

Museum of Seattle clouds:
Retrieving regional identity in an era of globalization

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Abstract

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Before the world was globalized, a regional diversity appeared naturally in the architecture of different places. Geographical separation created a deep divide between cultures and people, shaping different regional characteristics and bestowing a place with a *Genius Loci* (the spirit of place).

However, modern technology breached these geographic barriers. Advanced prefabrication technology creates weather-proof building assemblies that can disregard the limitations of site conditions. In addition, advances in transportation systems have provided convenient global movement. As a result, the cost-efficient performance-guaranteed universal products have beaten out conventional local products. Local buildings lose the marks of where they were born.

Holding on to the past is human nature. People have taken measures to preserve the unforgettable past. One obviously wrong approach to save regional identity is to resist contemporary technology. Ignoring the benefits of technical development to pursue the comfort of nostalgia is foolish and unrealistic.

This thesis is looking for new opportunities to revive regional identity. By modifying banal universal designs, a designer can tailor the universal technologies to better suit each specific place.

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Chapter 1 Introduction

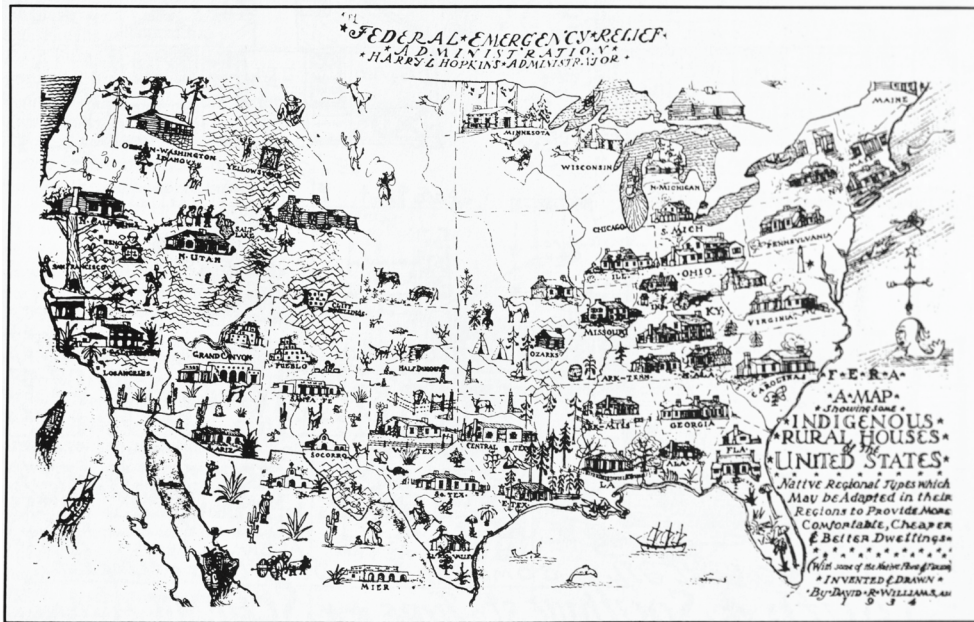


FIG.1 Map by David R. Williams exhibiting the potential and pre-existing uniqueness in houses across the United States, 1934.

“Diversity is our strength”

1.1 Regional diversity of architecture

Before universal modernism, architecture used to adopt the characteristics of the region and gain a spirit of the place. Geographic distance acted as a barrier between different people and cultures. This isolation resulted in regional identities.

An iconic tangible element of that identity is architecture. The climate and natural resource conditions vary from region to region. The diversity in geographic environments leaves its mark on local buildings. Due to the surrounding conditions, buildings adopt unique materials and structure that respond to their environment. As a result, architecture reflects where it is situated, creating a variety of responses that vary from region to region.

The value of regional characteristics are their essential meaning to the local culture. They tell a story of how a certain group of people relate to their local resources. They convey the natural and indigenous intuitions of local design. They bring a situatedness to their buildings.

Showing an example of the exuberance of regional diversity, Greek cities were a symbolic success during the ancient period of human civilization. Alongside a highly developed philosophy, early Greek civilization had a unique socio-political structure which held together cities of diverse regional characteristics.

