Critical analysis of architecture post 1945

Convent of La Tourette

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Figure 1.0 - La Tourette (Ludwig, 2010)

Introduction

In many design efforts, architects often find themselves grappling with two seemingly incompatible forces that tend to shape the building. On one hand, a thorough examination of functional requirements can apply a strong influence towards a loose and free planning approach. Diametrically opposed to this, considerations related to construction, such as the convenience of repetitive bays for the structural frame or similar plans for different floors, and a pursuit of a formal or even monumental concept for the building, combine to create a tendency towards a design within a much more rigid envelope. In extreme cases, of course, one of these forces tends to dominate (Architect's Journal, 1960). Le Corbusier's Convent of La Tourette (Fig 1.0) appears to align more closely with the former, emphasising the lifestyle and spiritual

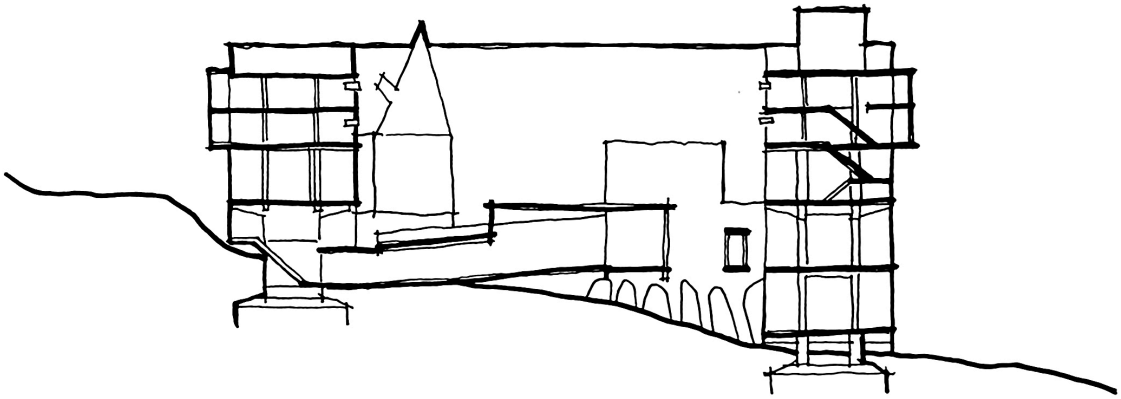

Figure 2.0 - Section (Cho, 2024)

functions of its users. The buildings of Le Corbusier, a significant influence on the Modern Movement, emerged from revolutions in technology, engineering, and building materials, driven by a desire to break away from historical architectural styles and create something purely functional and new. This essay aims to explore various features of Le Corbusier's Convent Sainte-Marie de La Tourette, which encapsulates the core of modern architecture through innovation within the confines of traditional architectural typologies.

Situated in a rural area of France, this monastery building stands as Le Corbusier's final architectural creation completed in Europe. In 1952, Le Corbusier undertook the execution of this project through the mediation of Dominican Father Marie-Alain Couturier (1897-1954). Father Marie-Alain Couturier, an educated artist and a pioneering figure in the revival of sacred art and architecture, led the way. The program, titled *"Loger cent coeurs et cent corps dans lesilence"* ("Providing silence abode to a hundred bodies and a hundred souls"), involved not only the creation of liturgical spaces but also the construction of residential spaces for the monks. The profound relationship with the Dominican Order finds its roots in San Domenico's 13th-century establishment, symbolising a break from feudalism and a commitment to urban civilisation. Unlike Benedictine abbeys in rural areas, Dominican convents, situated in cities, emphasised democratic community life and dedicated religious individuals to academic pursuits. Le Corbusier, engaging the Dominicans in a secular age, raises existential questions about life, freedom, and death. The Dominican community advocates for a Christianity aligned with contemporary culture, encouraging dialogue through art and architecture. Initially hesitant due to a lack of faith, Le Corbusier's collaboration with the Dominicans, particularly Father Couturier, overcomes his reservations. This collaboration forms the basis of a partnership between the Religious and the Humanist, who, while faithless, embraces spiritual values. To imbue the project with meaning, Le Corbusier integrates practical and worship spaces at La Tourette, recognising the symbiotic relationship between architectural considerations for daily life and spiritual dimensions. This integration, evident throughout the architectural complex, emphasises the harmony between these dimensions at various levels (Cafiero and Aurosa, 2019).

