of the project. Gelpi frames this condition in terms of translation — from two-dimensional representation to three-dimensional reality — suggesting that within the mock-up, reality itself becomes a form of representation. This understanding resonates with the

argument developed by Robin Evans in *Translations from Drawing to Building* [17], where conventional representational systems are shown to be insufficient for grasping the material and behavioural properties of architecture at full scale. In this sense, the mock-up emerges as a critical device for exploring and testing such properties within the design process.

3 Temporal Roles of the Mock-Up

This section examines the mock-up through selected case studies illustrating its operation across different phases of the architectural process.

The cases are not intended as a comprehensive survey, but as focused instances that highlight distinct modes of use: as a tool for testing and adjustment, as a device mediating between actors, and as an artefact that may persist or transform beyond construction. Considered together, they show how the mock-up shapes the development of the project within and beyond the building process.

3.1 Lives of the Mock-Up in and Beyond the Building Process

Once its construction is completed, the full-scale mock-up may pass through different “lives”: it may become a simulacrum—kept in the workshop as an exemplum to be refined or reused in future projects; an exhibitionary or performative object—intended to construct a specific kind of projection; or, finally, an object destined for demolition or conversion.

These “lives” can be understood as distinct temporal conditions through which the mock-up operates within the architectural process. As Wonseok Chae has stated, “the temporary life of a mock-up usually ends before the beginning of the final construction of the actual building” [18]; at other times, the mock-up becomes habitable, or is transformed into a new functional object. Examining two cases from the late twentieth century in the Italian and French contexts clarifies how the mock-up enters design processes.

A significant testing ground in this regard was the Post Office programme (1974–79) for Italposte, by Pierluigi Spadolini architects. In the archival documentation [19], the architect not only described his interest in the contemporary construction of the Centre Pompidou (1972–77)—evidenced by his correspondence with Renzo Piano—but also expressed a desire to establish close collaboration with construction companies. The design of the post offices addressed three main aspects: urban and environmental integration, architectural and aesthetic considerations, and, finally, the social dimension relating to the usability of interior spaces. Of particular interest is the circular temporal diagram of the construction process, which took into account both the potential for future convertibility and the temporal effect of functional obsolescence. Within this cycle, the mock-up adapts to different phases of development. In 1968, at the IPI-System factory in Nerviano (near Milan), one of the companies collaborating with Italposte on the production of panels, a mock-up of one of the larger variants of the post office was assembled [20]. The protocol established when commissioning the designers and companies required the production of “a pre-series of experimental buildings” [21]. To explore these possibilities, Italposte commissioned the construction of a simulacro al vero (full-scale simulacrum) of the post office, both for the exteriors and the interior layouts. The full-scale interior model included all areas open to the public, such as the service counter and the space behind it, allowing defects and shortcomings to be recorded. In this case, the mock-up functions primarily as a tool for testing and adjustment, supporting an iterative development of the project while verifying its spatial and technical feasibility.



Fig. 2. P. Spadolini, Full-scale mock-up of the interior, Post Offices, Nerviano, 1977. By courtesy of the Ministry of Culture (Copyright State Archive of Turin, Pierluigi Spadolini fund).



Fig. 3. Le Corbusier, Photo mock-up cells, New Hospital of Venice, 1965 (Photo Ferruzzi technical reports IUAV UA 493532).

Whereas the purpose of the mock-up in Spadolini's case was primarily experimental, an opposite case is represented by Le Corbusier's unrealised design for the Venice hospital (1965–73). Le Corbusier's testament to this project is the 1:1 hospital ward mock-up

constructed on 30 May 1965 on the terrace of the former SS. Pietro e Paolo. Described as the architect's "hot air balloon", it was "not a construction drawing, but a deliberate enlargement" [22], conceived to obtain the consent of future users, including physicians and patients. The mock-up addressed what Le Corbusier defined as the central problem of the project: "trouver l'échelle, l'échelle humaine (...) et mettre l'homme au centre du drame" [23]. His process relied on a progressive and bi-univocal verification method: " A , $A + B$, $A + B = C$ " [24]. Here, the mock-up assumes an exploratory and immersive role, associated with a meta-project phase. It operates as a mediating device, enabling interaction with future users while supporting an anticipatory assessment of spatial and experiential conditions.