Because of a mountainous territory, city states were isolated from each other, developing their own dialect, culture and identity. "It was the Greeks that in the context of the politics of control and competition between their polis and their colonies used architecture elements to represent the identity of a group occupying a piece of land."¹ Greek city states are the first recorded civilization that achieved a cultural diversity of regional characteristics. No matter if it is Athens' grace or Sparta's

1. Tzonis, Alexander. *"Introducing an Architecture of the Present", Critical Regionalism Architecture and Identity in a Globalized World*. Munich: Prestel, 2003, 11.

discipline, unique regional unique cultures were protected by geographic separation.



FIG.2 The Odeon of Herodes Atticus at the Acropolis of Athens (built in 267AD), in comparison with Sparta's amphitheater, Athens' is more delicate and well constructed, because of the two states' different altitude towards art and functionalism.

1.2 Regionalism in the U.S.

Across the vast country, the United States has countless regions of identical characteristics. The land and earth localizes the thoughts and deeds of the people who live there and creates unique regional characteristics in architecture.

There are several ways a region influences a designer:

1 Landscape

Natural landscape forms a big part in people's spatial cognition. What we witness shapes much of our understanding of the world. It is limited to where the horizon lies in front of us.

In the Midwest of the United States, a group of Chicago architects such as Louis Sullivan, Frank Lloyd Wright and Barry Byrne created styles called the Prairie School. They created an aesthetic language for modern architecture by emphasizing the conciseness of straight horizontal lines. And they

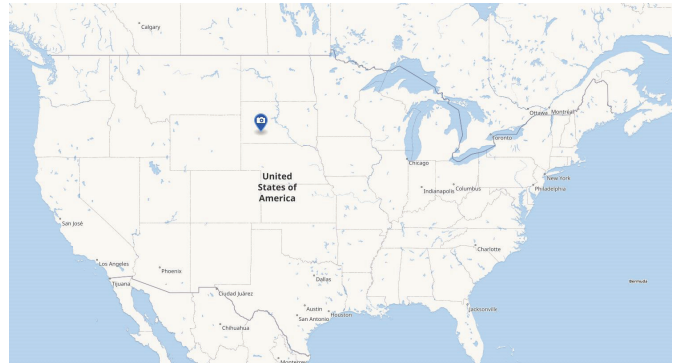


FIG.4 Map showing where FIG.3 is taken.



FIG.3 Prairie at Mid West. At Prairie Wind Overlook, Badlands National Park, South Dakota, USA. 7 September 2006.
by Wing-Chi Poon, colors adjusted by Kjetil

eventually created a regional design by “developing an indigenous North American style of architecture that did not share design elements and aesthetic vocabulary with earlier styles of European classical architecture.”²

The most prominent feature of the Prairie School is their expression of horizontal elements. The deep long cantilevered roof edges, cornices and thick horizontal mortar lines are examples of many carefully designed details they used to articulated the style. Those straight lines expressed a concise modern aesthetics and also “echoes the wide, flat, treeless expanses of the mid western United States.”³

The “organic architecture” promoted by Frank Lloyd Wright is one prominent stream of Prairie School. That design approach advocates following the formal language of the landscape, thus achieving a harmony with the environment.

The Prairie School is based on attempts to evoke the native landscape of vast Midwest prairie. It also proves how inspiring and meaningful a region can be and how deserving it is of a unique design.

Images of Prairie School architecture



FIG.5 Harold C. Bradley House, Madison, WI, by Louis Sullivan and George Grant Elmslie.



FIG.6 Frank Lloyd Wright's home and studio in Oak Park, Illinois, showing post-1911 changes to studio (Chicago Avenue) side of building.



FIG.7 Woodbury County Courthouse, Iowa, by William L. Steele and Purcell and Elmslie.

2. https://en.wikipedia.org/wiki/Prairie_School.

3. Ibid.

2 Climate

Climate has always been a major factor that determines building characteristics. Over the course of history, builders have been trying to use weather-durable structures to resist the harsh conditions of the natural environment.

The climate consists of various factors including temperature, precipitation, humidity, and natural light. A local climate has its unique combination of these factors. Therefore, climate is a very local concept. It deeply relates to the local geographic condition, the surrounding environment and altitude.

In that sense, the climate is a symbolic property that can be associated with a certain region.

