NEVERLAND IN THE ARCHIPELAGO MILAN

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Abstract. The contribution proposes a reflection on the value of the void in the modern city, not only as a problem to be faced but, on the contrary, as an opportunity to rethink the its form: as "open moment" that the city still needs in order to define its new significant places and re-compose – through discontinuity – its own form. The subject is a project for Milan which insists on two disused areas of the city's vast military heritage, contiguous but very different from each other, located on the western outskirts of the city: the Ospedale Militare of Baggio and the nearby former Piazza d'Armi. The first, a small city within the city with a precise settlement principle with an historical-monumental value. The second, a large empty space for military exercises, originally external to the built city over time became topologically internal and a large available open space. The idea is to define two new "central places" not only for the district they are located in, but available and significant for the whole city, considered as islands in an urban "archipelago" system. The project tries to re-establish a dialectic between architecture, nature and culture, with a tension in the search for a quality that is first and foremost adequate in form, but according to a broad and multidisciplinary perspective that, in its complexity, sees the various issues converge synthetically in the project: the sustainable regeneration of disused areas with particular attention to the cultural identity of places; nature as an element and context for the construction of the city, in a qualitative key not only on a morphological-spatial level but also on an environmental and ecological one, in an attempt to shape "inclusive, beautiful and sustainable" cities in which recognise our's own civic culture.

Keywords: Milan, architectural voids, collective places, nature, territory;

Introduction / On the value of voids in city construction. The spread of so-called urban voids in modern cities is now a well-established phenomenon, certainly not isolated and affecting most cities around the world. These are spaces that become vacant, varying in size, for a variety of reasons, from destruction due to war or natural disasters to the decommissioning of large infrastructure or industrial complexes, to name a few, which in any case show a lack of definition not only in terms of morphology but also in terms of quality in relation to the urban structure. In this case, following their varied use, these areas become available to the city again, allowing for major transformations in its form, which can be carried out by replacement rather than by land consumption or further growth, especially in relation to established cities and European cities in particular.

A perspective that offers the possibility of rethinking the forma urbis according to a dual approach: on the one hand in terms of environmental sustainability, and on the other in terms of value, with these voids that can gain, if transformed into "architectural voids"1, a renewed or unexpected urban quality that is precise and expressive of a community, in a similar way to that which in cities throughout history was recognised in the voids of streets and squares that represented their most significant places. Although lacking in definition, their exceptional dimensions and their location in the urban form, more or less central or on the margin between the centre and the periphery, are often of great interest. Size and position become the prerequisites for attempting to restore architecture to these voids: specifying the settlement principles and elements that will define them; trying to give shape to an idea of a city-nature, polycentric and territorial, theorised and experimented with by Modernism and which still appears to be a possible response to making our cities "beautiful, sustainable and inclusive"2, recomposing the form of our cities by specifying the quality of their places. According to this approach, the contribution attempts to address these issues through a project for two military areas: the former Piazza d'Armi – a large open field for military exercises that has been completely decommissioned – and the Military Hospital – a complex of considerable historical and monumental value that is in the process of being decommissioned – located on the western outskirts of the city of Milan. Large enclaves within the established city, inaccessible yet preserved in their integrity, their opening appears to be an important resource for rewriting the future of the neighbouring parts of the city through the construction of two new "central places" not only for the neighbourhood in which they are located, but available and significant for the entire city, considered as islands in an urban archipelago system, extending their influence to the whole city and the surrounding areas with which they can establish relationships. A term born from the union of archè and pelagos, "archipelago" refers to an idea of a polycentric city built from finite parts, where the emptiness of nature clarifies their distinction while holding them together at the same time. In the case of Milan, this is not only a legacy of modernity but, as the root of the term suggests, an idea that belongs to the original vocation of the Lombardy region, its history and its identity.

The project persists in this direction and attempts to re-establish a dialectic between architecture, nature and local culture, through the definition of a new urban space in which we can recognise our civic culture.

