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A Study on the Regenerative Architecture through the Concept of Time - Focused on the Regeneration Architecture as a Complex Cultural Space -

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Abstract This study deals with the concept of regenerative architecture beyond simple functional improvement because the number of old buildings in need of social interest and practical improvement is increasing. Instead of focusing only on the use of new spaces, we intend to look at regenerative architecture from the past, present, and future from a diachronic perspective. Accordingly, it aims to present the design direction of the regenerative building through the essential concept and characteristic of the regenerative architecture and the concept of time. Therefore, after examining the concept of regenerative architecture based on previous studies, the concept of time is established as accumulation, continuity, and flow. In addition, the relationship between regenerative architecture and time is organized through the keywords of trace, overlap, and change, and a framework for case analysis is constructed. Based on regenerative buildings at home and abroad, the design is analyzed through the concept of time and the concept and characteristics of regenerative architecture are identified. In addition, the concept of time and space is fused to establish a perspective and design direction for looking at regenerative architecture.

Keywords: Regenerative architecture, Time, Complex cultural space, Tracing, Overlapping, Transforming, Cognition, Folidng, Fluid

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1. Introduction

1.1. Background and Purpose of the Study

In recent years, South Korea has witnessed an increase in neglected and aging buildings. To address this issue, urban regeneration projects, such as the Urban Regeneration New Deal, have been initiated at a city-wide level, while individual buildings are being actively repurposed as public facilities. These activities collectively fall under what is socially referred to as "regenerative architecture." Although not legally defined as a term, regenerative architecture is widely used and has garnered significant attention not only within the architectural field but also across society.

Unlike conventional architectural design, regenerative architecture begins with existing structures, requiring careful consideration of both physical and social improvements. Therefore, it is crucial to establish the fundamental objectives and design direction of regenerative architecture. Furthermore, regenerative buildings serve as physical mediators that connect the past, present, and future, making it essential to examine how the concept of time operates within these spaces.

This study aims to define regenerative architecture and propose a perspective centered on the concept of time. Based on this concept, it seeks to provide architectural interpretations and propose spatial solutions for regenerative buildings.

The significance of this research lies in offering a practical perspective that can be effectively utilized in future regeneration projects. It also aims to fundamentally understand the essence of regenerative architecture and, through the incorporation of the fourth-dimensional concept of "time," provide foundational resources for shaping spaces through regenerative architecture.

1.2 Scope and Methodology of the Study

This study aims to present a new perspective on regenerative architecture and propose architectural spaces utilizing this perspective. To achieve this, the scope and methodology of the study are defined as follows: First, a theoretical review of regenerative architecture will be conducted. Based on prior research, the concept of regenerative architecture will be established. Additionally, the study will organize and refine the concepts of time and placeness within the context of regenerative architecture.

Second, analytical frameworks will be established from the perspectives of temporality and placeness. Third, case studies will be selected from domestic and international examples of regenerative architecture, focusing on public buildings repurposed as multi-cultural spaces. These cases will be analyzed based on the previously established frameworks. Fourth, through the analysis of regenerative architecture cases, architectural elements corresponding to identified temporality and placeness will be derived. Subsequently, spatial proposals that can be applied to the design of regenerative architecture will be presented.

2. Theoretical Review

2.1. Concept of Regenerative Architecture

Regenerative architecture refers to the practice of creating new functions while preserving the identity of an existing building's form, space, and historical essence, enabling it to coexist with the present while embracing the passage of time. Though it shares similarities with remodeling in terms of outward appearance, it differs significantly in its direction and purpose.

Over time, numerous buildings and places have been used or interpreted differently depending on societal and historical changes. Regenerative architecture aims not to confine these structures to the past but to transform them into mediators that connect the past, present, and future.

This process begins with the location and historical attributes of existing buildings, distinguishing it from the concept of new construction. Consequently, it is essential to clearly define regenerative architecture. To achieve this, the definitions presented in prior studies related to regenerative architecture in Korea were reviewed (Fig. 1).

As defined in previous studies, regenerative architecture emphasizes changes over time, temporality, history, spatial and cultural contexts, and the latent value and characteristics of a building. Building on these foundations, this study defines regenerative architecture as the act of improving and regenerating existing buildings by reflecting the changing physical and cultural elements over time.

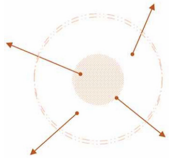
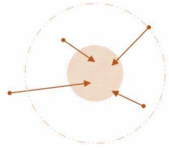
This concept goes beyond the mere technical or infrastructural recycling of buildings. It recognizes temporal changes and focuses on the relationship between the unique characteristics of existing buildings and their connection to place, embedding the concept of time within its framework.

Therefore, it is essential to examine the value of time in the context of regenerative architecture. Furthermore, to identify the broader characteristics of regenerative architecture related to temporality and to analyze its detailed architectural elements, the concept of placeness must also be considered.

2.2. Temporality and Placeness

When examining the concept of regenerative architecture in prior studies, *placeness* was identified as a key element alongside *temporality*. Place is formed through relationships and is one of the elements most closely tied to architecture. A place refers to a location where events occur

Table 1. Types of Design Methodology for Regenerative Architecture in Previous Studies

Classification	Contents	
Preservation	Preserving existing buildings around social relations outside the building (Focusing on historicity, location)	
Transforming	Transformation using elements from existing buildings around the physical relationships inside the building (Concentration of structural and exterior elements)	