As an example, the vernacular architecture in Florida has demonstrated this indigenous bond with the local climate:

The *Florida Vernacular Style Guide* (page 3), states that: “the Florida Vernacular Architectural Style were selected from the historic design features of the central and south Florida building tradition, such as pastel colors, porches and multi-pitched roof lines, elements originally developed in response to Florida’s climate.”



FIG.8 St. Joseph’s Catholic Church, 1402 Miller Street NE, Palm Bay, FL.

More specifically, the color requirement is particularly stringent: “The predominant exterior color shall be pastel shades or white.”⁴ With a subtropical climate, Florida has the nickname “the Sunshine State”. Light exterior color helps buildings in regions of low-latitude reflect the strong sunlight.

Also the deep veranda provides proper shading for interior areas. Florida has a large amount of precipitation and even hurricanes during the rain seasons. This brings about the design of the steep hipped roof. Also, the deep porch or veranda are common, as they can provide a barrier to set off the heavy rain. These characteristics are all generated from responsive strategies that address the local climate.

4. *Florida Vernacular Style Guide*, Land Development Division 120 Malabar Road, SE. Palm Bay, FL 32907, <http://www.palmbayflorida.org/home/showdocument?id=1598>, Page 5.



FIG.9 The Lagoon House, 3275 Dixie Highway NE, Palm Bay, FL.



FIG.10 Port Malabar Chevron Gas Station, 2190 Port Malabar Boulevard NE, Palm Bay, FL.

3 Local culture

Another regional influence on architecture is its history and culture, expressed in aesthetic conventions passed on through generations.

At the beginning of 20th century, David R. Williams, a Dallas architect earned his fame by creating a unique regional design. He is called “the grandfather of Texas Modern architecture” for his endeavor to create a unique Texas-style modernism. Inspired by the thriving of Prairie school in the Midwest, Williams wanted to define an indigenous modern architecture for Texas, based on pioneers’ settlement homes. He then referenced the cultural source of Spanish Colonial architecture and incorporated its spirit into his designs.

Also around the same time in the south west, Mary J. Colter, designed a series of Indian style lodge houses for the Fred Harvey Railway Company. These lodge houses were built alongside the scenic railway route to accommodate visitors from as far away as Chicago. As the only designer behind all the lodges, Colter intentionally constructed/decorated them in a way to adopt the regional style. The intention was to provide enhanced territorial experiences for curious riders who came to explore the wild west on the Fred Harvey Railway. She carefully followed the formal vocabulary of Native American buildings. Her depiction of masses, use of material and control of light matches the original spirit in Native architecture. An interesting cohesion can be found in David William’s sketch of Pueblo original architecture and Mary Colter’s Hopi House at the Grand Canyon.



FIG.11 Blue Angel Lodge, Grand Canyon, by Mary J. Colter.



FIG.12 El Tovar Hotel, Grand Canyon, by Mary J. Colter.

FEDERAL
ADMINISTRATION
HARRY L. HOPKIN





FIG.13 Hopi House by Mary J. Cotler. Picture taken by Nanosauromo. (Patrick Francis)

FIG.14 Map by David R. Williams exhibiting the potential and pre-existing uniqueness in houses across the United States, 1934.

4 Material

Having looked at the prairie in the Midwest, Florida in the Southeast, Texas in the South and Arizona in the Southwest, we are going to complete the traveling circle and come back to the Pacific Northwest.

Speaking of the regional identity of the Pacific Northwest, one has to notice the endless forests of cypress and pine. The “Evergreen State” as the nickname of Washington State reveals, has rich natural resources. One prominent source that shapes its symbolic architecture style is the high quality lumber.

David Miller in his book, *Toward a New Regionalism: Environmental Architecture in the Pacific Northwest* (2005) expressed his understanding of regionalism in the Pacific Northwest Region.

“First and foremost, every architect working in the Pacific Northwest has to acknowledge the unique conditions of the region’s natural condition...”