The form of the territory and the design of the city/ Brief introduction to the nature of the city. In the collective imagination, Milan is the monocentric city par excellence. A city that was born and grew progressively around that single centre, which, starting from the ancient Roman castrum, saw its borders expand, gradually increasing the radius of the circumferences that defined the limits of urban expansion from time to time: the circle of canals on the site of the Maximian fortifications; that of the ramparts coinciding with the route of the subsequent Spanish walls; the ring road that marks the limits of the Beruto plan's expansion zone; the railway belt that, in the words of De Finetti, suffocated the city3. On the basis of this model, but indifferent to its reference territory, the city grew, increasing in size while retaining a very strong dependence on that ancient central core, with the result that, over the long period of its transformation, an increasingly irreconcilable centre-periphery dialectic was consolidated, to the detriment of the clarity of its morphology.

Yet Milan has not always been this way. On the contrary, from its Roman foundation until Spanish reign, the city revealed a strong continuity between its urban structure and the one of the surrounding territory. Starting with the Roman centuriation system, which laid out the land at the intersection of the cardo and decumanus – defining the boundaries, the main and secondary roads, and the hydraulic systems – up to the communal and Renaissance periods with their system of territorial axes, roads and canals connecting the city with the abbeys, castles and villages extra moenia, the city had established a very strong relationship of necessity with the territory. A territory made up of several small centres, linked together by the road network connecting Mediolanum and the smaller settlements, interspersed with the empty plain designed by the warp of the fields and a dense hydrographic network of springs, fountains, canals and irrigation ditches.

This territorial polycentrism was also evident within the urban structure until the advent of Spanish domination. The Milan of the dukes was, in fact, a city that had seen its significant sites multiply: Piazza del Duomo, Castello Sforzesco, the old and new orchards, and Ospedale Maggiore were the centres of an "ideal city" which, as represented in Leonardo da Vinci's drawing in the Codex Atlanticus, freed itself from the constraints of the medieval walls to open up to the surrounding territory.

It was the Aragonese domination, with the construction of the bastions arranged in a belt, that definitively sanctioned the break between the city and its territory. From this moment on, and in particular with the unification of Italy, Milan became increasingly centred on its Piazza del Duomo, central in terms of both role and topology, contradicting its polycentric nature in favour of its subsequent radiocentric development, which definitively sealed the loss of any kind of agreement between the shape of the geography and the design of the city.

In this context, the modern city, through the decommissioning of some important areas such as railway yards and numerous military facilities located within the urban structure, once again has the opportunity to define its form, specifying its new "centres" in these areas with the possibility of recovering, to some extent, the polycentric character that had originally informed the construction of the city.

A project for the military citadel in western Milan. The project focuses on a part of the city that is home to a large military complex, with the Santa Barbara barrack, the Military Hospital and the former Piazza d'Armi all concentrated in a single area of the Baggio district (figure 1). This large military settlement occupied a large portion of the city, originally in the countryside, which represented an outpost that influenced the rapid growth of this urban area in the post-war years and defined its constraints and relationships from the time of its construction to the present day. The project focuses on a part of the city that is home to a large military complex, with the Santa Barbara barrack, the Military Hospital and the former Piazza d'Armi all concentrated in a single area of the Baggio district. This large military settlement occupied a large portion of the city, originally in the countryside, which represented an outpost that influenced the rapid growth of this urban area in the post-war years and defined its constraints and relationships from the time of its construction to the present day.

The Piazza d'Armi, which has long been disused, and the Military Hospital, which is being partially and progressively decommissioned, are adjacent but very different in character. They represent an opportunity to return to the city two large areas that have been enclosed until now, located on the outskirts of the city centre but potentially central to the metropolitan area, with great value in terms of proximity or distance to the urban and natural elements around it: the nearby San Carlo Hospital and the Santa Barbara barracks – also scheduled for decommissioning –, the Castello Sforzesco with the Parco Sempione – formerly the city's parade ground –, and the natural systems of the quarry park to the west and the canals to the south. In the background are the Alps and the lake system to the north4.

With these elements, the project for the former Piazza d'Armi and the Military Hospital attempts to re-establish relationships with the aim of defining a specific place in the city, a formally defined and recognisable island in a larger archipelago system on a large scale.