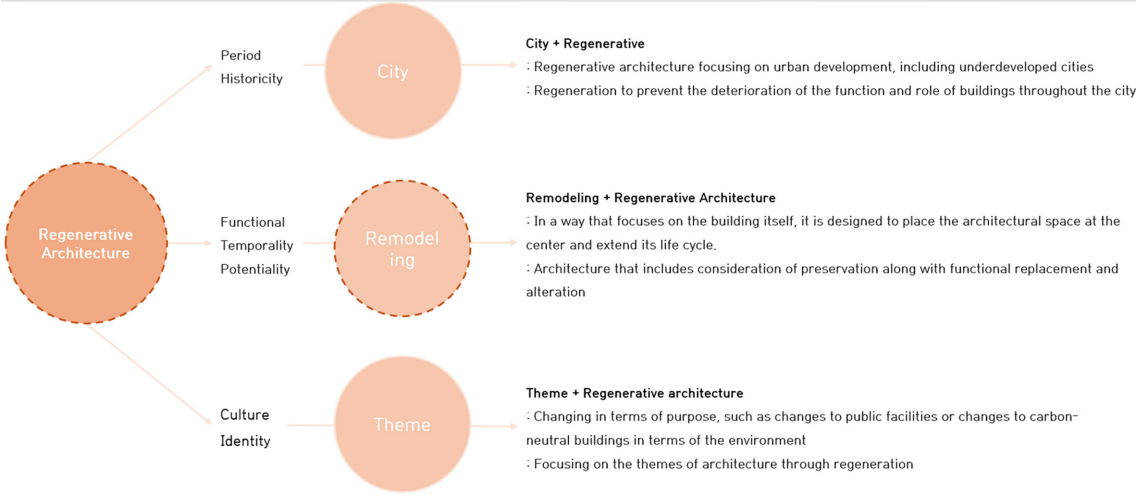


Figure 1. Classification of the Concept of Regenerative Architecture.

or activities take place, encompassing specific geographical spaces and the actions performed within them.

Various phenomenological theories have defined the concept of placeness in different ways. These theories can be summarized as shown in Table 1 below.

The factors that shape placeness include physical space, environment, time, experience, and meaning. When placeness is applied to regenerative architecture, it interacts with temporality.

Architecture serves as a tangible mediator connecting the past and present. This is particularly evident in regenerative architecture, where existing buildings are revitalized through new design elements. Regenerative architecture necessitates reflection on the accumulated experiences within a space over time and how these spaces can be transformed to serve new functions.

Thus, regenerative architecture involves the transformation of existing buildings into new spaces through regeneration. This study aims to explore the logic of dynamic spaces in regenerative architecture, developed through the concept of time.

Time is a concept used to recognize changes in objects, serving as an objective indicator along a continuum. However, when it manifests as the accumulation of experiences over the flow of time, its subjective nature emerges, revealing a dual characteristic. Therefore, time is better defined as a concept of flow rather than a single moment.

Time, as a fourth-dimensional concept, adds a dimension to space, transcending the geometric constraints of physical space. It encompasses not only the spatial configurations but also the relationships that arise as spaces evolve over time. Unlike a space defined in three-dimensional coordinates, time is not visually apparent. Architecture enables the coexistence of these differing relationships between space and time. Space projects itself into time, and time materializes through construction, manifesting the concept of spatiotemporal cyclicity. This interplay between space and time offers insights into the relationships among architecture, time, and regenerative architecture.

This study categorizes the concept of time into *accumulation*, *continuity*, and *flow*:

- **Accumulation** reflects the characteristics of the past, focusing on the essence of what already exists. It signifies the physical and cultural experiences amassed over time, rather than merely dwelling on the past.
- **Continuity** highlights the idea that time is not a momentary concept but a continuum that considers the past, present, and future simultaneously.
- **Flow** emphasizes a forward-looking perspective, focusing on future time rather than remaining in the past.

Based on these temporal concepts and characteristics, the study identifies three key directions for creating new spatial configurations: *traces*, *superimposition*, and *transformation*.

- **Traces** refer to the physical elements of space that embody the marks left by past time, representing the accumulated history of existing architecture.
- **Superimposition** involves the layering of existing structures and new spaces, allowing the characteristics of past spaces to either merge or remain distinct as time progresses.
- **Transformation** signifies a focus on flowing time, extending beyond preservation and history to embrace the present and future. This prioritizes not just the formation and use of new spaces but also the centrality of the building's history and temporal dimension.

The relationship between temporality and placeness in regenerative architecture, as defined in this study, is summarized in Figure 2.

2.3. The Value of Regenerative Architecture Through the Concept of Time

The value of regenerative architecture can be examined from a diachronic perspective that considers the flow of time, rather than a synchronic perspective that focuses solely on a single point in time. This perspective enables us to view regenerative architecture as possessing historical value, and to appreciate its characteristics by considering the passage of time. Additionally, unlike previous research on regenerative architecture, this paper introduces the concepts of traces, overlap, and the directionality of change through the concept of time. Furthermore, the paper proposes spatial interpretations based on the architectural accumulation of regenerative buildings, highlighting their significance in terms of spatial innovation.

2.3 Cultural Welfare Space

"Cultural welfare" refers to the concept of Culture Benefit, and the spaces that support this function aim to enhance the quality of life through a variety of cultural and artistic activities. Such spaces facilitate access to culture and provide opportunities to engage with it, encouraging a change in awareness and adding meaning to life, thus enriching it. These cultural welfare spaces are integrated facilities aimed at improving life's well-being, and they are becoming increasingly significant as spaces for cultural formation in modern society. The fulfillment of cultural factors through such spaces significantly influences the enhancement of life's qualitative level. Therefore, cultural welfare spaces have the potential to activate local communities.