“Second, the dramatic landscape can play a mythic role.” “Flat sites are virtually nonexistent in the western zones of the Pacific Northwest, topography is invariably a player in form-making.” This unevenness of surface results in buildings on piers, which David Miller regards as a typical regional character in utilitarian reaction to topography. “The frame of post and beam...with applied siding, suspended panels, or glazed bays, is a con-

temporary architectural development credited to Seattle architect.”⁵

The last factor is the use of wood. Miller thinks it is because not only the abundant wood source but also the “infinite design opportunities”⁶ that inspires variety of creation in structure, tectonic details, material treatment etc. And those abundant wood-centered intellectual designs as whole characterize the Pacific Northwest style.

The natural resources of climate conditions, terrain and forests are the foundation for a Pacific Northwest architect’s inspiration.

Exemplary works of the Pacific Northwest region can be found in the exquisite residential projects in the Cascadia mountain ranges of central Washington. The Rolling huts and Delta Shelter by Olson Kundig Architects, both expressed an indigenous materiality of wood in response to the major natural resource of Pacific Northwest. Coincidentally as the same story of how Mid West Prairie inspires Frank Wright, the principal of Olson Kundig Architects, Tom Kundig said it was the landscape of East Washington that shaped his design philosophy.⁷

5. Miller, David E. *Toward a new regionalism: environmental architecture in the Pacific Northwest*. Seattle: University of Washington Press, 2005, xvi.

6. Ibid, xvii.

7. Tom Kundig’s Lecture at the Royal College of Art, London, 2016.
<https://www.youtube.com/watch?v=jPVcihmV4ME>.



FIG.15 Rolling huts, Winthrop, Washington.



FIG.16 Delta Shelter, Mazama, Washington.

1.3 A change in recent decades

Within the last two centuries, industrialization, and technological change have drastically transformed the situation. Mass production and shipping eliminate the traditional materials and craftsmanship. Universal industrial standards promote a banal international style, replacing the customized building methods of regional traditions. The cultural heritage of various regions and their diverse identities are at stake. A new trend of globalization is taking over the world.

The inherent problem of traditional regionalism is that it lacks a competitive strength against globalization. Since globalization is filling in the gap between geographic regions, traditional regionalism is unable to respond to global efficiency. The traditional values of regionalism such as materials and building techniques can no longer satisfy fast-paced development. Thus unless compelling new forms of regionalism are discovered, global forces will prevail and continue their detrimental effects by creating placeless duplicates of prefabricated products. Meanwhile, the neglect of regional culture will result in progressive damage to the uniqueness of a region's "spirit of place."

Since the process of globalization is inevitable, the future of regionalism calls for innovative of regional characteristics.

1.4 Thesis rationale

To avoid the homogenization of architecture in the spread of modernism, an effective resistance is to discover new regional identity, in other words, to find adaptive methods for the regional application of universal technology.

The precedents have shown varied strategies to address the situatedness, as we see how the Midwest landscape inspired the Prairie School, how Palm Beach vernacular housing struggled with local weather condition, how David Williams extracted elements of Spanish colonial architecture, and how Arthur Erickson adapted the beauty of local lighting. They reveal hope by demonstrating a wise application of new technology. The preservation of diverse regional characteristics is not necessarily against modern design. With better design, there is a co-existing stage for regional identity and globalization. The attractive charm of the spirit of place can be preserved. And there the regional influences will remain strong and intact.

Thesis Overview

Global industrialization is an improvement of contemporary civilization, though it rebels against tradition and context and has no relation to history. It creates a homogeneous world and brings convenience and efficiency. It is a positive change and should not give way to traditional values.

Meanwhile, the force of regionalism asks architects to design responsibly in reaction to context. Now this approach is threatened by globalization. The new hopes of regionalism rely on creating regional identity that can still fit into the principles of contemporary development. It calls for designs that can satisfy the requirements of industry. In this sense, re-interpreting regional identity is the only solution.

Therefore, this thesis proposes an architecture that adopts contextual elements while engaging modern techniques. It asks designs to trace the context, while embracing the efficiency of globalization. By using design as a tool to address problems, it hopes to revive the regional identity and also change what is universal to the local. In a nutshell, the answer to unite the dichotomy of universalization and local identity is to “become modern” and “return to sources”.⁸

8. Paul Ricoeur, “*Universal Civilization and National Cultures*” (1961), *History and Truth*, Chas. A. Kelbley, Evanston: Northwestern University Press, 1965. 276-277.