La Tourette provided Le Corbusier with an opportunity to further his research on residential units and the "interaction between individual and collective life." The monks' cells, consisting of a hundred rooms for teachers and students, became the units of measurement and organisation for the entire project (Grignolo, 2015). The monastery, completed around 1960 in Éveux-sur-Arbresle, about 25 km from Lyon, is accessible by train or car. In July 2016, due to its exceptional evidence of progress in modern architecture, Convent Sainte-Marie de La Tourette, along with 16 other works by the architect Le Corbusier, was inscribed as a UNESCO World Heritage Site.

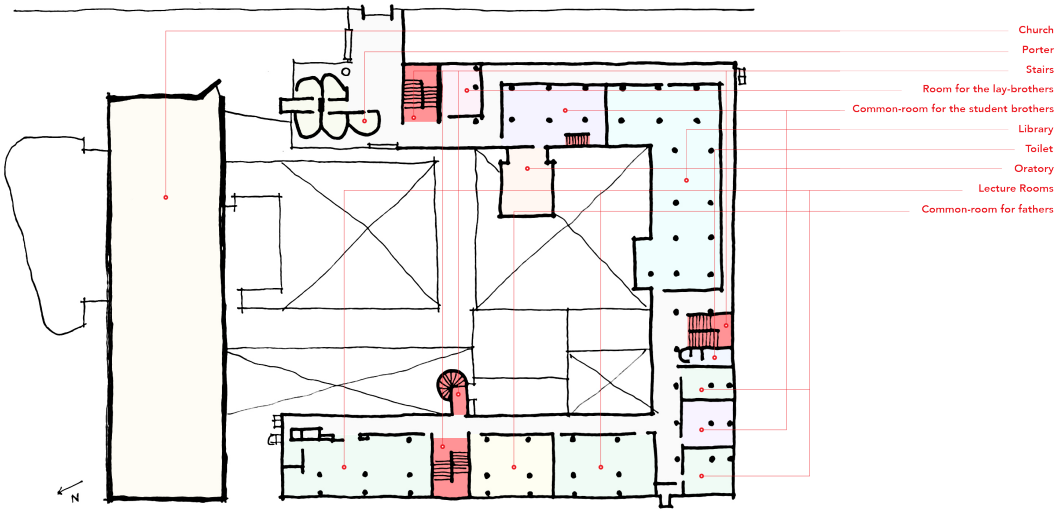

Figure 2.1 - Entrance Floor Plan (Cho, 2024)

Description of La Tourette

The La Tourette concept demonstrates a high degree of innovation, regardless of the architectural influences from the past. The building retains some elements of the traditional monastery layout. On one side, there is a chapel massing, while the remaining facilities are arranged in a U-shape, creating a central courtyard, replicating the layout found in conventional monasteries. However, one notable innovation involves the strategic adaptation to the sloping terrain (Fig 2.0): the structure originates from the horizontal roof line and makes contact with the ground through pilotis. Notably, the singular volume of the church, closing off the quadrilateral to the north, appears to emerge organically from the terrain (Cafiero and Aurosa, 2019). Placing the cells at an elevated position allows for a visual connection with the more distant external landscape. Remarkably, the ground floor (entrance floor) of the building is positioned approximately midway up the building. The upper floors house the monks' living cells, while the lower floors accommodate the monastery's chapel and programs related to monastic functions.

Upon passing through the entrance, porter, and ascending the inclining atrium-like courtyard, visitors gain access to public spaces such as the common room, lecture hall, and library. From this entrance level (Fig 2.1), observers can analyse the various programs housed within the building by viewing the different windows and masses through the courtyard. Descending to the lowermost floor (Fig 2.2), one encounters spaces such as the chapel and refectory, serving as semi-private areas where monks gather for worship, meditation, and communal activities. On this level, users can travel beyond the courtyard through a pathway that functions as both a cloister and a bridge. The uppermost two floors (Fig 2.3) serve as the monks' living cells. The monks' cells on the most private floor are characterised by narrow, elongated, and minimalist design (Fig 1.1), adhering to Le Corbusier's proposed modular ratio to limit the room size. With a floor-to-ceiling height of 2.3 meters and a width of 1.83 meters, these dimensions precisely match the average adult's arm span, allowing one to touch both the ceiling and opposite walls when stretching arms. This standard was also applied in Le Corbusier’s other famous project, Unité d'Habitation. Despite the potentially claustrophobic feel of the narrow and elongated rooms, each unit features a window and a small

