

The Intersection Of Architecture, Ideology, And Heritage: Block F At CEFET-RJ

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Abstract:

This study examines Block F of CEFET-RJ, a building that was part of an example of modernist architecture constructed during Brazil's Estado Novo era. Through a multidisciplinary approach, including documentary analysis, interviews, and iconographic review, the research explores the building's lifecycle from its conception to its demolition, highlighting its role as a symbol of modernity and state control. The findings show how modernist architecture, particularly in educational institutions, served not only functional purposes but also as an ideological tool to promote the nationalist agenda of the Estado Novo. The use of concrete and other modern materials during this period reflected a deliberate choice to project an image of progress and durability, aligning with the government's vision of a modern Brazil. Despite the study's limitations, especially the inability to collect physical samples from the now-demolished structure, the findings provide insights into the architectural practices of the time. The demolition of Block F highlights the ongoing tension between urban development and the preservation of historical and cultural heritage. This study also reveals the challenges of preserving modernist architecture in rapidly urbanizing contexts, where economic pressures often outweigh the historical value of such structures. The research contributes to a broader discussion on the preservation of modernist architecture by documenting the case of Block F and suggesting themes for future research. These themes include comparative studies between different Brazilian cities, technical analyses of materials used in similar surviving structures, and the development of public policies aimed at balancing urban expansion with the conservation of cultural heritage. By integrating architectural, historical, and technical perspectives, this work offers a comprehensive view of the significance of modernist architecture in Brazil and its lasting impact on the country's cultural landscape.

Key Words: Civil Construction; Modernist Architecture; Cultural Heritage Preservation; Urban Development; Educational Institutions; Construction History.

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I. Introduction

Architecture is often used as a tool to express the values and ideals of a society at different historical moments. According to Schwartzman¹, in Brazil, the Estado Novo period (1937-1945), under the government of Getúlio Vargas, was marked by a nationalist project aimed at modernizing the country and strengthening the sense of national identity. In this context^{2,3}, state that modernist architecture emerged as a physical representation of the government's political and social ambitions, especially through the construction of public institutions, such as technical schools, which were intended to train the new generation of workers and leaders of the country.

Block F of the Federal Center for Technological Education Celso Suckow da Fonseca (CEFET-RJ) was an example of this institutional architecture. Inaugurated in 1944, the building was part of a larger project to construct technical schools throughout Brazil, following standardized guidelines aimed at ensuring the cohesion and functionality of educational facilities. However, despite its historical and architectural significance, it was demolished in the 2010s during a period of expansion and renovation of the Maracanã campus of CEFET-RJ, raising questions about the balance between historical preservation and institutional progress.

The history of Block F offered an opportunity to explore the intersection of architecture, politics, and education in 20th-century Brazil. In addition to providing an analysis of the building's trajectory, this study seeks to contribute to the field of construction history and architectural heritage preservation, areas still incipient in Brazil but of growing importance. The research not only documents the techniques and materials used in its construction but also investigates the impact of public policies of the time on school architecture and the implications of the building's demolition for the institutional memory of CEFET-RJ.

By addressing these issues, this work is part of a broader debate on the importance of preserving architectural heritage in educational institutions and the role of architecture in constructing historical and cultural narratives. Through a methodology that combined documentary and iconographic surveys and interviews, the

study proposes a critical reflection on how past architectural decisions continue to influence the present and future of educational institutions in Brazil.

II. Bibliographic Review

Modernism in Brazilian Architecture

The modernist movement in Brazilian architecture has its roots in the European avant-garde of the early 20th century, particularly in the works of architects like Le Corbusier, Mies van der Rohe, and Walter Gropius. However, when transplanted to the Brazilian context, modernism acquired unique characteristics that reflected the cultural, climatic, and social specificities of the country. Segawa² emphasizes that the *Semana de Arte Moderna* of 1922 was a cultural milestone that paved the way for the adoption of modernist principles in various fields, including architecture.

The incorporation of modernist ideals into Brazilian architecture was led by figures such as Lúcio Costa and Oscar Niemeyer, who sought to adapt international concepts to local realities. Costa⁴ highlights that Brazilian modernist architecture prioritized integration with the natural environment, the appreciation of open spaces, and the use of elements that responded to the tropical climate, such as *brise-soleils*. This approach resulted in iconic works such as the headquarters of the then Ministry of Education and Health in Rio de Janeiro during the Vargas Government, considered one of the first major modernist buildings in the country. Lemos⁵ discusses how Brazilian modernist architecture also incorporated elements of local culture, creating a unique synthesis between modernity and tradition. This is evident in projects like Ibirapuera Park in São Paulo and the capital city of Brasília itself, conceived as a materialization of the modernist ideals of order, efficiency, and beauty.