The Military Hospital is a complex of autonomous buildings that is well defined in terms of its typology and layout, and has a certain historical and monumental value in terms of its architecture: first and foremost, the hospital complex, a system of pavilions arranged around a healthcare ring that defines the central rectangular garden, and a series of important buildings such as the command building, the church, the nuns' house, the laundry, the storerooms, the mortuary, and the canteen, located in a monumental garden to form a small enclosed citadel, excluded from the surrounding city, which, on the contrary, has no particular quality.

The area of the former Piazza d'Armi, on the other hand, is a vast, almost square area measuring approximately 600 metres by 700 metres, almost completely empty and currently occupied by the surviving warehouse buildings and fairly wild vegetation that has reclaimed the vacant land.

Taking the diversity of these two areas as a starting point and something to be redefined, the project attempts, with few elements, to give a measure and order capable of defining the form and character of this new primary element5, a central place for the district and the city, trying to establish in the large natural void of Piazza d'Armi a new system of relationships that transforms it from an inaccessible place to a common place for the parts that gravitate around it (figure 2). An imaginary grid is the framework that organises and hierarchises the composition in both parts and, compared to a tonal scale, varies its scale according to the context of reference: denser and on the scale of the hospital building, more sparse and on the scale of the natural context in the parade ground. Its rule brings certain urban relationships to light or varies according to them, giving shape to an articulated system of places that resonate with the elements with which the project interacts: the canal to the south, Parco delle Cave to the west and Parco Sempione with the castle to the east (figure 3).

The Military Hospital opens its gates to the city and becomes a citadel of inclusion, housing a combination of more private spaces – those of temporary residences and the hospital complex – and collective spaces that host sports halls, sacred and civic halls, or places to relax, together with existing buildings of value. The historic complex of the hospital ring dictates the rules for defining the upper edge of the area through a sort of doubling of

the layout that houses residences "for everyone" and thus defines the two most enclosed and "internal" parts of the system, which in turn delimit a more discreet system of autonomous collective buildings linked along two transverse axes and located in a T-shaped garden. The hospital complex, via a walkway leading to a path above the city level, connects to a large linear system that runs along Via Inganni Saint Bon – the axis linking the area to the Naviglio Grande canal – and physically connects the military hospital with the San Carlo hospital, crossing the two major thoroughfares of Via delle Forze Armate and Via Cardinale Tosi. This creates a large urban park for recreation and sport, which fits into the system of major sports facilities that characterise the Baggio district, such as the San Siro stadium and the racecourse. This path occupies the entire north-south extension of the large green field of the former parade ground, without interrupting its continuity, allowing it to be crossed at park level, and distributes various outdoor communal facilities. The two western and eastern boundaries of the park are defined, on the one hand, by a more defined and compact system comprising a system of temporary high-rise buildings serving the nearby hospital and a complex of leisure pavilions and, on the other, by the monumental complex of the Santa Barbara barracks, which is expected to be opened to the city in the future (figure 4).

The former Piazza d'Armi confirms its character as a precious natural space where water flows once again with the emergence of the ancient Marcione fountain that ran along Via Saint Bon alongside the hospital, located in one of Milan's most complex suburbs. Within the vast natural void left by the woodland, a clearing opens up, on which stands a linear building that spans the park at ground level and allows the park to pass through it, whilst accommodating the various outdoor sports facilities situated within it. At a higher level, however, this element becomes the infrastructure that enables a direct link - crossing over the major roads that border the area - between the military hospital and San Carlo Hospital, establishing a major health-care hub in this part of the city. Continuing along its axis, at the end of the development, two twin towers provide temporary accommodation to support the neighbouring hospital activities and, through their mass, signal the presence of this new, exceptional site for the city even from a distance.

In this way, the presence of military enclosures, which had determined the separation of the parts of the city that had grown up around them, becomes an important and exceptional opportunity to establish new relationships between them, providing them with new civic spaces, services and housing, in an attempt to transfer the internal order of their composition to the outside surroundings.