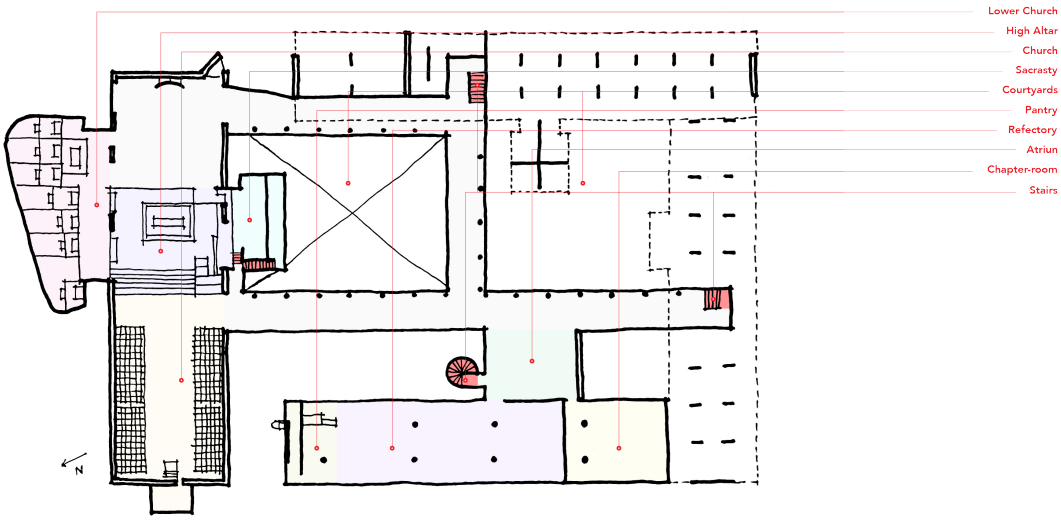

Figure 2.2 - Refectory Floor Plan (Cho, 2024)

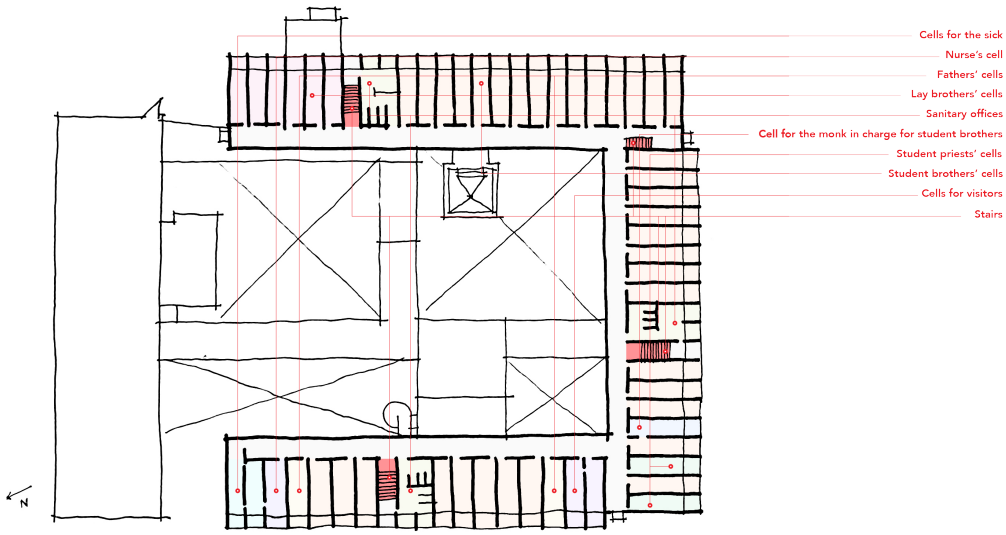

Figure 2.3 - Cell Floor Plan (Cho, 2024)

balcony, providing a view of the stunning exterior landscape. Finally, the roof of La Tourette is designed as a rooftop garden. The concrete parapet extends around the garden, typically higher than the usual railing height, making it invisible from the outside and ensuring the privacy of individuals on the rooftop. This design feature allows the rooftop to function as a private communal space.