Chapter 2 Theoretical Frame

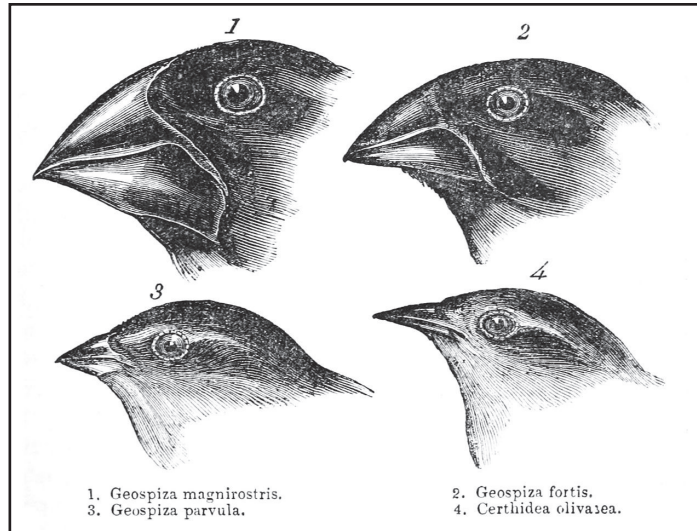


FIG.17 Story of Darwin's finches, the same bird species with different beaks evolved to best suit the environment
John Gould (14.Sep.1804 - 3.Feb.1881).

"Regionalism is about situatedness"

2.1 The aspects of regional design

There are a few attributes in the concept of region that are easily misunderstood and worth elaborating.

1) Region is about location not an area
"I am often in the neighborhood of the word 'regional.' ...I do not know any word that is more sloppily defined"⁹ Wendell Berry points out the vagueness in the definition of region.

It is hard to find the exact boundary of a region. Delineating the exact territory of a region is like dividing colors on a consistent spectrum. There is not necessarily a boundary between regions. The accumulated minor differentiation will gradually cause a transition.

That is why nationalism and chauvinism are false interpretations of regionalism. They impose arbitrary boundaries to regions. Driven by political motives, they promote stereotyped prevailing regional characteristics and broadcast them throughout that arbitrary boundary. This ignorance of detailed diversities is against the actual spirit of situatedness in regionalism.

Regional design means more division rather than generalization. Its intention is to specify to the location upon which a subject is situated.

The nature of situatedness comes from the adaptation of the local environment. There is no standard environment thus no standard stereotypes. Only the status quo reveals the most authentic regional condition of a site.

Applying the standard of authentic situatedness, we can critique the buildings of the 2010 World Expo. The China Pavilion is a purely formal duplicate of ancient antiques. Meanwhile the pavilion of Denmark, pavilion of Netherlands and pavilion of Saudi Arab all chose to weave helix tour path as the most prominent architectural element. They are well aware of the site's intention to create walk-through experience for visitors.

Another example is the Bavarian town at Leavenworth, WA. In 1962, the Project LIFE (Leavenworth Improvement For Everyone) Committee was formed in partnership with the University of Washington

⁹ Wendell Berry, *The Regional Motive*, Southern Review, 1970, Vol.6, pp.972.



FIG.18 Pavilion of China on 2010 Shanghai Expo.



FIG.19 Town center of Leavenworth, WA.

to investigate strategies to revitalize the struggling logging town.¹⁰ A simple motif for exotic aesthetics is a weak argument to justify the remodeling of the whole town center. It is non-contextual, dishonest about the town's history and indigenous culture.

2) Knowledge

Regionalism is not an excuse for thoughtlessly borrowing from the past. It is about to gain situatedness by achieving the harmony within the context both in space and time. Therefore information about the location and history needs to be critically preserved.

The history of a region is about the life that has been passed on for generations. The stories and memories add a second layer of meaning to the existing, enchanting them with emotions and beliefs, thus forming a spirit of space.

In this sense, regionalism is not just a geographical concept, it has an essential dimension of time. With knowledge and memory, a geographic place becomes more meaningful and interesting. Like John W. Corrinton and Miller Williams wrote "The land is scarred by [history] and the grass is greener for what the land holds."¹¹

On the other hand, without the knowledge of a region, where the bond between humans and land is weak, people tend to be less responsible and eventually mistreat the environment.