Conclusion. The definition of a new large civil pole for the metropolitan city, its definition through Nature and architecture, its quality as an "open moment"6 in the density of the built environment, the provision of services and open spaces and new collective places, are the complex objectives that the project, despite the simplicity of its forms, attempts to pursue, providing to some extent a response to other problems posed by contemporary life. From an ecological and technological point of view, for example, with the theme of environmental sustainability, the reduction of heat islands and land consumption, as well as the response in terms of environmental health and salutogenic architecture, which the definition of the large park and sports architecture support. Yet these are contingencies, certainly relevant, but secondary. The project stems from an understanding of the design underlying form, with the aim of rediscovering that harmony ab origine between the forms of the soil and urban construction, seeking to rediscover lost elements and relationships or establish new ones with a view to preserving a cultural heritage, both built and natural, whose traces – though modified – can be detected in the form of the city and in which our own civic culture can be recognised. Through this need for "rooting" in the forms of the territory and in the history of the city, the project finds its foundation in the structural order which, by making itself recognisable, regardless of particular and changing conditions, gains the temporality that gives the form a longue durée adequacy and allows it to remain in the long timescales of urban history as a significant form in the design of the city (figure 5).

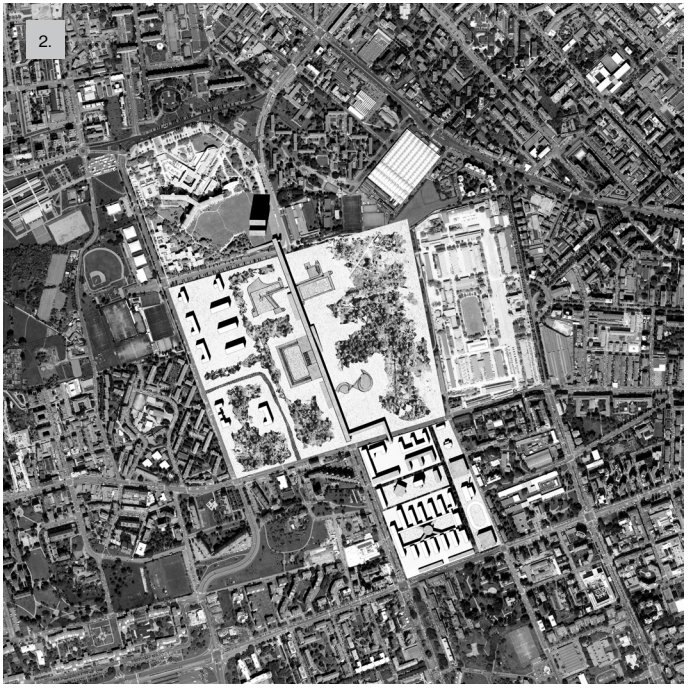
References.

1. ‹‹Con questi atti del progettare, mentre da un lato si conquista l'unità del tessuto storico, dall'altro si annulla quanto è superfetazione, ingombro, discontinuità nella organizzazione di questa forma unitaria da definire, lasciando ai vuoti in cui più non si costruisce, dopo aver demolito le architetture incongruenti con l'antico, l'eloquenza di caratterizzarsi come vuoti architettonici, come vedute della città storica per brani di un discorso figurativo esterno, come segni di una ricchezza che, rivitalizzando le articolazioni, imprima ai monumenti un prestigio e un carattere altamente significativi che si può attribuire al segno della nostra civiltà, e non di quella antica››, G. Samonà, Il futuro dei nuclei antichi della città e l'esperienza urbanistica dell'eterogeneo, in P. NARDI (a cura di), Il fenomeno "città" nella vita e nella cultura d'oggi, «Quaderni di San Giorgio» 31-32,(Sansoni Editore, Firenze, 1971), pp. 147-160.
2. reference is made to the three pillars of the new European Bauhaus.