The application of modernist principles in the construction of educational buildings was a crucial aspect of the development of this movement in Brazil. Schools, universities, and technical centers were designed to reflect the values of progress and rationality. Campos⁶ analyzes how these constructions aimed not only to meet the functional needs of education but also to serve as symbols of a new era of development and enlightenment.

Despite its lasting influence, modernism in Brazilian architecture has not been without criticism. Holston⁷ argues that while Brasília represents the pinnacle of Brazilian modernism, it also exemplifies the limitations of this movement, particularly regarding human interaction and the monumental scale that can alienate users. These criticisms have led to reassessments of the role of modernism and the search for more humanized and contextualized architectural approaches.

Estado Novo Educational Policies and Architecture

The Estado Novo (1937-1945), led by Getúlio Vargas, was a period marked by strong centralism and nationalism. Education was perceived as an essential tool for building a unified national identity and promoting industrial development. Schwartzman¹ highlights that the educational policies of this period sought to expand technical and vocational education, aligning citizens' training with the needs of the state.

The creation of technical schools across the country was a central strategy of these policies. Barbosa⁸ analyzes how these institutes were designed to be more than just places of learning; they were physical symbols of the state's commitment to progress and modernization. The architecture of these buildings, often inspired by modernism, reinforced this message, utilizing modern materials and designs that evoked efficiency and rationality. The Block F of CEFET-RJ, built in 1944, is an emblematic example of this approach. Designed to meet emerging educational needs, the building incorporated modernist principles of form and function, serving as a beacon of modernity during a period of national transformation.

In addition to promoting economic development, the educational policies of the Estado Novo also aimed to shape the behavior and values of citizens. Gomes⁹ discusses how the curriculum and the school environment were used to instill values such as discipline, patriotism, and obedience. The architecture of the schools, with their spacious and organized environments, contributed to these objectives by creating spaces that reflected order and control.

The educational policies and resulting buildings of the Estado Novo left a lasting legacy in the Brazilian educational system. Carvalho¹⁰ argues that although many of these schools have undergone transformations over the years, they continue to play a vital role in the training of technical professionals. However, as previously noted, the preservation of these buildings faces significant challenges, threatening the continuity of this architectural and educational legacy.

Challenges in the Preservation of Modernist Architectural Heritage

The preservation of modernist architectural heritage faces a series of challenges that go beyond the mere lack of historical recognition. Among the main factors threatening the conservation of these buildings are rapid urbanization, real estate speculation, social and cultural transformations, and technical and financial limitations.

In many urban centers, the accelerated growth of cities and the pressure for new constructions have led to the demolition of historic buildings, especially those occupying valuable land. Menezes¹¹ notes that, in many

cases, the value of urban land outweighs the historical and cultural value of the buildings, resulting in decisions that favor modernization at the expense of preservation. This dynamic is particularly critical in cities like Rio de Janeiro and São Paulo, where space for expansion is limited, and the demand for new developments is high.

Changes in societal needs and expectations also play an important role in the devaluation of modernist heritage. Buildings designed for a specific purpose, such as the technical schools of the Estado Novo period, often fail to meet contemporary demands in terms of functionality and safety. Fonseca³ argues that the lack of appropriate adaptations to new standards and technologies can lead to the obsolescence of these constructions, making them easy targets for demolition.

Another significant challenge is the technical complexity and cost involved in the restoration of modernist buildings. Unlike traditional constructions, modernist works often use innovative materials and techniques for their time, such as reinforced concrete and large glass surfaces, which may require specialized techniques for their conservation. Glendinning¹² points out that the lack of skilled labor and the high cost of the interventions necessary to restore these structures are substantial barriers to preservation. In many cases, the lack of financial resources and government incentives leads owners to opt for demolition rather than restoration.

The absence of effective public policies for the preservation of modernist architectural heritage is a central factor contributing to the deterioration of these constructions. Abreu¹³ discusses how, in Brazil, the appreciation of modern heritage is still developing, with many policies more focused on the preservation of colonial or imperial period buildings. Additionally, the lack of social awareness about the value of these buildings as part of the country's cultural heritage hinders popular mobilization in favor of their preservation.

