PRAUD - House Precinct Territory Loose Accessories for a Tight Urbanity

During the 10th World Urban Forum in 2020, convened by UN Habitat, an international goal on urbanization was achieved. "The increasing recognition of the importance of towns and cities was reflected in the introduction of Sustainable Development Goal 11 – the 'cities' goal – to make cities inclusive, sustainable, resilient and safe by 2030."¹ This global goal reinforces city initiatives like the "15 Minute City" in Paris², or the "Supermanzana" in Barcelona,³ which aim at supplying each citizen with amenities within a walking radius from where they live for a more sustainable and equitable city. For the megacity of Seoul, the project "Sharing City Seoul"⁴ was announced in 2012 as an initiative to explore sharing economies aided by technology. The project is highly contextual to the 4th industrial revolution topics such as Artificial Intelligence automation, Mass Customization, Decentralization, and Circular Economies. These are perhaps topics of engineering and economics that question the role of architecture within this technological framework. While the sharing economy has been building its presence through virtual interfaces, the physical reality is that cities need platforms where a plurality of amenities and services can coexist within a single structure. Further optimization of resources can be done by understanding how architecture and the built environment can react to these initiatives to produce more dynamic and inclusive neighborhoods.

Mixed programmatic environments have become more relevant in the previous years due to a series of unforeseen events that halted supply chains globally. The global pandemic lockdowns followed by the Ever Given container blocking the Suez Canal harmed production and distribution across the globe, putting a great deal of pressure on localized economies. The Russo-Ukrainian war is threatening global energy and food production networks. As a macro economic trend, the world is already in a transition towards de-globalization,⁵ and these blackswan events have sped up the process, making the need for local production (consumer goods, commodities, energy, food) more evident. The demographics of Seoul add to the imminent problem of production. It is projected that by the year 2050, the population of Seoul is going to be 7,918,861⁶ of which 4,149,844⁷ will be over the age of 65. Seoul will be a super-aged society with a retired population, and a lack of productive workforce, a condition that will be similar in other aging nations like Japan or Germany. These macro trends are pushing for more dynamic, flexible, equitable, and sustainable environments, requiring architecture to reevaluate how to produce transformable and resilient spatial systems.

In the highly-dense urban settings of Seoul, mixed-use programming is developed naturally in most neighborhoods. Buildings are congested with commercial programs such as retail, offices, and

³ Ajuntament de Barcelona. "Supermanzana Barcelona: Nueva Etapa." *Barcelona*, Ajuntament De Barcelona, 2022, https://ajuntament.barcelona.cat/superilles/es/.

⁶ KOSIS. "Projected Population by Age (Province)." Kosis, 2022,

¹ "WUF10: UN-Habitat." UN, https://unhabitat.org/wuf10.

² Moreno, Carlos. "Paris Ville Du Quart D'heure, Ou Le Pari De La Proximité." *Paris Ville Du Quart D'heure, Ou Le Pari De La*, 2022, https://www.paris.fr/dossiers/paris-ville-du-quart-d-heure-ou-le-pari-de-la-proximite-37.

⁴ Seoul Metropolitan Government. "The Sharing City Seoul' Project." *Official Website of the Seoul Metropolitan Government*, 2022, https://english.seoul.go.kr/policy/key-policies/city-initiatives/1-sharing-city/.

⁵ ARK Investment Management LLC. "Geopolitics, Innovation, and Deglobalization with Peter Zeihan." *YouTube*, 21 May 2022, https://youtu.be/t_gw4eTr-hM.

https://kosis.kr/statHtml/statHtml.do?orgId=101&tbIId=DT_1BPB001&vw_cd=MT_ETITLE&list_id=A41_30&scrId=&language=en&seqNo=&lang_mode=en&obj_var_id=&itm_id=&conn_path=MT_ETITLE&path=%252Feng%252FstatisticsList%252FstatisticsListIndex.do. 7 Ibid.

markets, mixed along with residential, and educational facilities. This can be seen, for the most part, throughout Seoul.