Cultural welfare involves various programs that can be integrated within a single space. Through such spatial complexity, the functions and roles of related spaces can be effectively combined or organically interconnected, maximizing the efficiency of the space. Multipurpose cultural spaces offer various spatial characteristics through

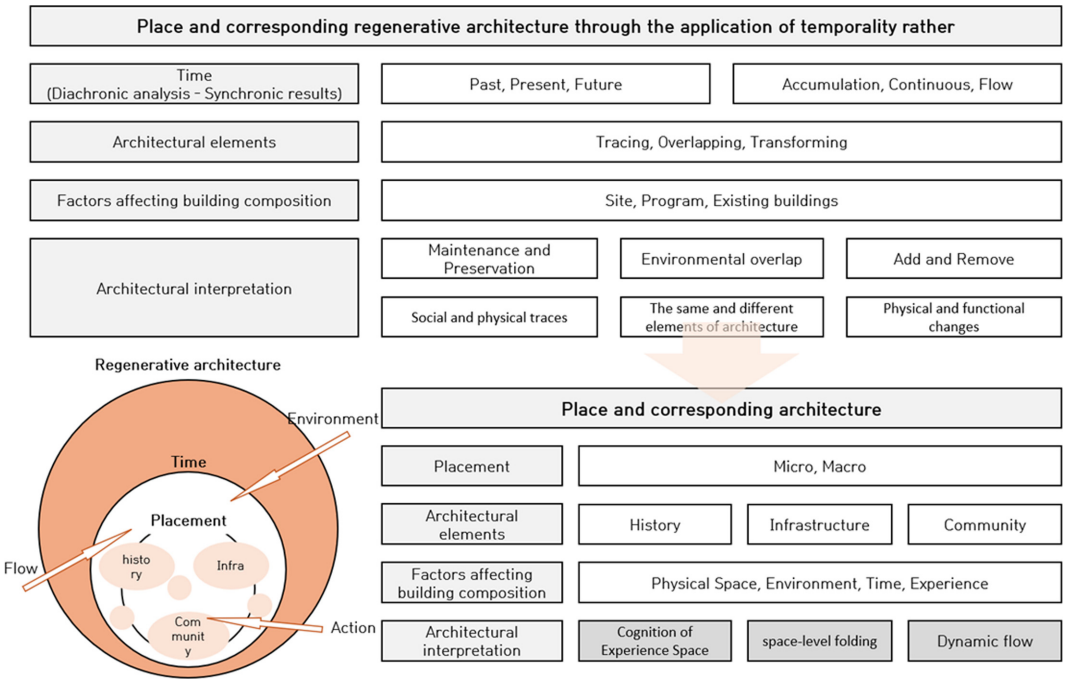


Figure 2. Relationship between Time and Placement.

the combination of different functions and their corres-ponding forms. Moreover, the frequency of such spatial complexity is increasing, reflecting the social trend towards spaces that can adapt to functional changes. Specifically, the formation of these cultural welfare spaces can be facilitated through regenerative architecture, which transforms existing buildings into spaces with new functions.

Regenerative architecture is primarily pursued when existing buildings, which may have become outdated, can be repurposed to revitalize local communities. Therefore, regeneration involves not only the physical form of the building but also functional aspects that can help recover publicness in the region by fostering community spaces. Cultural welfare facilities are designed to be accessible to a wide range of people, with a public character, and a variety of programs that are organically integrated. This makes them highly suitable for creating spaces that can enhance the public character of the region while fostering a sense of community.

Thus, to activate local communities and restore publicness in a region, the functional aspect of cultural welfare must be considered when carrying out regeneration projects. Moreover, since cultural welfare spaces involve a range of programs, careful consideration is needed in organizing the fusion of spaces to accommodate these programs. The regeneration of these spaces reflects a shift not only in urban and architectural form but also in the functional complexity that aligns with societal changes over time. Therefore, the functional meaning in regenerative architecture can be confirmed by reflecting the changes of the times through such complex, multifaceted trans-formations.

3. Case Study and Analysis

3.1. Formation of Criteria for Case Analysis

This study presents a perspective on regenerative architecture through the concept of time, aiming to propose spatial interpretations through architectural analysis. To do this, the concepts of regenerative architecture and temporality are synthesized, focusing on traces, overlap, and change. Additionally, based on the principles of regenerative architecture and the sense of place, this study uses history, function, and community as analytical frameworks to examine case studies of international buildings centered around urban regeneration.

3.2. Case Study Analysis of Regenerative Architecture Based on Temporality

3.2.1. LocHal Library

3.2.1.1. Traces Through the Accumulation of Time

The LocHal Library, formerly a locomotive repair depot from the 1930s, has transformed into a multiplex library and is now a landmark in the Netherlands. The structure of the building incorporates H-beams that were originally used in the production of locomotives. These beams were repurposed in the design to form the structural framework, thus symbolizing the starting point of the regeneration process. Not only do these beams contribute to the building's structural integrity, but they also serve as traces of the building's history, visually representing the remnants of its previous function. This reuse of industrial elements connects the present space to its past, offering a symbolic link to the building's original use and function, and exemplifying the idea of preserving



Figure 3. Existing H-Beam structure.

traces through the passage of time (Fig. 3).

3.2.1.2. Overlapping Through Continuous Time

The central large space, which once served as the main function area of the repair depot, now functions as the core space of the LocHal Library. This space, which was originally part of the building's structural framework, has been transformed to accommodate new functions such as exhibitions and library services, thus establishing new spatial standards. This transformation is linked to the physical structural characteristics of the original building, where the accumulated traces of time were preserved and used to maintain the form of the space. The new functions were overlaid onto this existing structure, creating a multipurpose cultural space. Additionally, the original structure was integrated with new design elements such as tables and lighting, which were utilized to create new interior features like search desks and reading areas (Fig. 4).

3.2.1.3.Transformation Through the Flow of Time

The LocHal Library, regenerated in 2019, now serves not only as a library but also as a venue for exhibitions, performances, and other cultural activities, functioning as a multiplex library. This transformation reveals how a



Figure 4. 1st floor plan.