Real estate speculation is one of the greatest enemies of heritage preservation, especially in areas where the land value exceeds the value of the historic building located on it. Menezes¹¹ discusses how this phenomenon is particularly problematic in central areas of cities, where there is constant pressure for new high-end commercial and residential constructions. This process often results in the demolition of modernist buildings, which are seen as obstacles to economic development.

Comparative studies show that the preservation of modernist architecture faces similar challenges in other countries, but with different approaches. Glendinning¹² discusses how the conservation of modernism in countries like the United States and the United Kingdom involves both aesthetic appreciation and the recognition of its historical value. These approaches offer valuable lessons for Brazil, where the preservation of modernism is still struggling to find a balance between innovation and conservation. This research, by documenting and analyzing the case of Block F at CEFET-RJ, sought to contribute by exploring how the educational policies of the Estado Novo materialized in architecture and how these modernist buildings are treated in a context of rapid urban transformation.

III. Metodology

Given the still incipient development of construction history in the country and around the world, this scientific initiation research, in its literature review, sought to enhance the prospecting of information from a wide range of publications, such as scientific articles, theses, websites, videos, and other sources accessed online due to the limitations imposed by the health crisis.

The multidisciplinary nature of the topic, efforts were made to extract aspects related to the history of architecture, historical preservation, and the sociopolitical and economic context of Brazil from a time frame in which the building in question is inserted.

Concurrently, considering the scarcity of records and publications on the subject, it was decided to conduct semi-structured interviews with individuals, witnesses of the institution's history, or "living archives," in search of testimonies that would fill the information gaps about the original Block F.

Documentary and iconographic surveys were also carried out with departments of CEFET-RJ, such as the City Hall and the General Archive, as well as with related associations and external institutions, such as the Alumni Association and the Center for Research and Documentation of Contemporary History of Brazil¹⁴ (CPDOC) of the Getúlio Vargas Foundation (FGV). Although the Covid-19 health crisis was a significant obstacle to the application of this research's methodology, information and communication technology (ICT) tools were used to overcome it.

Finally, the results are presented, and analyses are made regarding the possible materials and construction techniques employed at the time, as well as reflections on the issue of historical heritage preservation versus progress.

IV. Results

Historical Aspects

Most of the current structure of CEFET-RJ was inaugurated in 1944, following the guidelines of the Vargas government, as cited in item 1 of this study. The floor plan of the construction project, dated 1934¹⁴, reveals that the original Block F building was planned along with the rest of the architectural ensemble of the then

future ETN—following the national public policy corresponding to the existence of this same building, intended as the residence of the director, as part of the technical school structures.

Additionally, it should be clarified that "despite the centralism, school architecture during this period saw different manifestations, depending on the Federation Unit"¹⁵. In other words, although the technical schools built under Getúlio Vargas's command received a series of standardized structures and features, there was freedom in the aesthetic aspect. Institutions were allowed to have the architectural style that suited the place and the community to which they were exposed. Thus, the original Block F and the entire ETN were modernist constructions because they were in Rio de Janeiro, where the style was dominant.

Through the interviews conducted, such as that of Kepler Júnior¹⁶, it was possible to gather various information about the use of Block F over time. Having been admitted to the institution in 1972, his account revealed that the building housed several important departments for the school throughout its useful life. These included: the residence of the then general director of the school; residence of the head of service, guard, and caretaking; headquarters of the city hall; transport sector office; examination division office; and accommodation for students from the institution's international agreements. During this period, according to the interview accounts, the last General Director of the school to occupy the property, as originally intended, was Prof. Edmar de Oliveira Gonçalves (who held the position for about twenty years). As for former Director Celso Suckow da Fonseca, it was not possible to determine if he occupied it during his terms in office. None of the accounts managed to trace back comprehensively in time, considering that the interviewees joined the Center in the 1970s and 1980s.

Another interesting aspect that emerged from the interviewees' accounts was the building's use during a "transition period." According to Kepler Júnior¹⁶, Block F "ended up being divided to be the caretaker's house. Then the city hall." He adds that the latter part refers to the time of his admission to the institution in 1972.

Characterization of the (original) Block F

The original Block F building was an integral part of the architectural ensemble of the new facilities inaugurated in 1944. It was located on General Canabarro Street, in the Maracanã neighborhood, in the city of Rio de Janeiro (RJ), Brazil. As shown in the floor plan in figure 1, it occupied one of the corners of the site of the then future National Technical School (ETN) and had a built area of approximately 251 m², divided into 2 floors. Figures 2 to 4 corroborate the construction of the original Block F at that time.