While the plan emphasises functional simplicity, if we see the building in section, the building offers a more dynamic spatial experience. Depending on the user's position (or coordination), different views are revealed, allowing for varied experiences within the same confined space. The choice of the sloping site by Le Corbusier may be attributed, in part, to the desire to provide users with such diverse experiences within the constraints of the landscape.

Figure 1.1 - A Dominican's cell (Allard, 2023)

Functional and Philosophical Excellence

La Tourette incorporates all five points proposed by Le Corbusier for modern architecture in the Unite d'Habitation. These include pilotis, free plan, free facade, horizontal windows, and a rooftop garden. Among these, the most distinctive features of La Tourette are considered to be the piloti structure and the window design. Each floor's windows serve different functions. For instance, on the uppermost floor, dedicated to monks' residential spaces, horizontally slit windows are precisely positioned at human eye level (Fig 1.2). This deliberate placement allows controlled natural light to enter while blocking external views to enhance privacy, yet monks can view outside effortlessly. Additionally, the elements supporting the load for the slit windows are projected as cantilevers, creating an aesthetic representation of a singular, elongated line when viewed collectively (Yoo, 2022). In contrast, the lower floors exhibit a modular window grid and large windows filled with vertical concrete louvers.

The piloti structure not only protects the building from ground moisture but also enables construction on a sloping site. This capability facilitates the creation of architectural designs that would be challenging on flat terrain. In the context of a monastery, this translates to a more dynamic and three-dimensional upgrade to the courtyard, typically flat in traditional monastic complex.

The Oratory, situated within the central courtyard and accessible from the entrance floor, functions as a monumental element of this building. Comprising three elements – pyramid, box, and cross-shaped piloti – this massing is designed to be visible through the central courtyard from every floor. Despite its simple interior with small and elevated window, the massing appears to serve as a focal object for the entire

Figure 1.2 - La Tourette 14 (Doctor, 2012)

building. Moreover, the prayer room above the cross, topped with a pointed spire commonly found in French churches, seems to be a metaphor of the monks' prayers ascending towards heaven through reliance on the cross.

Throughout the planning and execution phases, Le Corbusier, in collaboration with Wogenscky and Xanakis, confronts the challenges of a limited budget comparable to low-income housing projects in France at that time; the finishes are rough and rudimentary. This characteristic is evident in other projects by Le Corbusier as well (Architect's Journal, 1960). Paradoxically, the constraints of economic considerations contribute to the aesthetic merit of the project, enhancing its sense of necessity, if not indispensability (Limpantoudis, 2006). Perhaps the intrinsic philosophy embedded in the architecture prioritised substance over a polished finish. The unfinished and rugged surfaces align well with the unpretentious life of the monks that Le Corbusier aimed to depict. It could be seen as a harmonious integration of both aspects.

Architectural Devices

Furthermore, La Tourette reveals traces of Le Corbusier's ambitions directed at involving users in a multi-sensory experience, devising mechanisms to optimise rich encounters. It seems that Le Corbusier directed his attention towards enhancing user functionalities and experiences in La Tourette. This became achievable, naturally, with the introduction of reinforced concrete as a novel structural form owing to technological revolution. The building exhibits experiments with open plans and facades. The commitment to designing elements that regulate light and user perspectives stands out as particularly noteworthy, underscoring Le Corbusier's dedication to these considerations.

Amount of Light

In contrast to the subdued and restricted light in the top residential floors, the atrium space at the lowermost floor of La Tourette, boasting the highest ceiling height, maximises natural light intake. To reach the lower floors, users utilise staircases with only small windows, creating a narrow and dimly lit transition. However, upon reaching the atrium at lower floor, a spacious and bright environment unfolds, offering a

Figure 1.3 - La Tourette (Ludwig, 2010)

highly contrasting experience. Instead of simple repetitive windows, concrete vertical louvers and tall windows (some are operable) with different spans were designed using a musical harmony and rhythm-inspired pattern, achieving a rhythmic modulation of light and shadows based on the distance from the windows, height, and walking pace of individuals (On An Overgrown Path, 2006).