The root of this condition can perhaps be traced to the 1960s when Oswald Nagler, who had studied under Josep Lluis Sert at Harvard, was invited to Korea by the Asian foundation to review the state of urbanization.⁸ Nagler introduced concepts like the Linear City and Clarence Perry's concept for the neighborhood unit. The neighborhood unit was based on the population that one elementary school could sustain, as a block type. Each neighborhood unit was self-contained in a 500-800m width, a dimension that derived from an understanding of minimum dwelling units and their aggregation. The ideas were presented in the Housing, Urban, and Regional Planning Institute (HURPI) exhibition of 1967, and influenced young architects and planners in Korea.⁹ Despite this mixing being ingrained in Seoul's urban fabric, the mixing of production inside the city is limited to certain areas. In 2011, manufacturing only represented 7.4% of the businesses in Seoul, 6.1% of the workforce.¹⁰

"The top 5 manufacturing areas in Seoul in 2011, determined based on the number of businesses, were found to be the manufacturing of sewn clothing and fur products (23.8%), publishing, printing and recorded media reproduction (12.6%), manufacturing of assembly metal products (10.2%), manufacturing of food and beverage (9.7%) and manufacturing of furniture and other products (9.6%). The number of businesses in these areas were shown to account for 65.9% of the total number of businesses in the entire manufacturing industry."¹¹

 ⁸ Jung, Inha. Architecture and Urbanism in Modern Korea. Honolulu, University of Hawaii Press, 2014. P.53
⁹ Ibid.

¹⁰ The Seoul Research Data Service. "Industries in Seoul." *Industries in Seoul | オ 을 연구데이터 처 비스*, 2011, https://data.si.re.kr/data/%ED%86%B5%EA%B3%84%EB%A1%9C-%EB%B3%B8-%EC%84%9C%EC%9A%B8-%EC%98%81%EB%AC%B8%ED%8C%90/329.



As seen in the Special Purpose Area map of 2012,¹³ industry is mainly limited to the fringe areas of Seoul. There is a larger area that runs continuously through Yeongdeungpo, Yangpyeong, Mullae, Sindorim, Guro, and Gasan. The largest single standing area is Seongsu-dong, on the eastern side of Seoul. This is a neighborhood that thrives in diversity, mixing industry alongside residences, and commerce.

¹² Seoul Solution. "The Social Maps of Seoul." *서울정책아카이브 Seoul Solution*, 30 Aug. 2021, https://www.seoulsolution.kr/en/content/3324.

¹³ Seoul Solution. "The Social Maps of Seoul." *オ音정책아카이브 Seoul Solution*, 30 Aug. 2021, https://www.seoulsolution.kr/en/content/3324.



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For the 2030 Seoul Plan, Seongsu is defined as a regional center. "The main roles of the regional centers consist in strengthening self-sufficiency by living area and facilitating the improvement of the quality of life by activating commerce and business functions based on regional characteristics."¹⁵ Seongsu has the particular characteristic of being associated with the shoe industry for the most part, as well as other light industries that are nestled between blocks. Some factory buildings have been transformed into boutique cafes that attract visitors to the neighborhood, as the mixture of building typologies produces a unique urban environment. Blocks, varying in sizes and building compositions, are mixed even within themselves. Yet, the diversity seen in Seongsu is not typologically facilitated by extravagant new buildings, but by banal and ordinary modern buildings that saturate programs within them. Through a deeper surveying of the urban fabric we could acquire a deeper understanding of its vernacular characteristics that are facilitating the ability to sustain a polycultural environment.

¹⁴ Mapping of mixed programing in Seongsu.

¹⁵ Kim, Sun-Wung. "Urban Planning System of Seoul." 서울정책아카이브 Seoul Solution, 9 Oct. 2017, https://www.seoulsolution.kr/en/node/6310.



A survey was conducted between Ttukseom Station and Seongsu Station in an area of about 1.5 sqkm, mainly north of the green line where one can find urban factories mixed between residential and commercial buildings. Initially, the urban factories were catalogued to study their individual morphology. These functioning urban factories presented a unique architectural characteristic of being non-factory typologies that have been converted as facilities of production by means of attaching industrial elements. Most of them were banal modern buildings that have been adapted with vents and ducts cascading through the facade. Some had additional electrical transformers on the roof in order to operate heavy machinery inside. Others would attach lifts, cranes, and elevators to a side of the building to move

materials vertically through the exterior of the building. Oversized doors or windows had been carved onto the facade of some buildings for easy material access. These building alterations can be classified through elements within an architectural language. These elements are not traditional architectural elements but borrowed "ready-made" industrial elements that enhance the performance of a specific program. This indicated that the building stock within the urban fabric could be composed through generic modern systems, regardless of the program, and through the use of specific elements buildings could change their use, performance, and appearance while maintaining the same underlying modern system.