In the contemporary context, further cases highlight the extension of these dynamics. In the Marl Town Hall (1967), the mock-up was later adapted to new public functions and transformed into a space for children and families, acquiring architectural autonomy. This transformation illustrates how the mock-up may persist beyond its initial function. In contrast, in the Astor Place Hotel project (2001) by OMA and Herzog & de Meuron, the mock-up of the residential unit became an integral part of the design experience: spatial qualities and dimensional relationships were tested directly, leading to multiple variations of the project without proceeding to construction. In this case, the project evolves through repeated testing and transformation. Another aspect of the extended life of mock-ups emerges through their role in architectural exhibitions and research contexts. Exhibitions such as *Elements* at the Venice Biennale (2014), installations at MoMA, and David K. Ross's work at the SAM Swiss Architecture Museum (2021) signal the entry of the mock-up into the domain of dissemination and collecting, often within research environments linked to the construction industry, as in the case of NEST [25]. This dual condition — between reuse and exhibition— is further clarified through an interview conducted by the author with Shunji Ishida of RPBW [9].



Fig. 4. OMA & H&DM, Astor Place Hotel, New York, 2001. Photomontage by the author (by courtesy of studio OMA).

Ishida describes how mock-ups may follow two principal trajectories: they may be stored in facilities such as the Voltri warehouses in Genoa, where they remain exposed to environmental conditions and can be revisited as references in subsequent projects; or they may be preserved within research archives and exhibited in institutional contexts, as in the exhibitions *Out of the Blue* (1997–98) or *Mostrare l'architettura, pezzo per pezzo* (1982–2014). In both cases, the mock-up extends its relevance beyond its initial use, becoming a repository of knowledge and a point of return within future design processes.

Further dimensions emerge when considering the performative and documentary aspects of mock-ups. Projects such as *Test Beds* by New Affiliates (2022), developed in Singapore,

configure full-scale experimental devices that operate simultaneously as architectural prototypes, artistic installations, and temporary structures for use and testing. From a more introspective perspective, David K. Ross, in *Archetypes*, reflects on the documentary role of mock-up photography, noting that the increasing precision of digital representations contrasts with the indeterminate conditions of construction sites [26]. Mock-ups thus appear as material yet ephemeral artefacts, disappearing as projects approach completion, while occupying a distinct moment between representation and construction - synthesising the full force of its after-life. As Ross observes: “The mock-up becomes a simulation of a building that will exist in the future, a form of architectural representation that surpasses even the most hyper-realistic rendering. The transition from the drawing board to the screen has led to the replacement of finite sets of geometric projections with tangible models with embedded construction information capable of registering every centimetre of a building. A full-scale mock-up conveys the maximum resolution of information and can examine a wide range of conditions” [27].



Fig. 5. Architectural mock-up for a residential housing development ar Erlenmatt Ost 10+11, Basel, Switzerland, 2018 (by courtesy of Collection Centre Canadien d'Architecture/ Canadian Centre for Architecture, Montréal, © David K. Ross).

3.2 The Regulatory Dimension of the Mock-Up

The regulatory dimension of the mock-up can be understood as a specific extension of its mediating function, particularly in contexts where design intentions, technical requirements, and institutional frameworks must be aligned. In this sense, the mock-up serves as a shared reference through which different actors negotiate and stabilise decisions throughout the construction process. Four contexts have been analysed: the Italian, Swiss, French, and United States contexts.

In Italy, the use of the mock-up within the canonical stages of design is regulated—pursuant to Article 32 of Legislative Decree No. 36/2023—by the Special Tender Specifications (Capitolato Speciale d’Appalto), under the section Description of Works and Technical Specifications, as the responsibility of the contractor and included within the executive works schedule. The full-scale simulation of a portion of the project serves various purposes: it provides the designer with certainty regarding the feasibility of the concept; supplies the contractor with information on production and assembly requirements; allows verification of the play of light and the projection of the object at different times of day; and ultimately facilitates the alignment of the various actors involved in the construction process towards a shared understanding of the project, improving communication with the client [28]. In relation to these purposes, different types of mock-ups are identified. At the Technical and Economic Feasibility Design stage (Progetto di Fattibilità Tecnica ed Economica), prototypes or visual mock-ups—mainly digital—are employed, often associated with CAD/BIM/Revit modelling tools. At the Detailed Design stage (Progetto Definitivo), field mock-ups are produced by the contractor in the workshop. Finally, at the Executive Design stage (Progetto Esecutivo), in-place mock-ups are created by the contractor and installed on site.