Colour of Light

Examining Le Corbusier's church buildings in La Tourette reveals a deliberate control of light through the design of windows' shapes and colours. In the chapel of La Tourette, various windows were designed with red, yellow, green, and blue hues to fill the space with colourful ambient light. This appears to recreate the effect of stained glass commonly found in historic churches, creating a more sacred and tranquil atmosphere. Particularly in the lower chapel space, Le Corbusier designed three skylights called "light cannons" (Fig 1.3). These tapering cylinder-shaped skylights are angled differently, each painted with a different colour on the inner surface. These devices introduce natural variations into the dark and isolated interior. Depending on the sun's position, light enters through different apertures, reflecting off the coloured surfaces, resulting in a mixture of hues that fills the interior. These elements dynamically change the colour palette of the space over time, providing users with diverse experiences even within the same space.

Acoustics
In the worship space designed by Le Corbusier, tall, parallel facing concrete walls were constructed. During worship, as monks sing responses from opposite sides, the continuous collision and bounce of sound against the walls create echoes. The arrangement of only two walls enhances the grand and impressive acoustics during worship (Yoo, 2022).

La Tourette itself functions as a machine for drawing in nature, operating passively. While the building statically fulfils its original functions, it actively brings changes in natural elements indoors, offering users a diverse range of experiences.

Reassessing La Tourette: Innovation, Functionality, and the Future of Architecture

Le Corbusier's Convent of La Tourette exemplifies the architect's pursuit of innovative design for his client. As stated by Le Corbusier himself, the project aimed to provide "tranquility and peace" for the resident monks. While this core objective appears to have been achieved, the building's functionality reveals areas for improvement. Issues with cell size, soundproofing, and ongoing maintenance concerns, including cracked concrete, faulty insulation, and electrical problems (Souza, 2010), suggest shortcomings in addressing the monks' long-term needs. Furthermore, the early roof leakage (Grignolo, 2015) elicits concerns about the suitability of the flat roof design, particularly considering its potential for sustainability and long-term functionality. La Tourette's case highlights the complexities of balancing innovative design with practical considerations for a building's intended use.

Beyond La Tourette, Le Corbusier's broader architectural philosophy, as expressed in "Towards an Architecture," emphasises functionality: *"Une maison est une machine-à-habiter"* ("A house is a machine for living in") (Le Corbusier, 2008). While La Tourette initially garnered acclaim for its innovative functionality and experience, its current use primarily for tourism raises questions about the evolving nature of function and the long-term viability of purely utilitarian approaches. Modernism, with its emphasis on functional efficiency, often aspired to create perfect architecture for an improved lives of people. However, La Tourette's stark aesthetic, which I personally criticise for its lack of harmony with the environment, suggests limitations in prioritising function over broader design considerations. Can Le Corbusier's five points of modern architecture, applied in La Tourette, truly guarantee enduring and successful architecture?

The architectural domain embodies a persistent struggle between innovation and tradition. Architects frequently challenge conventional norms by introducing unique designs facilitated by emerging technologies, although sometimes disregarding historical context in the process. This cyclical pursuit of the "new" can lead to buildings that become aesthetically or functionally obsolete when detached from the surrounding environment and user needs. Similarly, the modernist ideal of integrating nature within built spaces can result in sterile, disharmonious forms turn into Brutalist architecture. Brutalist buildings, often criticised for their harsh aesthetics, highlight the potential drawbacks of prioritising the architect's vision over user experience and contextual harmony.

Furthermore, focusing solely on functionality definitely be a recipe for obsolescence. The very definition of "function" is fluid, evolving alongside societal needs and technological advancements. Buildings designed

solely around a specific function risk losing their value when those functions cease to be relevant. Le Corbusier's famous dictum, while perhaps valid for his era, raises questions about the long-term relevance of prioritising function over adaptability.

In conclusion, La Tourette serves as a case study for re-evaluating the relationship between innovation, functionality, and the quest for sustainable architecture. Architects must adopt a more holistic approach that embraces context, user needs, and the potential for future adaptation. By moving beyond the allure of ephemeral trends and prioritising harmony with the environment and adaptability, architects can create built environments that continue to serve their purpose and enrich the lives of users for generations to come. Le Corbusier's efforts towards innovation are commendable, but La Tourette underscores the importance of learning from both successes and failures in the pursuit of truly sustainable and enduring architecture.

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