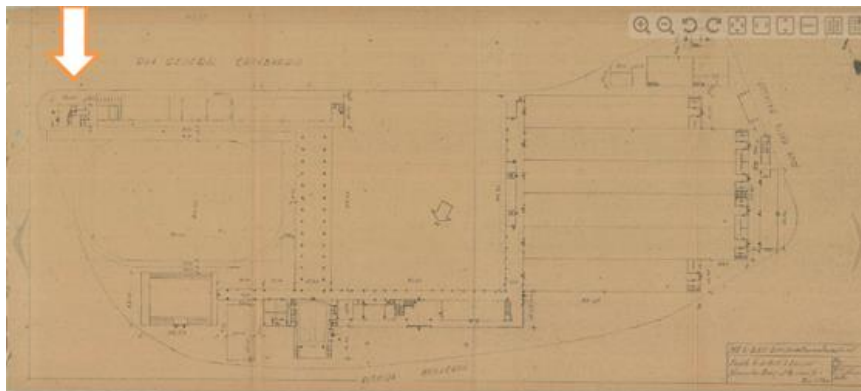


Figure 1: Floor Plan Of The Construction Project Of The Then Future National Technical School, Dated 1934 (Arrow Indicating The Presence Of The Original Block F)¹⁴.

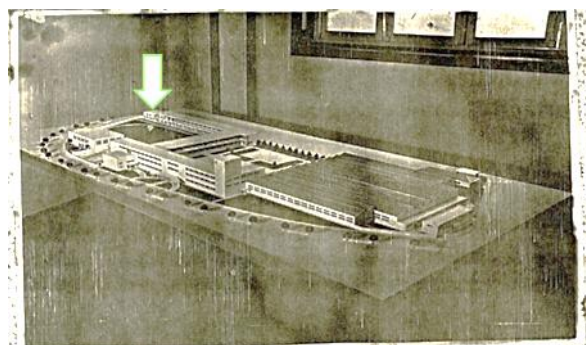


Figure 2: Model Of The Construction Project Of The Then Future National Technical School In 1934 (Arrow Indicates The Location Of The Original Block F)¹⁴.



Figure 3: External View Of Blocks D And F Under Construction On General Canabarro Street¹⁴.



Figure 4: View Of The Completed Original Block F (Indicated By The Arrow)¹⁴.

The floor plans of the building's "As Built" from the 1980s are presented in Figure 5. The original Block F underwent internal renovations over time to better serve the needs of the CEFET-RJ Maracanã City Hall, which was headquartered there for a long period.

In the second-floor plan (Figure 5), there are three rooms representing the then Division of Competitions (DICON), two restrooms, a balcony, a hall, and two accommodations. The access staircase reveals its L-shape, maintaining the same width.

The built area was approximately 132 m². In the first-floor plan (Figure 5), two rooms correspond to the Administrative Secretariat (SECAD), and two to the Guard and Caretaking Section (SEGUARD), a Drivers' Room, three restrooms, and a pantry. The presence of a staircase with a width of 85 cm can also be identified. The built area was approximately 118 m².

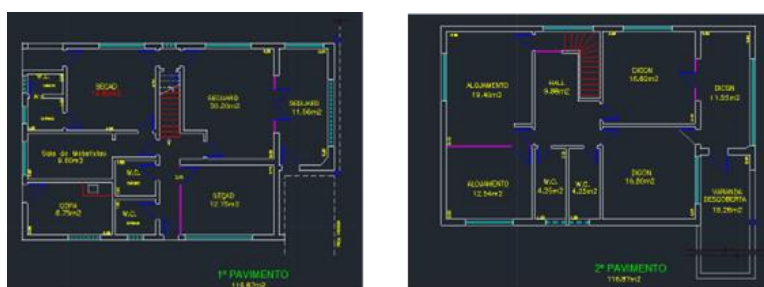


Figure 5: First And Second-Floor Plans, Respectively, Of Block F In The 1980s¹⁷.