Upon a closer look to other buildings around this neighborhood, the same condition of attaching elements was found for comercial, retail, symbolic, civic, and housing buildings. There is an inherent flexibility in the neighborhood, which has a rapid turnover of tenants. Commercial tenants can quickly change the business through attachments of fake facades that would cover the original facade of the building. These fake facades are ornamental and serve the purpose of beautification with no utilitarian motive. These ornamental elements would also be seen in combination with other programs. Other commercial buildings use signs that indicate the plurality of programs happening inside the building. Some signs use text, while others use a symbolic form such as a cross on a turret to indicate there is a church inside. These are semiotic elements. Finally, some buildings extended their space through the use of spatial elements such as canopies, roofs, and facade extensions. Through the examples found, we can classify four categories of elements that are used to optimize the building, yet are not necessarily architectural. These are spatial, ornamental, semiotic, and performative elements. Having found these "ready-made" attachments, generates a new perspective on the role of elements in architecture, perhaps as a way to achieve flexible systems through a new category labeled productive elements. Despite the elements found being non-architectural, each of the four categories found can be explained through a lineage of architectural theory that makes them relevant for consideration within the field as an adaptive reuse strategy to retrofit buildings and neighborhoods.

SPATIAL ELEMENTS



An initial theoretical standpoint on Elements can be associated with Marc Antoine Laugier's "Primitive Hut" from his book, An Essay on Architecture.¹⁶ Laugier hypothesizes the production of architecture through rudimentary components. He imagines a narrative where a primitive man left in the wild would instinctively seek shelter. First, he would seek the shade under the canopy of a tree, which wouldn't protect him against the wind. He would then move inside a cave, but the bad air and light quality would be unlivable. Eventually, he would build a shelter by assembling branches into a square formation with other branches forming a triangle on top. The vertical branches can be conceptualized as columns, the horizontal ones on top of the "columns" work as an entablature, and the branches forming a triangle would be a pediment. This, he mentions, are the basic elements for any piece of architecture. "I conclude then with saying, in all the order of architecture, there is only the column, the entablature, and the pediment that can essentially enter into this composition. If each of these three parts are found placed in the situation and with the form which is necessary for it, there will be nothing to add; for the work is perfectly done."¹⁷ Laugier was imagining a Greek or Roman composition of architecture, classical in the sense that it forms a basic foundation for all other architecture to follow, and these three components (column, entablature, and pediment) are the essential elements. Other components like doors, and windows are essential elements to make the space habitable but are of a second order.

¹⁶ Laugier, Marc-Antoine, et al. An Essay on Architecture. Los Angeles, CA, Hennessey & Ingalls, 2009.

¹⁷ Ibid. P.13

Although Laugier's essay is from the mid-18th century, it establishes a reading of architecture through its kit of parts. In developing countries, the primitive hut is a vivid example of ad-hoc environments that are made through a rudimentary composition of spatial elements. Found pieces of construction materials are placed together to produce enclosures and collective informal settlements. If we borrow from Laugier's logic of looking at the primitive hut as the foundation of architecture, we can look at these informal structures as a way of understanding that an element can play multiple roles, and different environments could be produced from a singular spatial element.



In essence, spatial elements are the components that form the space such as columns and beams, but they can also be conceptualized as compound components. In Seongsu, for example, factories extend their capacity by using shed structures. These are light structures that form a roof over a residual space in order to have an additional usable area not originally intended by the building's program, producing an additional flexible space. The shed in itself can be understood as a singular element that can be plugged into void spaces, despite the shed having different assembly parts. The same applies for micro-shops that can fit in the sidewalk to in-between urban spaces.



ORNAMENTAL ELEMENTS



In 1795, Jean-Nicolas-Louis Durand was appointed to the Ecole Polytechnique in Paris to teach architecture to engineering students.¹⁸ In order for his engineering students to learn architecture within a limited time, Durand wrote a series of lessons that synthesized the way of understanding architecture through its elements. He pointed to the inefficacies of the usual way of teaching architecture by separating it into decorations, distribution, and construction, as it wouldn't have been possible to teach this way within the timeframe he was given. Instead, Durand focused on the efficiency and economy of compositional elements. He systematized a selective process of plans, sections, and elevations through a rational approach that discarded decorations, ornamentation, from the process of architecture.

The ornament has maintained a discretionary role in architecture as it is debatably an ad-on. In "The Function of the Ornament,"¹⁹ Mousavi and Kubo criticize the role of the architect as a facade designer due to the scale of buildings being developed, which disassociate the shell from the interior to optimize the economics of the interior space. This phenomenon has produced ornamental facades that

¹⁸ Durand, Jean-Nicolas-Louis. Précis Of the Lectures on Architecture. Los Angeles, CA, Getty Research Institute, 2000.