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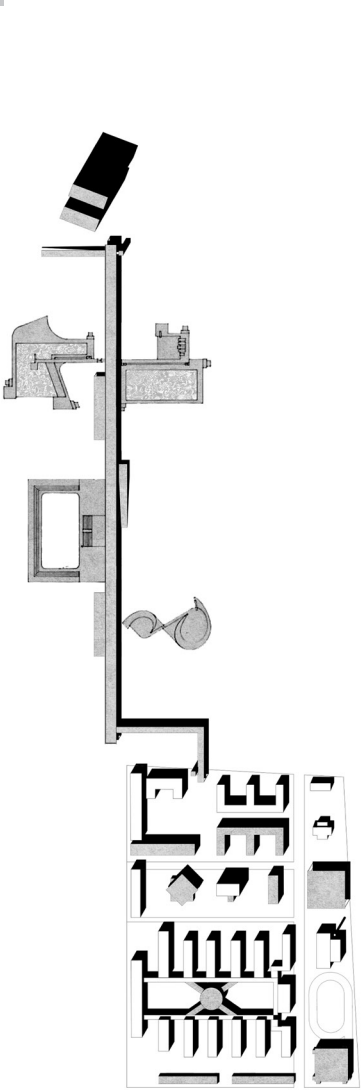
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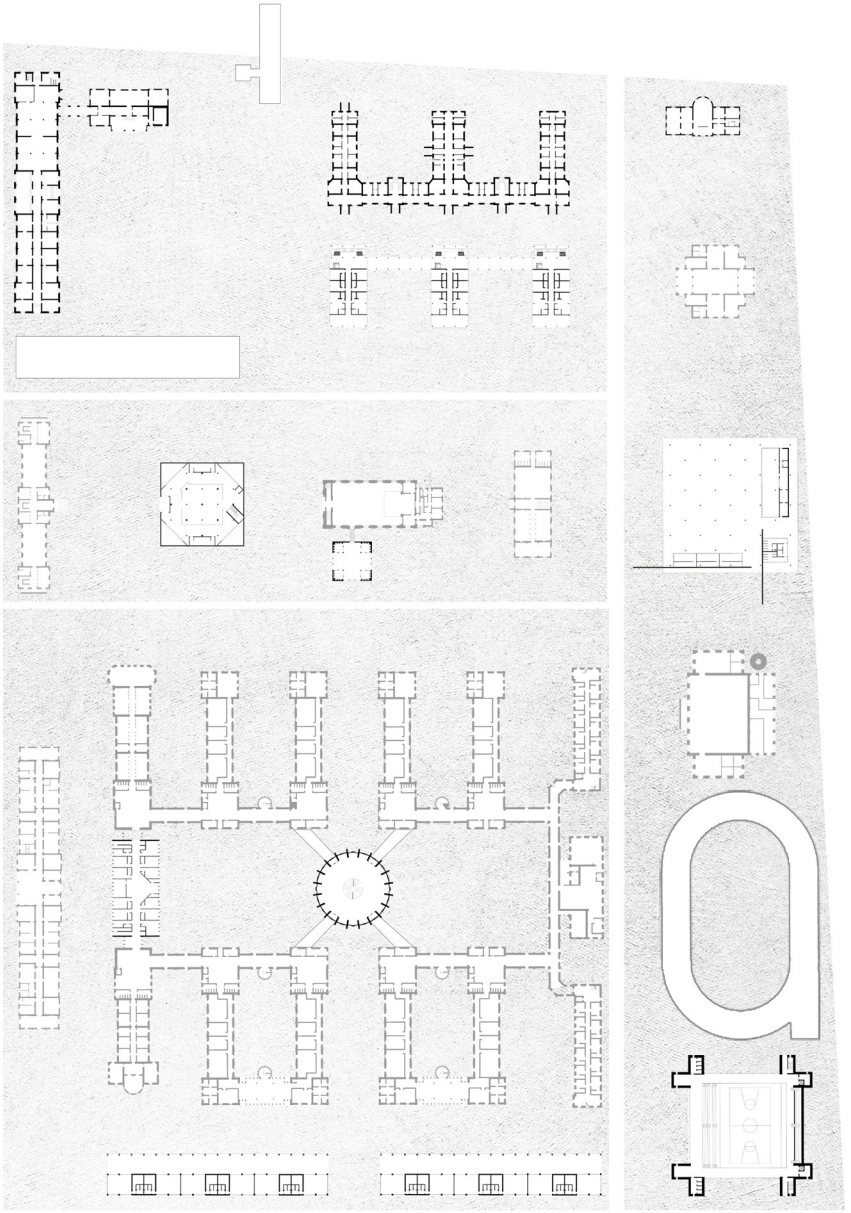