10. *Leavenworth*, https://en.wikipedia.org/wiki/Leavenworth,_Washington.

11. Wendell Berry, "The Regional Motive", *Southern Review*, 1970. 972.

As Wendell points out:

"Without a complex knowledge of one's place, and without the faithfulness to one's place on which such knowledge depends, it is inevitable that the place will be used carelessly, and eventually destroyed. Without such knowledge and faithfulness, moreover, the culture of a country will be superficial and decorative."¹²

To conceive a regional design, adequate acquaintance with the region's past and present is necessary. Different from soulless universal designs, the regional design is not only a fit for environment but also it is a story teller who imparts to people with locality and situatedness. To conceive such a design, the construct and motif must be based on a knowledgeable understanding of both the history and the region's status quo.

12. *Ibid*, 973.

3) Interaction

A well-preserved regional identity should be a live object not a frozen exhibit. It invites and interacts with people in real life. It should not be scripted or staged but find its own life and pass its influence onto its surroundings.

The true regional identity should be able to evoke memories, touch feelings and provoke senses. Feelings and senses are the bond between people and environment. By inviting people to a lively immersed experience, the design can engage all categories of human senses, and influence them with a strong gesture of regional self-confidence. In this sense, the design will interact with society and pass on the energy to visitors.

2.2 Lessons from precedents

Artists and architects have noticed the unique regional climate. There are a few examples of individuals who have dedicated works in the Pacific Northwest region. They are inspired by the unique lighting quality in the Pacific Northwest. They used architectural language to express these regional lighting features. Their careful arrangements of light evokes people's feelings. They let the visitors become aware of the land and nature of Pacific Northwest. They are perfect examples of how a contemporary architect capture the characteristics of light, reacting to context.

i. UBC Museum of Anthropology, Vancouver, BC, by Arthur Erickson.

40 years ago, Arthur Erickson adapted regional approaches to design architecture. In his project of the UBC Museum of Anthropology in Vancouver, he tried to introduce the Pacific Northwest light into the building spaces.

He noticed the special quality of the local light. "The West Coast is a particularly difficult area with its watery lights, which are capable of soft and subtle moods."¹³ To achieve this soft subtle quality of natural light, he carefully controlled the opening and skylights to let light wash down the wall when it enters the building.

Also, he plays with various forms of water: by putting ponds close to the building, he uses its reflections to provide subsidiary lumen for the dark light-absorbing ground. In addition, he introduces

water cascade to building's windows and skylights and created a dynamic reflecting setting.

13. Millet, Marietta S. *Light revealing architecture*. New York: Van Nostrand Reinhold, 1996, 9.



FIG.20 Arthur Erickson designing UBC Museum of Anthropology.



FIG.21 UBC Museum of Anthropology, Vancouver, BC.

ii. Strawberry Vale Elementary School by Patkau Architects.

Architects from Patkau made an excellent design in response to regional climate and light. Though no clear quotation can be found about their motive to adapt a dynamic spatial strategy in the design of Strawberry Vale Elementary, it resonates well with local climate features.

“The thing that always impresses me here is the intermittent shafts of light, the brilliant little zings of sunlight that come through everything... It is really dancing around up here.”¹⁴ Local architect Mick Davidson described the unique natural light in the Pacific Northwest.

Patkau Architects use spatial language to revive this phenomenon and make dynamic a space. The asymmetrical tectonic language expresses a unique feature. And also their use of wood responds to major natural resources of the Pacific Northwest region.

This architecture is an example of using regional design inspirations to resist the homogenizing force of globalization. The building is modern, allowing full sets of advanced mechanical electrical equipment and contemporary construction technologies. But the spaces it created are unique and regional.



FIG.22 Strawberry Vale Elementary School, Victoria, BC.

14. Fred Moody, “Oyster Light in praise of Seattle light”, *The Weekly*, Jan. 21-Jan 27, Seattle’s news magazine, 1987, 30.

Synthesize

Region is not a clearly defined rigid area. It is not a delineated line to separate territories like political boundaries. The transformation between regions is consistent and subtle.

The idea of regionalism is to recognize the differences related to geographical separations. Its goal is to preserve diversity according to different conditions where the subject is properly situated. Thus the essential idea is against using any stereotype to present a whole region or eliminating any sensitive response to the environment.