The total built area recorded in the "as built" (234 m²) is quite close to the total area reported in the original 1934 project (251 m²). The architectural style of the building dates back to the Modernist period (which dominated architecture in Brazil at the time of the Project and Construction). Modern architecture was considered simplistic due to its tendency towards a lack of ornamentation. It also valued functionalism and rationalism. The most commonly used materials and structural methods followed the premise of innovation, which permeated the facets of modernism; a prime example is reinforced concrete. Side and rear views can be seen in Figure 6.



Figure 6: Side View Of Block F And Partial Rear View, Respectively^{17,18}.

Regarding the structural system, photographic evidence reveals that the building aligned with the modern ideals of the period, as it was constructed using a conventional reinforced concrete structural system. Figure 7 shows two angles of the building's demolition and allows for the visualization of elements of its original structure.



Figure 7: Structural System Elements Of Block F (In The Process Of Demolition)¹⁷.

It can be inferred from Figure 7 that the sealing system consisted of masonry walls with ceramic bricks. No records were obtained for the other elements of the building's constituent systems, such as the roof, foundations, and building installations.

Demolition of Block F

According to Kepler Júnior¹⁶, from the perspective of post-occupancy evaluation, the Block F building had a small space that, at a certain point, became insufficient for the growing demand from students and staff at the time. The circulation between the two floors was done by a staircase, another aspect that was undersized for the circulation standards then in place: “there was difficulty and discomfort in moving around the building.”

Additionally, according to Kepler Júnior¹⁶, the building was situated on a level that made it a low point compared to the surrounding terrain. Thus, in situations of heavy rain, water would accumulate nearby, and it was one of the first to flood during storms.

The building was demolished in the 2010s, between 2011 and 2016. In its place, a new building was constructed to meet the growing demand for physical space at the Maracanã Unit. Figure 8 illustrates some phases of the demolition process.



Figure 8: Demolition Of Block F: Beginning And End¹⁷.

V. Discussions

Implications of the Results for the History of Construction and Modernist Architecture

The results of this study aim to contribute to the understanding of the relationship between modernist architecture and the public policies of the Estado Novo, highlighting how it was used not only as a tool for physical construction but also as an instrument of social control and ideological promotion. The history of Block F at CEFET-RJ exemplifies how modernist constructions, especially those linked to educational institutions, were designed to reflect the ideals of efficiency, modernity, and progress that were central to Getúlio Vargas's nationalist project.

The results also reveal the complexity of decisions related to the preservation and demolition of modernist buildings in Brazil. Menezes¹¹ and Fonseca³ argue that the demolition of buildings like Block F is often justified by the need for urban expansion and adaptation to contemporary demands, but this logic often overlooks the historical and cultural value of these constructions. The loss of Block F, therefore, is not just a matter of physical space but also a loss of institutional and cultural memory.

Relationship with the Reviewed Literature

By positioning the results within the reviewed literature, the study seeks to contribute to a deeper understanding of the role of architecture in constructing political and social narratives. Segawa² and Barbosa⁸ emphasize that modernist architecture in Brazil was deeply influenced by the political needs of the Estado Novo, and the results of this study confirm this connection by documenting how Block F was used to promote the ideals of the regime.

As discussed by Schwartzman¹, the Estado Novo saw education as a crucial means of shaping the new generation of Brazilians, aligning them with the regime's nationalist ideals. The constant presence of the director at the institution can be interpreted as an extension of this philosophy, where the director's role was not merely administrative but also represented a form of continuous surveillance and disciplinary control over students and staff. This centralization of power within the educational institution reflected the regime's desire to ensure that the values of the Estado Novo were rigorously applied and maintained.

Moreover, the analysis of challenges in preserving modernist heritage reveals that the issues faced in the case of Block F are representative of a broader phenomenon discussed by Glendinning¹² and Abreu¹³, where the lack of effective public policies and real estate pressure result in the loss of important historical landmarks. This study, therefore, not only adds a new layer to the understanding of modernism in Brazil but also contributes to the debate on heritage preservation in contexts of rapid urbanization.

Study Limitations

During the course of this study, several limitations were identified, which impacted both the accuracy, and the scope of the results obtained. The scarcity of detailed records, such as complete architectural plans, material specifications, and planning documents, presented a significant challenge to accurately reconstructing the original construction of Block F. The lack of these essential pieces of information may have limited the understanding of the construction techniques and design decisions adopted at the time, making the inferences drawn in this study need to be interpreted with caution, considering the incomplete nature of the available sources.