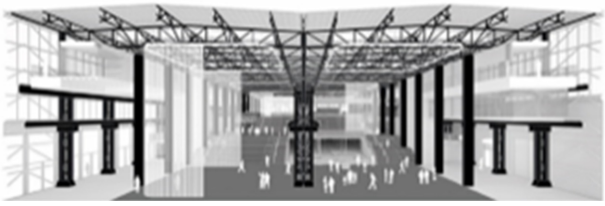


Figure 5. Sectional perspective view of the relationship of the inner space.

space that was once used as a closed, industrial repair depot has been reinterpreted and regenerated as an open public space, accommodating changes in the surrounding urban environment and broader societal shifts over time. The building has been repurposed to serve as a multipurpose cultural space. Beyond the change in function, the internal spaces of the building, which were once monotonous and industrial, were reorganized through techniques like spatial zoning to create diverse areas within the interior. This change highlights that the once-separated area in Tilburg, the Netherlands, is no longer just an isolated industrial zone but has become a connector between different urban areas. The space has been regenerated as a cultural hub, reflecting the potential for rail spaces to be reimagined as multifunctional, cultural connectors within the urban fabric (Fig. 5).

3.2.2. F1963

3.2.2.1. Traces Through the Accumulation of Time

F1963, which was originally a wire rope factory, underwent a process of regeneration with a focus on preserving as much of the original structure as possible. Over time, the building's repeated and exposed ceiling structure was used as an element of architectural traces, contributing to the spatial composition. Despite undergoing a transformation into a new function, the regeneration maintained the structural elements of the original factory. Moreover, in the past, the factory building's roof, walls, and floor were not the only architectural components; the machinery and parts used in the production of wire rope also played a significant role in shaping the interior space. These industrial elements were preserved and repurposed as current interior design features. Although the original function was lost, the traces of the factory's architecture and machinery remain, symbolizing the building's industrial past (Fig. 6).

3.2.2.2. Overlapping Through Continuous Time

The original form of the factory building was based on a large central space inside. This wassuitable for the function of the factory and was also influenced by the location's characteristics, situated in a more isolated part of the city. As the regeneration of F1963 into a multipurpose cultural space progressed, the form of the large central space was altered to suit the new functions. The event and exhibition spaces, which required a large open area, were



Figure 6. Preservation of existing roof structures.

preserved, while new partitioned spaces were created to accommodate functions such as studios, in accordance with the specific needs of the new use. The zoning that was newly introduced overlapped with the existing building structure. Through the use of a courtyard, the building's form was reconfigured, turning the large open factory space into a new, multipurpose space. Moreover, the factory had a high ceiling, which was preserved, while part of the space was also reorganized into a mezzanine, allowing for a spatial overlap where the past and present coexist, shaped by the flow of time (Fig. 7).

3.2.2.3. Transformation Through the Flow of Time

Located in Mangmi 2-dong, Busan, F1963 was originally situated near a large plot of farmland when the factory was built in the 1960s. At that time, this location was isolated from the urban center, making it suitable for industrial use. However, over time, the surrounding city underwent significant changes, with the large plot of land being subdivided and residential areas emerging. As a result, there was a need for a transformation of the building to suit the new urban context. Additionally, as the factory's function declined, the space became suitable for regenerative architecture (Fig. 8).

Unlike the surrounding urban changes, the large, undivided plot of land and the preserved form of the factory provided a solid foundation for regeneration. As a result of the regeneration process, F1963 underwent a transformation, incorporating elements of traces and overlap, while also adapting to the place's need for openness and connectivity. This created a new urban space. As the surrounding city became more integrated and open, the former isolated and closed factory space transformed into an open landscaped area. Furthermore, through changes in the building's facades to accommodate the expansion of space, F1963 successfully embraced the passage of time, transforming into a space that can accommodate new urban functions.

3.3. Case Study of Regenerative Architecture Based on Sense of Place

3.3.1. Granville Island - Public Market

3.3.1.1. History

Granville Island, which was created through land reclamation for industrial manufacturing in 1915, is now

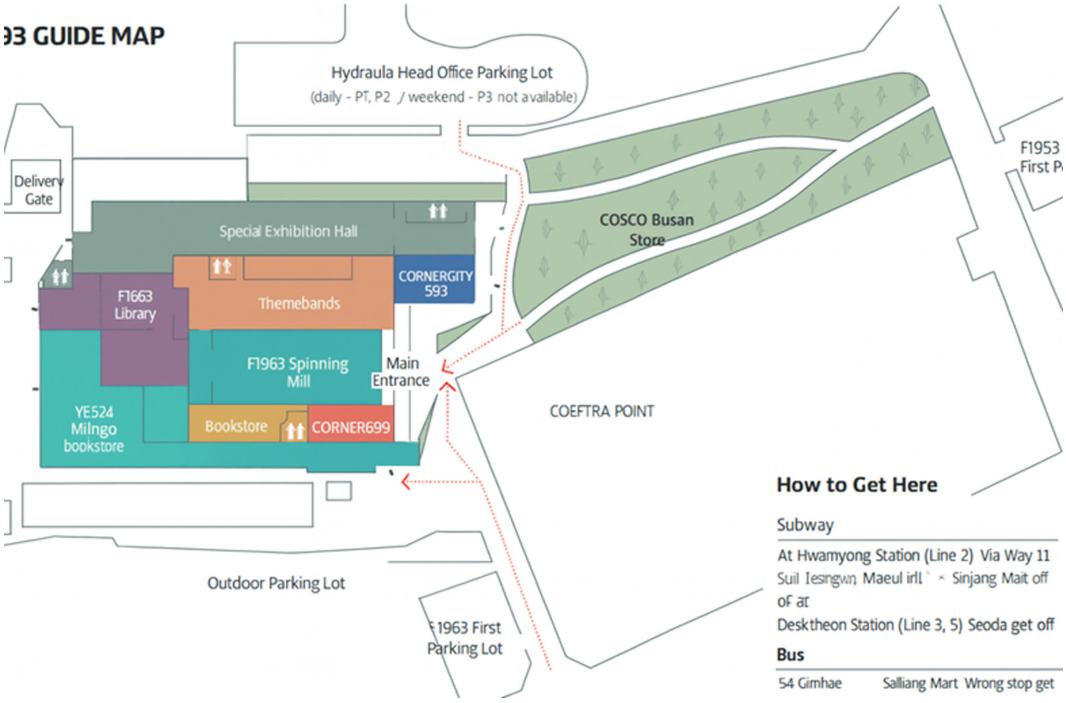


Figure 7. Zoning with new features.