Over the past century of modernization, we all have witnessed the loss of regional diversity. No matter where modernism has made its claim, the thoughtless practice of standardized prefabrication is problematic. They release people from conceiving on-site solutions and building the best on-site strategies. However, on the other hand, its spirit of craftsmanship or customized design has been lost. We live as nomads, no longer holding on to the inherited land but are migrating for a completely new life and using its efficiency as a weapon to win over other regions and spread its philosophy.

Barry acknowledged this detrimental effect of modern technology. He described it as a capital-driven modernization movement: "Instead of responding to natural conditions of climate and soil, our nomadic civilization has evolved in response to an economy that is based upon a deliberate wastefulness."¹⁵

Facts are universal, science and technology will not vary from region to region. However, the way people apply them does have a choice for design and alternation. Duplicating them from other places will only change our own living state from settlers to nomads. Combining them with local history and inspirations, on the other hand, can connect them with their roots and create a consistency for the endangered local spirit and tradition.

15. Wendell Berry, "The Regional Motive", *Southern Review*, 1970. 972-977, 977.

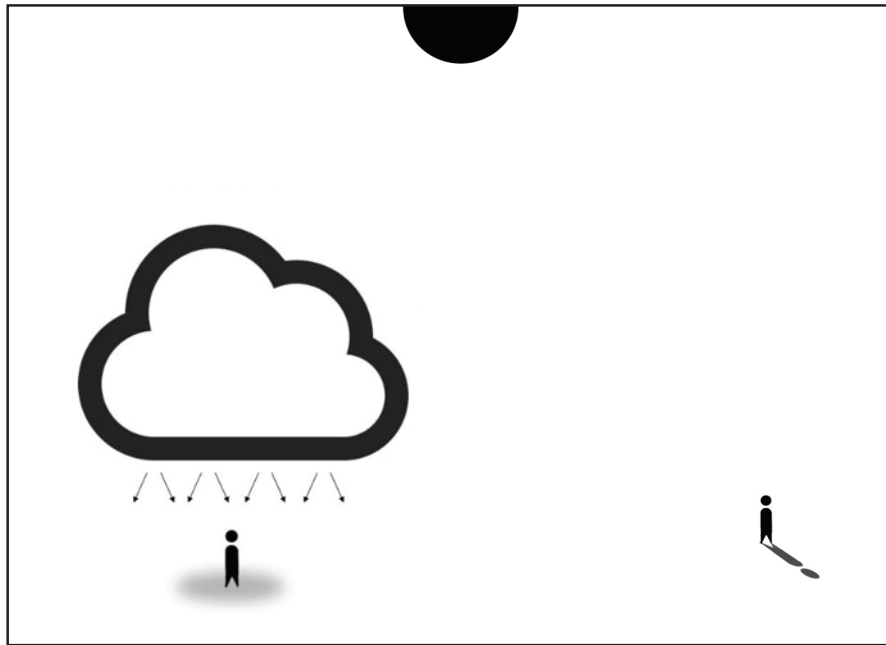


FIG.23 Clouds alternate the paths of sunlight.

“Unique lighting condition in Seattle”

3.1 Design objectives

This thesis is about increasing the awareness about the endangered regional identity as well as the diluted spirit of place. It is also intended to warn people of the irreversible damage brought by universal modernism.

As a tool of resistance, regional design is proposed to modify universal technology. The regional design will transform its application from its universal style to one that better suits the locality by localizing, which seeks local influences on prefabricated source material.

As an adaptive strategy, the design should adequate knowledge of the region. At the end, it will also be a narrator to tell the richness and meaningfulness about the land and time of the location. A partial goal of regional design is to be educational, to enrich people's knowledge and experience.

To vividly revive regional characteristics, the method and approach should be self-supportive, whose program can be justified by its own necessity in service of a developed world. It should fit in by addressing the actual needs of contemporary society. In this way, it will be a vital design that is welcoming people, interacting and engaging with them.

3.2 Methodology

Since the Seattle region has diverse regional characteristics, therefore, there are diverse ways to express Seattle's identity. This thesis will explore one of them, as to exemplify the key principle that it is possible to create regional identity with contemporary universal technology.