¹⁹ Moussavi, Farshid, and Michael Kubo. *The Function of Ornament*. Barcelona, Actar, 2008.

function independently of the structure and interior space logic. Yet, for Seongsu, buildings are transformed through a process of decoration, a masquerading of the building in order to provide multiple uses. This is done through secondary fake facades that are attached to the original building. Just like a selection from the Precis of Durand, tenants select facades that are added onto the building to transform microenvironments (storefronts, markets, educational institutions) within a single building. These are ornamental elements that for the most part serve an aesthetic function.





Modernism had already dictated the separation of the facade from the primary structure, treating the facade as a singular element that could be designed on its own. The facade, under modernism, is already an ornamental element that can be replaced, exchanged, and transformed over time. Under that premise, retrofitting modern buildings with flexible spaces through the facade is a possibility. In this example, a one hundred meter long building that runs parallel to the Cheonggyecheon was retrofitted with movable facades in order to house vertical factories. Because of its length, the building is sectioned vertically as rowhouses where startup micro-production companies can run research, design, and sales for a designated period. The facade covers the entire micro-factory while in production, and it opens up to produce a pop-up market at ground level and event space on the roof for promotions. The purpose is to create a dynamic ever-changing streetscape. The facilities can run as a city sponsored program for entrepreneurs, incentivizing local circular economies.





SEMIOTIC ELEMENT



The Duck and Decorated Shed²⁰ famously established the polemic between sign and symbol in architecture. Should the form of a building signify anything or should a sign do the work of indicating a building's use? Form by itself can convey a meaning; for example, the configuration of hand gestures produces sign language. In the context of Seoul's commercial density, buildings get inundated with signs that take over entire facades. The signs are not intended to be part of the architecture yet they define the image of the building. Architecture becomes lost behind these semiotic elements that represent distributed portions of the whole. Environments of hyperactivity work with an architecture that serves as background scaffolding unless the sign itself becomes the system for space making.



The semiotic element was also found as a symbolic form that could be attached to any structure, changing its program. The cross turret on top of this building announces that there is a church inside that building, which also holds a restaurant as announced by a sign. The sign as text and sign as form cohabitate the same structure, which remains in the background and questions the value of the original architecture. The following installation demonstrates the use of commercial signs being used as a spatial system. There is no discrepancy between the original structure and its attachments as it is one and the other.

²⁰ Venturi, Robert, et al. *Learning from Las Vegas*. Cambridge, MA, The MIT Press, 2017.



PERFORMATIVE ELEMENT



In his essay Junkspace,²¹ Koolhaas describes the lost space that exists for holding all the elements that allow buildings to perform, suchs as mechanical systems. "Junkspace seems an aberration, but it is essence, the main thing... product of the encounter between escalator and air conditioning, conceived in an incubator of sheetrock (all three missing from the history books). Continuity is the essence of Junkspace; it exploits any invention that enables expansion, deploys the infrastructure of seamlessness: escalator, air conditioning, sprinkler, fire shutter, hot-air curtain.... It is always interior, so extensive that you rarely perceive limits; it promotes disorientation by any means (mirror, polish, echo)....Junkspace is sealed, held together not by structure, but by skin, like a bubble."

²¹ Koolhaas, Rem. "Junkspace." October, vol. 100, 2002, pp. 175–190., https://doi.org/10.1162/016228702320218457.

Junkspace is the residue of modernizing architecture, and perhaps not conceived as architecture in itself. It's the subconscious part of buildings, its guts, that are organized but other professionals and consultants. In 2014, Koolhaas served as the director of the Venice Biennale, and selected the theme of "Fundamentals,", with the main exhibition titled "Elements of Architecture." "Elements of Architecture looks under a microscope at the fundamentals of our buildings, used by any architect, anywhere, anytime: the floor, the wall, the ceiling, the roof, the door, the window, the façade, the balcony, the corridor, the fireplace, the toilet, the stair, the escalator, the elevator, the ramp."²² The overall exhibition revisited the evolution of the elements quoted before, yet the entrance to the exhibition was an installation of a mechanical space, hung from the rafters and covered by a drop ceiling. This specific installation at the entrance of the pavilion demonstrated a proportional value of almost half and half between the "junkspace" and the usable space in architecture. Without listing all these vents and systems as part of the collection of elements, the installation made it evident that perhaps they need to be reconsidered as these elements help define the performance of a space in terms of its habitability.

High-tech architecture of the 1970s addressed this condition by exposing mechanical elements on the facades, giving the interior space more flexibility of use with an unobstructed universal space. If the goal is to achieve more dynamic, flexible, equitable environments, the concept of an unobstructed universal space should be prioritized.