Figure 8. Formation of Space through the Use of External Space.



Figure 9. The Past and Present of Granville Island.

home to a variety of cultural and commercial facilities, including the Public Market, hotels, art centers, and theaters. The Public Market was established in 1979 as part of Granville Island's regeneration project. The area had previously experienced decline due to fires and societal changes that led to the deterioration of the industrial buildings. However, through the regeneration of these factories, Granville Island successfully revitalized the urban area, with the Public Market playing a central role in this transformation. The Public Market was designed to preserve the village-like form of the original industrial facilities, while simultaneously becoming a hub for commerce and culture. The space is organized with corridors that serve as pathways, while creating interior spaces that allow for rest and linger, contributing to a lively, welcoming atmosphere (Fig. 9).

3.3.1.2. Function

In response to the decline of heavy industry and the changing social landscape, Granville Island underwent a transformation into a multipurpose cultural-commercial space. Located about 20 minutes by bus from downtown Vancouver, the island's strategic location enhanced its accessibility to a broad range of visitors. Additionally, to support the island's pedestrian-friendly layout, a public parking lot was established on the outskirts of the island. This initiative helped ensure that public spaces within the island provided resting areas for pedestrians, and the introduction of barrier-free design made the space accessible to people of all abilities. The Public Market was organized to provide both spaces for lingering and areas for passing through, clearly defining pedestrian movement and circulation, making it an inviting and functional space for all visitors (Fig. 10).

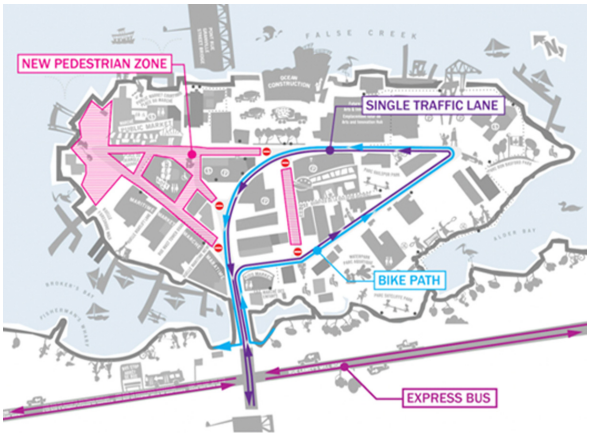


Figure 10. Approach movement from the center.



Figure 11. The outer space of the public market.

The northern plaza of the public market, composed of common spaces, is closely linked to the market, serving as a food hall where visitors can relax and dine. In contrast, the southern plaza is designed as a space where pedestrians can linger and engage in various activities, such as events. Through these external spaces, the public market has played a central role in the urban regeneration of Granville Island (Fig. 11).

3.3.2. Gasometer City

3.3.2.1. History

Constructed in 1899 as gas storage facilities in Vienna, Austria, Gasometer City was regenerated in 1999 into a mixed-use complex that includes residential, office, commercial, and cultural spaces. While the functionality of the site was completely transformed, the four gas tanks were preserved as historical landmarks. The classical brick exterior and circular forms of the gas tanks were maintained, but the internal elements were removed to allow their rebirth as multifunctional buildings. This approach preserved the architectural form of the historic structures from 1899, repurposing the external structure while integrating modern mixed-use functions to reimagine the site as a contemporary space (Fig. 12).

3.3.2.2. Function

By regenerating the gas storage facilities, which previously served a closed-off function in the city, into mixed-use buildings, the site now offers open spaces for the surrounding community. In particular, an internal space was created to connect the site with a subway station, ensuring accessibility via public transportation. The inclusion of residential spaces separates the movement flows of transient visitors and local residents. In addition to improving accessibility for people from other parts of the city, the site incorporates cultural and commercial facilities that meet the needs of the local community, creating spaces where residents can gather and stay (Fig. 13).

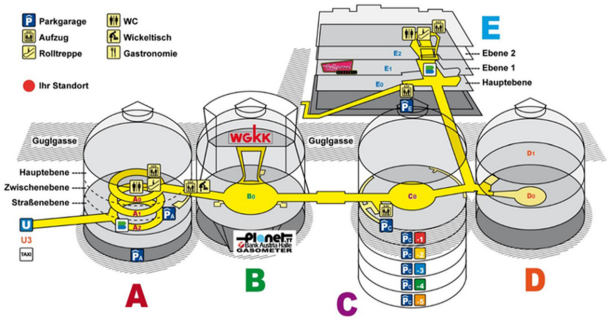


Figure 13. Linkage of Subway and Interior Space.

3.3.2.3. Community

In an effort to revitalize the Simmering district, which was previously a deteriorated area, facilities most needed by the local community were introduced. By preserving the original form of the four gas tanks, residential spaces were placed inside the tanks, while commercial and cultural spaces were allocated to the lower levels to enhance usability for a diverse range of people. Additionally, these internal spaces were interconnected, creating a convenient environment for cultural activities.

The cylindrical structures were designed with central voids, atriums, and courtyards, allowing for vertical expansion and fostering community engagement. Moreover, new volumes were added to some of the tanks, creating spaces where the past and present coexist. This blending of historical and modern elements allows the site to adapt to the evolving needs of society over time (Fig. 14).