The situation is different in the Swiss context, where the mock-up is not generally codified within building legislation in the strict sense, but receives explicit and operational recognition within technical standards, guidelines and *Merkblätter* that accompany the application of SIA norms. In particular, *Merkblatt Nr. 8 – Betonfertigteile aus Architekturbeton*, published by SwissBeton, explicitly introduces the concept of “Muster / Mock-up”, requiring the realisation of test surfaces or elements (*Erprobungsflächen*) for defining the material, chromatic and finishing characteristics of architectural concrete. These samples assume the role of reference surface (*Referenzfläche*), binding for the qualitative assessment and acceptance of the completed work. Moreover, the use of the mock-up is also attested in federal documentation, for instance in ASTRA guidelines, where it is defined as a physical model at correct scale for the spatial and perceptual verification of elements prior to their final construction. As further clarified through an interview conducted by the author with Salome Schepers [9], the use of mock-ups is often implicitly required in processes where architectural quality is a central concern: although the term itself may not always appear explicitly in legislative texts, it is effectively interpreted by building authorities as a necessary instrument for ensuring high-quality outcomes.

A comparable condition can be observed in the French context, where the mock-up (often referred to as *échantillon*, prototype, *ouvrage témoin* or *maquette à l’échelle 1:1*) is not generally prescribed by building laws, but plays a significant role within the technical and contractual regulatory system: the *Documents Techniques Unifiés* (DTU), developed under the aegis of AFNOR, and the recommendations issued by CSTB, in which the full-scale mock-up is frequently indicated as a tool for performance and quality assessment. In contractual terms, the *Cahier des Clauses Techniques Particulières* (CCTP) regularly relies on the mock-up as a binding reference for execution, attributing to it a value similar to that of the *référence acceptée* in Swiss practice.

Finally, in the United States context, the mock-up is a widely consolidated practice and receives explicit recognition within technical codes, industry standards and contractual documents arising from building codes, ASTM International, and the American Institute of Architects. As noted by Nick Gelpi in an interview conducted by the author [9], while mock-ups may not always be required as an industrial standard at intermediate scales, they play a crucial role in experimental and high-quality projects. Taken together, these contexts show how the mock-up functions as a mediating and verificatory tool within contemporary practice, whether explicitly regulated or implicitly required.

4 Open Conclusions

This research frames the mock-up as a projective device operating at a 1:1 scale, interpreting its relevance through time rather than as a purely technical or representational artefact. The case studies discussed clarify how this agency operates in practice. In the Italtoposte programme by Pierluigi Spadolini, the mock-up supports testing and adjustment, enabling iterative refinement of spatial and technical solutions. In Le Corbusier's Venice hospital project, it acts as a mediating device, engaging future users while anticipating spatial and experiential conditions. In the Marl Town Hall, its persistence and reuse reveal its capacity to extend beyond its initial function, while in the Astor Place Hotel project, it sustains an ongoing process of variation without reaching construction. In parallel, regulatory frameworks demonstrate how mock-ups function as shared reference tools, aligning actors through processes of verification and negotiation.

Taken together, these cases show that the mock-up operates within a non-linear temporality in which projection, testing, and construction overlap. In this context, the taxonomy proposed in this research can be understood as a synthesis of observed practices, where anticipatory, iterative, negotiative, verificatory, and residual roles emerge as interrelated modes rather than fixed categories.

At a 1:1 scale, this operation acquires particular intensity. The mock-up enables direct engagement with materiality, scale, and perception, exposing discrepancies between projected intentions and their physical realisation. In doing so, it transforms time into an active component of the design process rather than a sequence of phases. The multiplicity of its "lives" further reinforces this condition: beyond construction, mock-ups may persist as references, be adapted to new uses, or enter curatorial and institutional contexts, extending the temporal horizon of the project. Normative frameworks, whether explicit or implicit, confirm this role by positioning the mock-up as a shared interface between design intent and execution.

The mock-up can therefore be understood as a central instrument in contemporary architectural practice, not as a preliminary representation but as a site where the project is actively negotiated over time. The taxonomy proposed in this research clarifies this condition by identifying a set of roles through which the mock-up operates — projection, testing, mediation, verification, and persistence — as interconnected processes shaping the development of the project.