In Seongsu, production facilities expose mechanical elements in their true form on the exterior of the building as attachments. These are not fashioned after the high-tech architects but done after the fact, as accessories for adapting and reusing existing buildings. They optimize the use of modern slab buildings allowing them to perform as factories. Some are orderly arranged, taking an ornamental role, while others are installed as needed over time and have no formal arrangement.



²² Koolhaas, Rem. "Biennale Architettura 2014 2014: Elements of Architecture." *La Biennale Di Venezia*, 28 Nov. 2017, https://www.labiennale.org/en/architecture/2014/elements-architecture.



PRODUCTIVE ELEMENTS: A dezoning process

In an East-Asian context, it is more common to replace older buildings with new ones after a 30year period in a tabula rasa process. In Seoul, entire blocks are demolished in order to make way for new construction that offers higher density, housing blocks being the most common. This has the effect of producing mono-cultural urban islands. Apartment blocks are typically developed in this manner, combining multiple parcels into a singular parcel to form a block. Construction companies can then develop thousands of households as a singular project, under one brand. The images below illustrate this process in two dynamic neighborhoods, Euljiro and Seongsu.



Both neighborhoods have a diversity of programs within a fine-grain low-rise urban fabric that allows communities to thrive. Micro-industries can also be found here producing circular economies. With the replacement of these neighborhoods for apartment blocks, there is a loss of diversity that may not only be a problem of displacing present communities but also may be contradictory to the future demographics of Seoul. With Seoul's aging and declining population, it might be more sustainable to retrofit the existing urban fabric rather than keep building new. As the demographics in Seoul start dramatically changing, the discrepancy between the density of buildings and the density of population might cause urban voids. As an adaptive reuse strategy, focusing on elements might provide the most flexibility for retrofitting buildings into diverse multifunctional environments. The following drawings depict how through the implementation of elements a whole neighborhood can change while maintaining the existing architectural background. Yet, this condition raises polemics regarding its implementation in the real world. Within the context of "de-zoning" the city as a way to alleviate the problems caused by modernist planning, the implementation of productive elements might still need to be restricted to certain areas, but instead of functional zoning, this can happen within typological blocks. This phenomenon is currently occurring within a low-rise high-density urban fabric with the majority of buildings been villa type of about 4 stories. This typology allows for the appropriation of the elements to produce a mizing over the architectural backdrop. This might not be the same case in a high-rise apartment block. Seoul already has distinctive typological blocks²³ that would allow for this phenomenon to be repeated or tested

²³ Luna, Rafael. "INSULAR STRUCTURES, The Megalopolis of Seoul: Analyzing Urban Mutations Based on the City's Typological Subunits." *Topos*, vol. 113, 2020, pp. 76–81.

in a controlled manner through clusters. This would allow for diversity fo experiences within the city, as well as free-range to experiment with production and elements in certain typological blocks that could be distributed throughout the city.



So far, we have distinguished between spatial, semiotic, ornamental, and performative categories of elements that serve specific roles. These can be used independently to transform a single-use building into an urban microcosm. The photo collage demonstrates how very simple operations of injecting "ready-made" elements into an existing framework can mutate the environment. The scene depicted in the collage could be easily found as a real condition in Seoul.



The element as a plug-in solution questions the role of architecture as a finalized piece of work or an initial framework for which to organically grow as needed. The notion of rethinking architecture from the point of view of the element would require a reconsideration of the roles of an element in itself. Should it be regulated and standardized as a designed element, or should it remain as a borrowed form. If the element is egulated and standardized, then city would lose a sense of spontaneity. This is common in cities in Europe, for example, where signs, fences, street lights are standardized to produce a cohesive image of the city. This is not the case for a city of Seoul, where the variety of elements produce a dynamic streetscape. If the elements are to be thought as designed, they can also be cross-categorized in order to perform multiple roles, and create new elements. For example, the sign pavilion installation sought to use a semiotic element in a spatial role, becoming a system. The transformable facade in the vertical factory project allowed for the whole space to expand, serving both an ornamental and spatial role. The vents on the facade are performative and ornamental when properly arranged. This merger of roles creates the Productive Element as a new category for multiplicity and diversity within a single piece of architecture that can lead to a more sustainable, resilient, and equitable urbanity.

Elements Project: all the "borrowed" elements have been left in their original industrial form, and have been colored red for standardization. By making all the elements the same color, they become part of the spatial system of interchangeable parts that produce an architectural effect. Presented at the Melbourne Design Week, 2021.