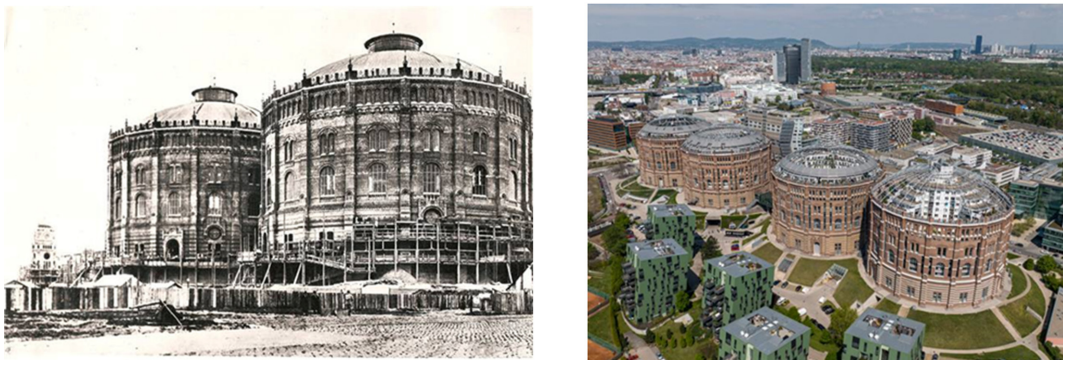


Figure 12. The Past and Present of Gasometer City.



Figure 14. Vertical void.

3.4. Results of Case Analysis

3.4.1. Regenerated Architectural Structures Based on Temporality

The results of analyzing domestic and international cases based on the three elements of temporality are summarized in Table 2.

3.4.2. Regenerated Architectural Structures Based on Place Identity

The results of analyzing international cases based on the three elements of place identity are summarized in Table 3.

4. Interpretation of Regenerative Architecture Incorporating Temporality and Place Identity

By examining the cases of regenerative architecture discussed above through the concepts of traces, layering, and transformation, and analyzing temporality (time) alongside the place-based elements of history, function, and community space, regenerative architecture can be interpreted through three key spatial concepts: experiential cognition, spatial folding, and dynamic flow.

Experiential cognition refers to the transformation of fragmented spaces into complex, multifunctional spaces that evolve over time, accommodating various functions and configurations. Spatial folding involves reconfiguring elements within buildings that previously followed fixed rules, such as altering their position to layer new spaces or providing innovative spaces adapted to the needs of a changing society. Dynamic flow focuses on creating open spaces rather than enclosed ones, integrating past, present, and future by adding or removing architectural elements. These flowing spaces foster interactions and provide opportunities for community building.

Through these three architectural interpretations, regenerative buildings can incorporate Cognition Space, Folding Space, and Fluid Space as foundational concepts (Fig. 15).

Table 2. Analysis of Regenerative Buildings according to Time

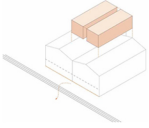
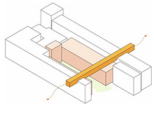
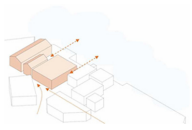
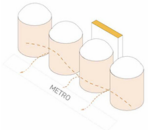
	LocHal Library	F1963
Overview	Station (1932) - Library (2019-)	Wire Factory (1963) - Cultural Factory (2016-)
Tracing	Preserving Large Frame Space, Existing Structures	Utilizing large-frame space, Preserving existing structures
Overlapping	Apply new features, utilize internal design elements	Application of new zoning to existing space
Transforming	Correspondence with the city, Changes in existing building elements	Insert a new elevation element
	Library with a large existing space	The formation of a new standard through arbitration
Diagram		

Table 3. Analysis of Regenerative Buildings by Placement

	Public Market	Gasometer City
Overview	Granville Island Indoor Market, Canada	Zimmering District, Vienna, Austria
Program	Cultural and commercial facilities	residential, office, commercial, culture
History	Maintaining the factory shape of the existing industrial facility village	Remove internal elements, maintain 4 existing tanks and appearance
Infra Structure	Access to waterfront areas, barrier-free	Interchange system, internal space connected to subway station
Community	Correspondence with the city, expansion into outer space	Connection of Internal Space and Formation of Complex Space
	Village forming a relationship with the waterfront	Complex space with vertical and horizontal extension inside
Diagram		

5. Yeongdeungpo Cultural Welfare Center

The Yeongdeungpo Cultural Welfare Center is formed through the regeneration of the existing Yeongdeungpo Distribution Mall. The Yeongdeungpo Distribution Mall was completed in 1987 and served as a key industrial distribution hub in the metropolitan area. However, as