Furthermore, due to the scarcity of documentary sources, there was considerable reliance on interviews and oral accounts to reconstruct the history of Block F. Although these accounts were valuable, they are subject to memory or interpretation biases, which may have introduced uncertainties in understanding the events and the chronology of the building's use, thus limiting the accuracy of the data and influencing the study's conclusions.

Another limiting factor was the demolition of Block F prior to the conduct of this research, which made direct analysis of the building impossible. The opportunity to physically collect and analyze construction materials, such as concrete or brick samples, could have provided more detailed and accurate information about the construction techniques and materials used. The absence of this direct analysis restricted the depth of the conclusions regarding the construction methods employed at the time.

The demolition of the building also prevented the realization of "in situ" comparative studies with other contemporary buildings still in existence. Such studies could have offered a richer understanding of the architectural and construction context of the time, providing a more solid foundation for analyzing modernist practices in Brazil.

Moreover, the geographical limitation of this study may affect the applicability of its results to other regions of Brazil. Different regions of the country may have adopted variations in modernist principles, influenced by specific climatic, cultural, or economic factors. Therefore, the conclusions of this study may not fully reflect the regional variations in the application of modernist architecture.

Finally, it is important to consider that other regions of Brazil may have followed different trajectories in the application of modernist principles, suggesting that the results of this study do not fully capture these important regional variations. Future studies could investigate how these variations influenced the preservation and transformation of modernist buildings over time, further enriching the understanding of the dissemination of modernism in the Brazilian context.

Impacts of the Limitations on the Study

The limitations encountered throughout this study play a crucial role in how the conclusions were formulated and should be considered when assessing the scope and validity of the suggested implications for the preservation of modernist heritage. The identification and analysis of these limitations demonstrate the researcher's critical awareness of the methodological challenges and the potential influences on the results obtained.

Repercussions on the Study's Conclusions

The first significant limitation was the absence of physical samples of the original materials from Block F, due to its demolition prior to the conduction of this research. This absence prevented a more in-depth technical analysis of the materials used, such as the exact composition of the concrete and other construction elements,

which could have offered more detailed insights into the construction practices of the time. As a result, the conclusions regarding construction techniques and material choices are primarily based on documentary and iconographic sources, which may have limited the accuracy of the inferences made about the architectural practices of the period.

Additionally, the reliance on interviews and oral accounts due to the scarcity of documentary records may have caused memory or interpretation biases in the historical reconstructions carried out. While these accounts are valuable for filling information gaps, they are also subject to distortions that can influence the accuracy of the conclusions. This limitation is particularly relevant when considering the study's implications for the preservation of modernist heritage, where precise technical and historical details are essential for the development of effective policies.

Another important limitation was the geographically restricted focus on Rio de Janeiro, which may affect the generalization of the results to other regions of Brazil. Different regions may have adopted variations in modernist principles, influenced by climatic, cultural, or economic factors. Thus, the conclusions of this study may not capture these important regional variations, limiting the scope of the suggested implications for the preservation of modernist heritage in a broader national context.

These limitations, when considered together, suggest that the study's conclusions should be viewed with caution, particularly regarding the application of the suggested preservation practices to other contexts or regions. However, by identifying and discussing these limitations, the study contributes to an understanding of the nuances and challenges faced in the preservation of modernist heritage, highlighting the need for future research that can overcome these limitations and provide a more comprehensive and detailed analysis.

VI. Conclusions

This study delved into the analysis of Block F at CEFET-RJ, offering a significant contribution to the understanding of how modernist architecture was instrumentalized by the Estado Novo in Brazil. Through a multidisciplinary approach that included documentary surveys, interviews, and iconographic analysis, it was possible to trace the life cycle of this building, from its construction to its demolition, and how it reflected the values and ideologies of Getúlio Vargas's regime.

This study revealed that Block F at CEFET-RJ, rather than housing educational activities, played a distinct role in the institution's history as the director's residence and later as an administrative unit. These uses reinforce the idea that the building was more than just a functional structure; it served as a symbol of modernity, progress, and social control, aligned with the goals of the Estado Novo.

Modernist architecture, adopted during Getúlio Vargas's regime, played a crucial role in promoting an image of efficiency and modernization, reflecting the government's nationalist ambitions. In this context, Block F functioned as a tool of ideological propaganda, not through educational activities, but through its direct association with administration and institutional control. The director's residence within the campus reinforced the centralization of power and constant surveillance, fundamental aspects of the authoritarian philosophy of the Estado Novo.