Rather than stabilising the project, the mock-up reveals it as a dynamic process unfolding across multiple temporalities. It is precisely within this interval — where future conditions are materialised, tested, and transformed in the present — that the mock-up defines its specific contribution to architectural thinking and practice.

References

1. J. Burry, *Prototyping for Architects* (Thames & Hudson, London, 2016), 13-14
2. K. Frampton, S. Kolbowski, *Idea as model* (Institute for Architecture and Urban Studies, New York, 1981)
3. F. Colonnese, M. Grazia D'Amelio, L. Grieco, Life-Size Models Agency Between, Landscape, Spatial Experience, and Design Process. *Contemporary Heritage Lexicon*, SPRTRCIENG, 2, 127-151 (2024). <https://doi.org/10.1007/978-3-031-61245-9>
4. G. Vragnaz, Maquette. *Rassegna*, an IX, 32/4, 5 (1987)
5. F. J. Penther, *Detailed Guide to Civic Architecture* (Augsburg, 1744), 107
6. J. F. Blondel, *Cours d'architecture: Ou traité de la décoration, distribution & construction des bâtiments*, 4 (chez Desaint, Paris, 1773), 160-161

7. M. Ange Brayer, F. Migayrou, *Architectures experimentales 1950-2000* (Editions HYX, Collection du Frac Centre, 2005)
8. F. Colonnese, *Die Erfahrung mit lebensgroßen Modellen im Entwurfsprozess*. In *Manifestationen im Entwurf* (Verlag, Bielefeld, 2016), 287-316
9. Interviews conducted by the author to Fabio Colonnese, Nick Gelpi, Salome Schepers, Nicholas Martin Diaz, and Shunji Ishida, held in the year 2025–2026
10. J. Baudrillard, *Simulacres et simulation*, (Galilee, Paris, 1981), 55-56
11. A.M Meister, T. Fankhänel, A. Luise Schubert, L. Beißwanger, C. Dähne, *Are You a Model? On an Architectural Medium of Spatial Exploration*, (Jovis, Berlin, 2024), 9
12. Ibid., 164-170
13. J. De Vylder, O. Burch, J. Junghanss, L. Ryffel, *Towards Transformation. The 33.3 % Attitude* (Triest Verlag, Zurich, 2024)
14. N. Dunn, *The Ecology of the Architectural Model* (Peter Lang, Bern, 2007)
15. N. Gelpi, *The architecture of full-scale mock-ups, From Representation to Reality: the Novelty and Creativity of Falsework* (Routledge Taylor & Francis Group, New York, 2020), 12-20
16. Ibid., 8-10
17. R. Evans, *Translations from Drawing to Building* (The Mit Press, New York, 1997), 153-193
18. See [11], 135
19. P. Spadolini, *Appunti di progettazione per un modello architettonico per componenti riferito agli Uffici Postali*, texte dactylographique (Historical Archives of Florence ASFi, Pierluigi Spadolini fund -FPS, folder 147, 1976)
20. P. Spadolini, *Ufficio Tecnico Italposte: In Italia uffici postali in serie*. *Domus*, 594, 25-32 (1979)
21. P. Spadolini, *Post Office documents*, texte dactylographique (Historical Archives of Florence ASFi, Pierluigi Spadolini fund -FPS, folder 10 Nov, 1978)
22. R. Dubbini, R. Sordina, *H VEN LC, Hopital de Venise Le Corbusier, Testimonianze* (Edizioni dell'Accademia di architettura-Istituto Universitario di Architettura di Venezia, 1999)
23. L. Corbusier, *New hospital proceedings* (Le Corbusier fund, FLC, folder 4/12, Paris, 1962)
24. G. Mazzariol, *Le Corbusier a Venezia*, *Zodiac*, 16, 120 (1966)
25. Visit the page: <https://www.empa.ch/web/nest/>
26. D.K. Ross, R. Geiser, *Archetypes* (Park Book Standpunkte, Zurich, 2021), 69.
27. Ibid., 70-76
28. M. Eidenbenz, *Lloyd's 1:1: The Currency of the Architectural Mock-Up* (gta Verlag, Zurich, 2021), 206-211