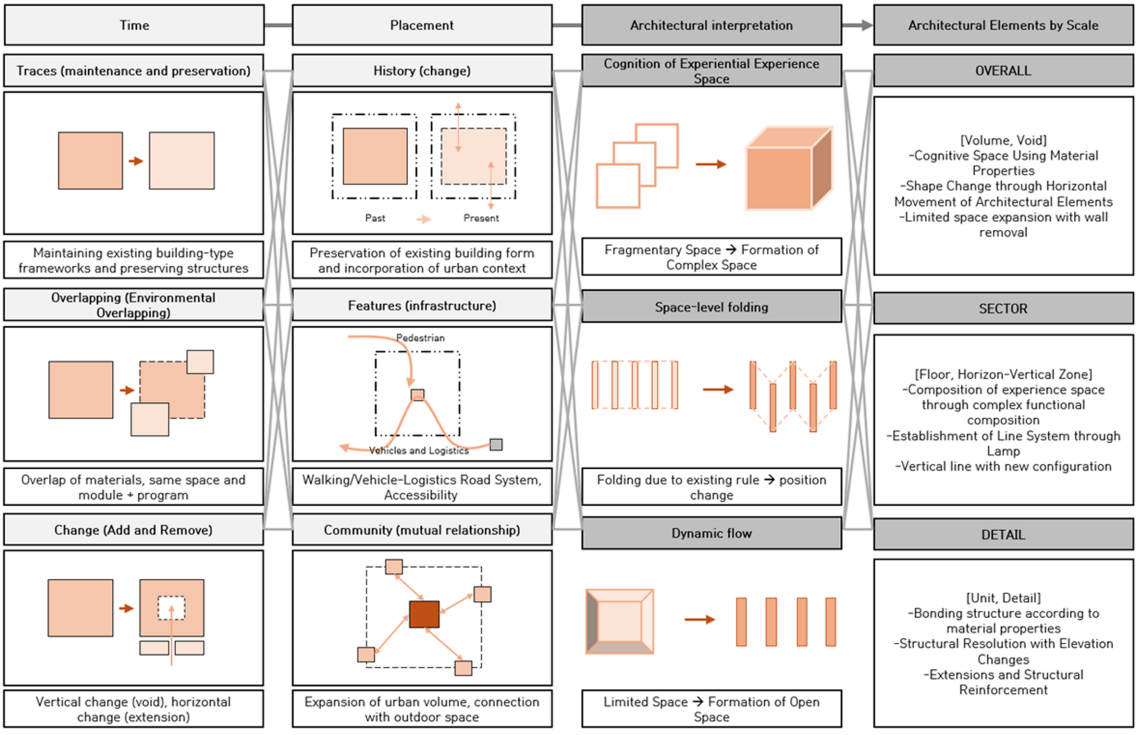


Figure 15. Analysis of Regenerative Architecture by Time and Placement.

times changed, the building began to deteriorate, and the role of distribution malls in the metropolitan area started to diminish. The southwestern region, which includes Yeongdeungpo, Guro, Geumcheon, and five other districts, was planned for development and regeneration as a new growth hub city. This plan, announced in 2024, is part of the broader transformation of the southwestern Seoul area, which also includes the Guro Machinery and Tool Mall and Guro Central Distribution Complex. The aim is to revitalize Yeongdeungpo Distribution Mall as a growth center.

The Yeongdeungpo Distribution Mall building currently consists of usable structures and modules, and it has historically served as a central hub in a region that has continuously existed but remained underdeveloped, seeking only change. Therefore, instead of rebuilding, the decision was made to regenerate the existing building.

The site of Yeongdeungpo Distribution Mall is located at the boundary of a fragmented area, with the surrounding city forming a filled-in structure. Additionally, it is adjacent to a car-centric road system, which has created space for pedestrians within the plot. In terms of its relationship with nearby buildings, setbacks and the formation of parking lots have created an empty buffer zone. The site is also located at the boundary of two areas: a low-rise residential area to the west with a height of 15 meters, and a high-rise residential area to the north with a height of 80 meters. This indicates that the site exists at a point of transition between cities with different skylines and densities. The surrounding buildings, including apartments, are densely populated with a mix of commercial spaces. Overall, the current urban zoning is organized as shown in Figure 16.



Figure 16. Before and after Yeongdeungpo Cultural Welfare Center.

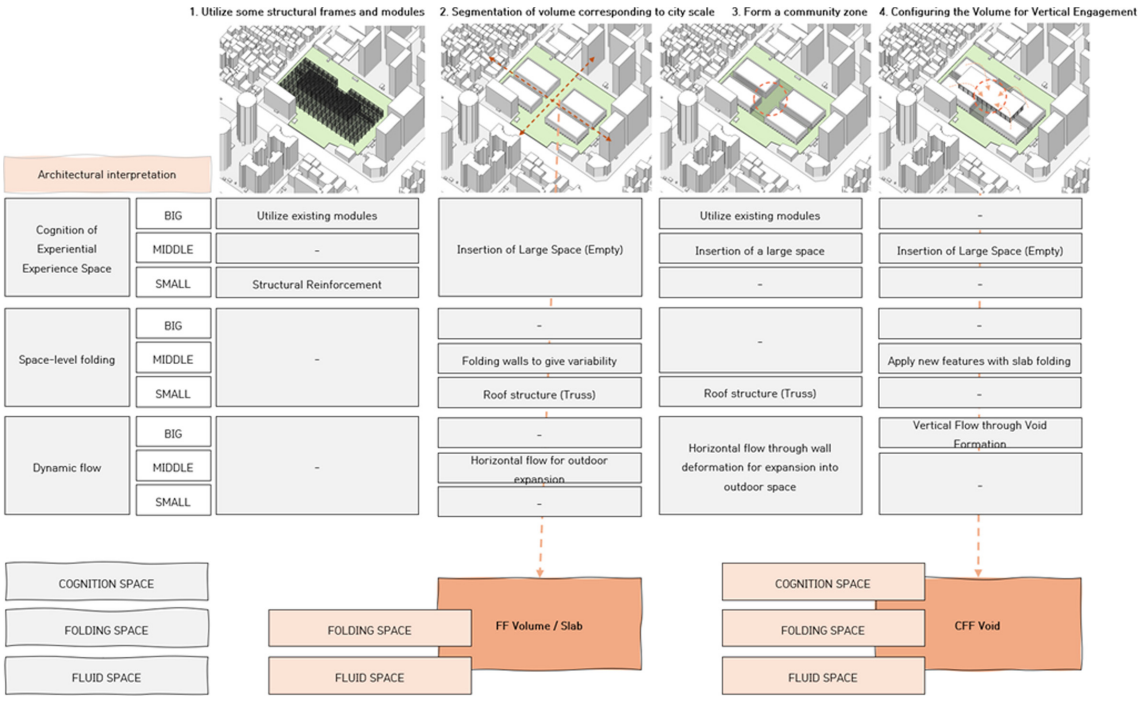


Figure 17. Complex Application of Space by Architectural Analysis.