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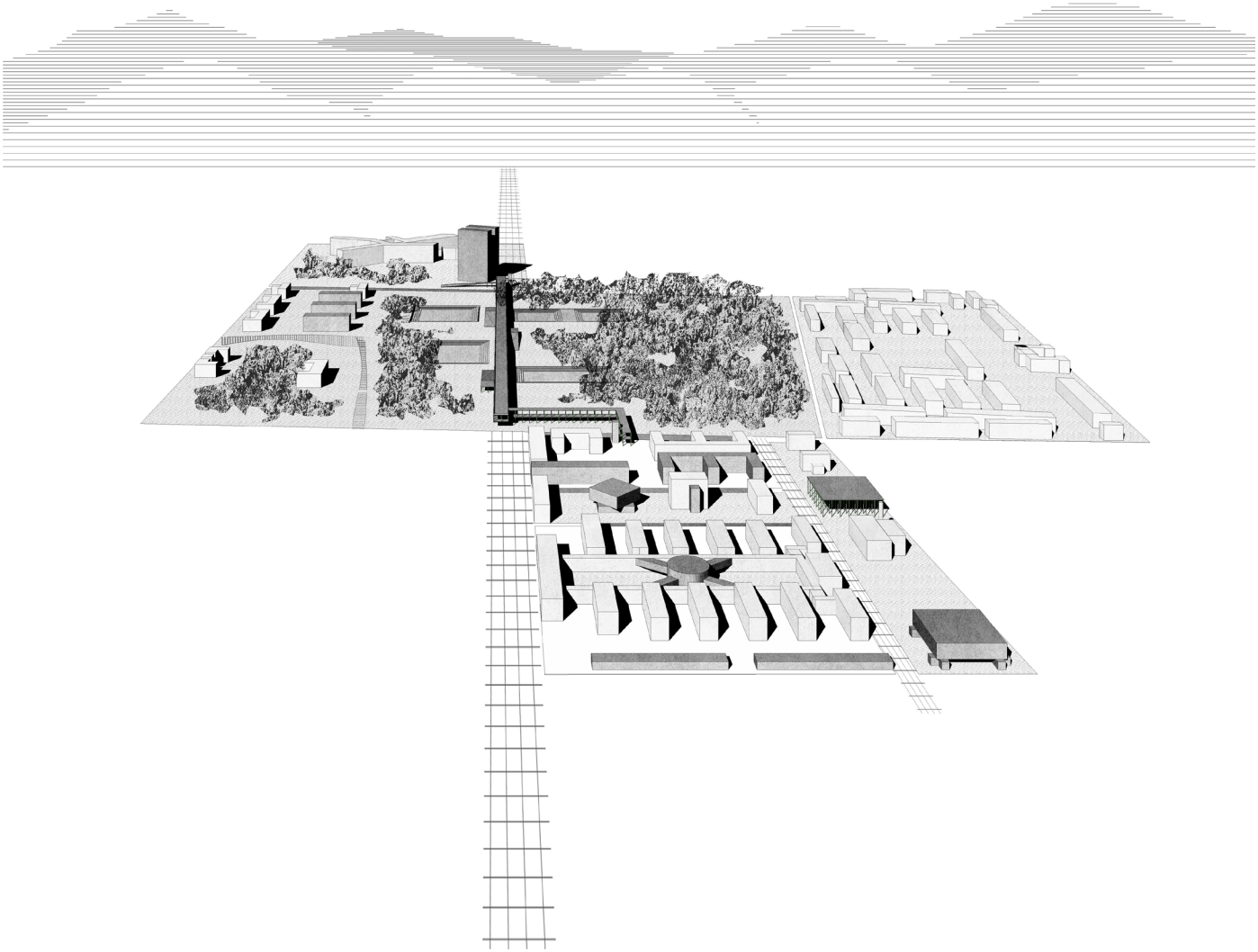


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TOWARD REGENERATIVE ENERGY OPTIMIZATION IN HISTORIC HOSPITALS: THE CASE OF COLȚEA CLINICAL HOSPITAL, BUCHAREST

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Abstract. The methodology combines a high-resolution energy simulation of the baseline scenario with a proposed two-pronged intervention: (1) the sensitive integration of a rooftop photovoltaic (PV) array, invisible from the street to protect urban identity, and (2) upgrades to the internal thermal envelope, including high-performance insulation and glazing. The results show a significant reduction in energy demand, with heating consumption decreasing by 21% and cooling by 13%. Crucially, the 499 MWh of annual PV production offsets 44% of the building's post-retrofit electricity needs. This work provides a validated, replicable model for transforming energy-intensive heritage buildings—particularly 24/7 healthcare facilities—into more sustainable and resilient assets, proving that deep energy retrofits are feasible without compromising historical value.