The transition of Block F to a later administrative unit highlights the adaptability of modernist constructions for different functions without losing their symbolic character. However, this transformation also underscores the difficulty of preserving buildings with such historical significance, especially when original functions change over time. The demolition of Block F, therefore, represents not only a physical loss but also the loss of institutional memory and the historical value associated with control and administration during the Vargas era.

These findings highlight the complex relationship between architecture, power, and ideology in Brazil during the Estado Novo. The study contributes to the understanding of how architectural spaces were used not only to house administrative functions but also to reinforce the centralization of power and social control, key elements of the regime's political agenda.

The analysis of preservation and demolition practices in the Brazilian context reveals a broader phenomenon where the historical and cultural value of modernist constructions is often underestimated in favor of economic development. This study, by documenting the specific case of Block F, contributes to the broader debate on the importance of developing preservation policies that consider the symbolic and historical value of these buildings while addressing contemporary demands for urban expansion.

This study not only revealed the historical and cultural importance of Block F at CEFET-RJ but also deepened the understanding of construction practices and materials used during the Estado Novo period in Brazil. The analysis of construction materials, such as reinforced concrete, widely used in modernist buildings, indicates a technical adoption that reflected the needs of an era seeking to combine modernity and durability.

Despite the limitation in collecting physical samples of the original materials due to the building's demolition, the documentary and iconographic sources allowed for inferences about the construction techniques employed. Reinforced concrete, for example, was one of the central elements of modernism, not only for its

strength but also for its ability to shape innovative architectural forms. Lemos⁵ and Glendinning¹² discuss how this material allowed formal freedom that aligned with the ideals of functionality and aesthetics of the modernist movement.

The results and analyses also suggest that the choice of materials and construction techniques was closely linked to Vargas's regime's goals of projecting an image of progress and modernity. Buildings like Block F were not merely functional structures; they also served as physical manifestations of state ideology, using materials that symbolized innovation and durability, central characteristics for the development discourse of the time.

Limitations and Technical Implications

Although the study provided a detailed understanding of the materials and construction techniques, the absence of physical sample collection from Block F represents a limitation. This lack of direct empirical data restricts a more in-depth technical analysis of specific materials, such as the exact composition of the concrete or the coatings used, which could provide additional insights into the construction practices of the time.

However, this limitation also highlights the importance of future research that could explore similar buildings still standing, allowing for the collection and analysis of material samples. Such studies could complement the findings of this article, offering a more comprehensive view of modernist construction techniques in Brazil and how these materials have behaved over time.

Suggestions for Future Research

This study opens several avenues for future research that could complement and expand the findings presented here. Firstly, it would be valuable to conduct comparative studies analyzing how different Brazilian cities manage the preservation of modernist heritage in the face of urban expansion. Comparing these approaches could reveal patterns and variations that might inform the development of more effective public policies.

Another promising direction for future research involves a more detailed technical analysis of the materials and construction methods used in modernist buildings. Investigations that combine technical studies with historical approaches could provide valuable insights into how to restore and adapt these constructions for contemporary use without compromising their original integrity.

Exploring public policies aimed at preserving modernist heritage could provide a foundation for developing new guidelines that balance the needs of urban development with the conservation of cultural memory. Studies that investigate the impact of these policies over time in different regions of Brazil would be particularly useful for assessing the effectiveness of existing preservation initiatives.

It would be interesting to expand the geographical focus of the research to include other educational institutions built during the *Estado Novo*, examining how regional variations influenced the application of modernist principles. A broader analysis that considers local specificities could enrich the understanding of the dissemination and adaptation of modernist architecture in Brazil.

Given the technical nature of the topic, future research should focus on the detailed analysis of construction materials used in similar modernist buildings that still exist and are accessible for study.

Studies that combine material analysis techniques, such as X-ray spectrometry or petrographic analyses, could reveal details about the durability and behavior of modernist materials, contributing to the preservation and restoration of similar buildings.

Research that investigates regional variations in the choice of materials and construction techniques during the *Estado Novo* could provide a broader view of modernist architecture in Brazil. Studies of this kind would be valuable to understand how local factors, such as the availability of materials and climatic conditions, influenced construction practices and the structural performance of buildings over time.

Finally, there is a growing need to develop public policies that encourage the preservation of original materials in the restoration of modernist buildings. These policies could promote the creation of databases on the properties of materials used in modernist constructions, facilitating technical preservation and the historical integrity of these architectural heritage sites.

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