The existing Yeongdeungpo Distribution Mall, located at this site, will be restructured into a Cultural Welfare Center, aiming to transform the boundary of segmentation into an urban connectivity node. As such, the existing building, which could not respond to the changing industrial distribution structure, will be given a new function—cultural welfare programs—thereby being restructured as a necessary space for the city. Additionally, the existing building, which was previously enclosed, will be transformed into an open structure to function as a public building. In doing so, a Yeongdeungpo Cultural Welfare Center will be formed, serving as a community facility for residents

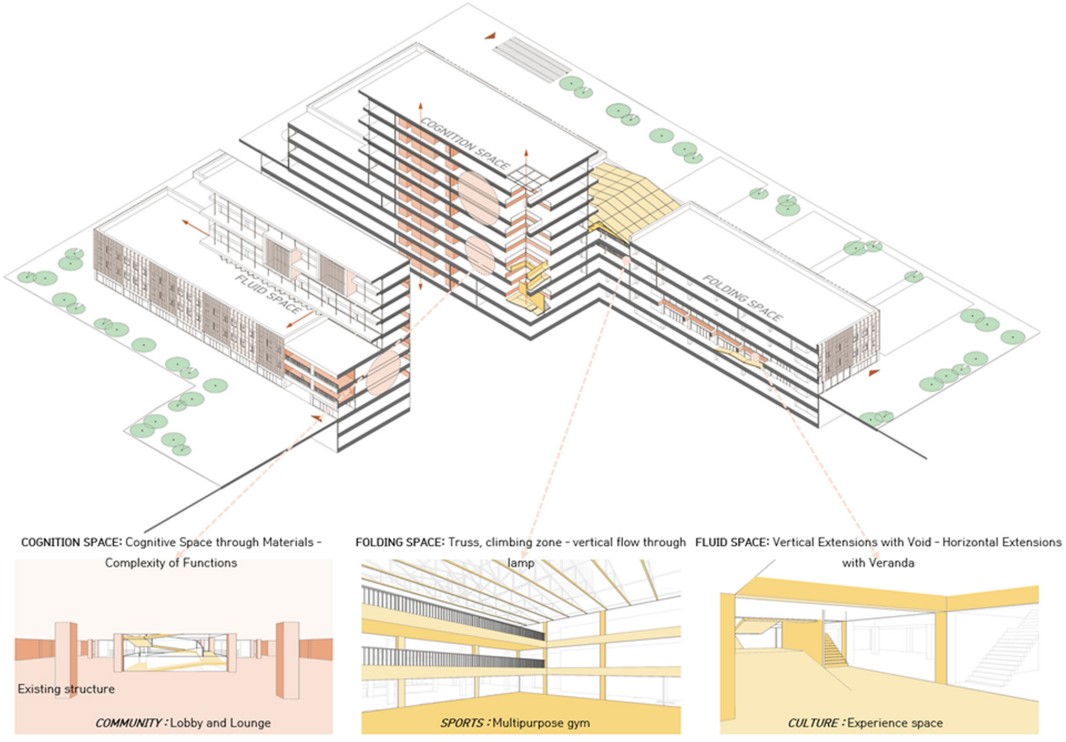


Figure 18. Comprehensive Diagram.

and transient populations while utilizing the existing building's form and program.

Through this regeneration, the Yeongdeungpo Cultural Welfare Center will apply the spatial concepts previously described in the architectural interpretation, as shown in Figure 17.

The design plan incorporates Cognition, Folding, and Fluid Space, and through the complex application of these concepts, it forms spaces such as CFF voids, FF volumes, and FF slabs. These elements reveal the key concepts of regenerative architecture: temporality and place. The overall spatial composition is represented by architectural elements corresponding to each spatial concept. However, when examined in parts, the complexity of the spatial composition through their combined application becomes evident.

In detail, the design incorporates aspects such as structural reinforcement, slab dismantling, and the creation of a roof structure using trusses. From a technical perspective, it also includes the application of Universal Design through B.F., façade composition using louvers for energy savings, equipment related to evacuation and fire safety, and the formation of specific spaces (Fig. 18).

6. Conclusion

Regenerative architecture does not only focus on functional and physical elements but also considers the changes of time, historical context, and cultural significance. Therefore, in this study, regenerative architecture is defined as the act of improving and regenerating an existing building to create a new value, reflecting elements that change over time. As with previous research, regenerative architecture, along with history and place, holds the value of time. In relation to this, the concept of time can be summarized into three key words: accumulation, continuity, and flow.

The accumulation of time refers to the experiences gathered from the past to the present. Continuity of time is a concept that implies a temporal perspective of flow, not just isolated moments. Flow, on the other hand, focuses on the future, revealing the passage of time on a continuous line. Based on these concepts of temporality, the architectural concepts derived are classified into tracing, which emphasizes historical continuity, overlapping, which focuses on the connection of space and time, and transforming, which is centered on the creation of new spaces.

These concepts of regenerative architecture and time manifest as physical entities where space and time, existing in different relationships, are intertwined. Space exists within the flowing of time, and time reveals its presence through the act of construction, forming the architectural entity. The concept of the circulation between space and time necessitates the development of dynamic spaces and design direction through the concept of time in regenerative architecture.

Therefore, by viewing regenerative architecture through the lens of place and time, this study organizes the elements of each concept. Additionally, regenerative architecture is interpreted through the elements of experiential space cognition, folding of space dimensions, and dynamic flow. Consequently, the spaces applicable to actual regenerative architecture are defined as Cognition Space, Folding Space, and Fluid Space. The application of these three spaces will reveal the temporality and place of regenerative architecture in future architectural projects. Moreover, these spaces are not applied in isolation but are combined to create new, complex spatial possibilities.

Thus, this study not only presents a way in which the concept of time is applied to architecture but also analyzes actual regenerative buildings to derive design characteristics and direction. Therefore, the significance of this study lies in organizing the concepts of temporality and place, and proposing spaces that can be applied to actual architectural projects.

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