Keywords: Energy optimization; Historical buildings; Colțea Clinical Hospital.

Introduction. Historic buildings constitute a fundamental component of urban identity and cultural continuity. However, many of these structures face progressive degradation due to aging, environmental exposure, and the obsolescence of building systems (Ascione et al., 2017). In this context, renovation becomes essential to ensure their continued functionality and resilience. Beyond their cultural value, historic buildings often incorporate passive design strategies—such as thermal mass and natural ventilation—that provide valuable insights for contemporary low-carbon design. Furthermore, adaptive reuse significantly reduces the embodied carbon associated with new construction, contributing to more sustainable development pathways.

Despite these advantages, interventions in historic buildings must be approached with caution. The preservation of architectural authenticity, material integrity, and cultural significance remains a primary concern, particularly in protected or listed structures. Consequently, while improving energy efficiency and reducing carbon emissions have become critical objectives in the built environment, these goals must be carefully balanced with heritage conservation principles (Panakaduwa et al., 2024). In this regard, several studies emphasize the importance of integrating energy efficiency measures in a manner that respects the cultural and historical value of existing buildings (Cabeza et al., 2018; Fouseki & Cassar, 2014). This highlights the need for holistic renovation strategies that simultaneously address environmental performance and heritage preservation, ensuring long-term cultural and ecological sustainability.

Recent research demonstrates the feasibility of such integrated approaches. For instance, the renovation of historic buildings in Shanghai's Wukang Road district achieved significant reductions in energy demand—up to 31% in cooling, 53% in heating, and 25% in electricity consumption—through the implementation of thermal insulation and upgraded energy systems, while maintaining compliance with conservation constraints (Wang et al., 2026). Similarly, studies conducted in Italy on Palazzo Ruspoli and Palazzo Vitelleschi have shown that heritage buildings can even reach net-negative carbon emissions through the integration of photovoltaic systems within Renewable Energy Communities, thus reconciling conservation requirements with deep decarbonization strategies (Vitella et al., 2025).

At a broader scale, the building sector remains a major contributor to global energy consumption and carbon emissions, underscoring the urgency of transitioning toward more sustainable and energy-efficient practices (Aniekan et al., 2024). Within this sector, healthcare facilities represent one of the most energy-intensive building typologies, due to their continuous operation and high demands for heating, cooling, ventilation, and medical equipment (Dion & Evans, 2024). This challenge becomes even more complex in the case of historic hospital buildings, which must simultaneously satisfy stringent conservation requirements, modern healthcare standards, and environmental performance objectives (Gomes et al., 2021).

Historic hospitals, such as Colțea Clinical Hospital, exemplify this complexity. These buildings are not only valuable cultural assets but also active healthcare institutions that play a vital role in contemporary public health systems. However, their energy optimization is constrained by strict conservation guidelines that limit alterations to original materials, architectural features, and spatial configurations. As a result, conventional retrofitting approaches are often inadequate, requiring more sensitive and context-specific strategies.

In response to these challenges, this study proposes a regenerative energy optimization framework that goes beyond conventional efficiency measures by integrating environmental performance, heritage conservation, and social value. Using the Colțea Clinical Hospital as a case study, the research investigates the constraints and opportunities associated with implementing energy-efficient interventions within a protected historic building. The objective is to demonstrate that, through carefully designed and minimally invasive strategies, it is possible to reconcile heritage preservation with sustainability goals, ensuring that historic healthcare facilities can continue to operate effectively while contributing to a more resilient and low-carbon built environment.

Methodology. The methodology commenced with the identification and detailed characterization of a case study building, encompassing its complete physical and geometric properties. A baseline energy model was subsequently developed using CitySim Pro to simulate the building's annual energy consumption. This model was then modified to evaluate the impact of two energy strategies: first, the enhancement of the building envelope through added insulation, and second, the integration of a rooftop photovoltaic (PV) array. The results from both scenarios were rigorously analyzed to quantify and discuss the reduction in net energy demand