Regional climate as design source for identity

Among all possible elements, regional identity can count on several elements, such as climate, resources and the traits of the landscape. Those elements are large-scale systems that are beyond the reach of globalization.

Architectural theorists have long recognized the local influential power of climate to combat problematic soulless modern design. Kenneth Frampton promotes buildings to adapt a "contingencies of climate and the temporarily inflected qualities of local light"¹⁶ as a way to address the context.

The climate effects a lot elements that trigger humans' senses. These aspects are: temperature, precipitation and light. They are integrated together and have an important role in forming people's understanding about where they are. Those factors identically vary from region to region and have great potential to be regarded as a region's unique trait.

16. Kenneth Frampton, "Towards a Critical Regionalism: Six points for an architecture of resistance, in "Anti-Aesthetic. Essays on Postmodern Culture." Seattle: Bay Press, 1983, 27.

The altitude decides how many hours of sunlight one can have in winter or summer. The status of clouds decide an overcast sky or a clear one. The lighting conditions are closely associated with geographical places. They can act as essential elements in one's impression of the region. The best examples are Seattle's rain and California's sun. The long rainy winter season creates a dimly sad and mysterious impression of Seattle and the bright enduring sunshine forms a warm relaxing image of California.

Therefore, an opportunity for new approaches in regionalism can come from establishing design styles that reflect the region's climate. By basing design on the unique lighting patterns of a region, architects can justify their design as the most suitable approach according to the conditions of a region. In this way, a design can establish regional identity while not impeding the application of universal technologies of contemporary development.

3.3 Local Features

The coastal Pacific Northwest has long been distinguished for its regional climate. Seattle is the biggest metropolitan center in this region. Its region is subject to the coastal marine climate. Several geographic features shape the unique climatic characteristics.

i. The latitude of 47 °

As a city near the North border, Seattle's high latitude brings prominent seasons. It means big shifts in weather as well as light conditions. The daytime is long in summer and it gets fairly short in winter.

In June, the sky starts to brighten up around 5 am and it will not get completely dark till 10 pm and it is usually sunny too. Thanks to the high altitude, the sunlight is angled and refracted when it reaches the surface of the ground. Thus even though there are long hours of sunlight, the temperature stays mild, around 50 °F - 80 °F. So it gives a cool and comfortable impression of sunny bright summer.

On the contrary, during the winter in Seattle there is a shortage of daylight. In December, the sky is bright from 8 am until 5:00 pm. In addition, winter is the rainy season. On most days, the sun hides behind dark clouds.

However, compared to most other cities at the same latitude, Seattle has a more comfortable winter temperature. Thanks to the ocean and precipitation, the temperature drops from 30 °F to 40 °F. It is around the point to have very little snow but

not freezing cold.

ii. The rapid transition from large ocean to high mountains ranges

Seattle is located the northwest corner of Washington State. To the west of it is the shore of Puget Sound which connects to the Pacific. To the east is the vast continent. The Cascade ranges are 20 miles to the west of Seattle. They rapidly raise the altitude from the sea level up to 14,410 feet, at the peak of the Cascade Ranges, Mount Rainier.

Since Seattle is also where the North American continent meets the world's largest ocean, the Pacific, the mass temperature differences between the land and ocean generates air movement and drastic solar radiation changes due to a high altitude, brings constant strong wind. In winter, the continent is cold. So when the warm strong wind carries the moisture from the Pacific to North America, an ample amount of rain is generated along the way as the wind climbs up the Cascade range. This wind and rain is constant for half a year from Autumn the next year's Spring.

iii. Surface water

Because most of the moisture is dropped to the ground as the rain clouds climbing through west side of Cascade Range, the east side is a dry broad inland called Columbia Plateau (Columbia Basin). The farm lands in East Washington would require irrigation. Further to the east of the Columbia Plateaus is the ranges of Rockies, which is regard as the edge of the Pacific Northwest political region.

"Pacific Northwest occupies less than 10 percent of the North American continent, but it contributes 20-25 percent of the total surface runoff from rain."¹⁷

More dramatically, a majority of the rain happens on the west side of the Cascades, a narrow geographic strip of about 100 miles.

17. Miller, David E. *Toward a new regionalism: environmental architecture in the Pacific Northwest*. Seattle: University of Washington Press, 2005, 3.

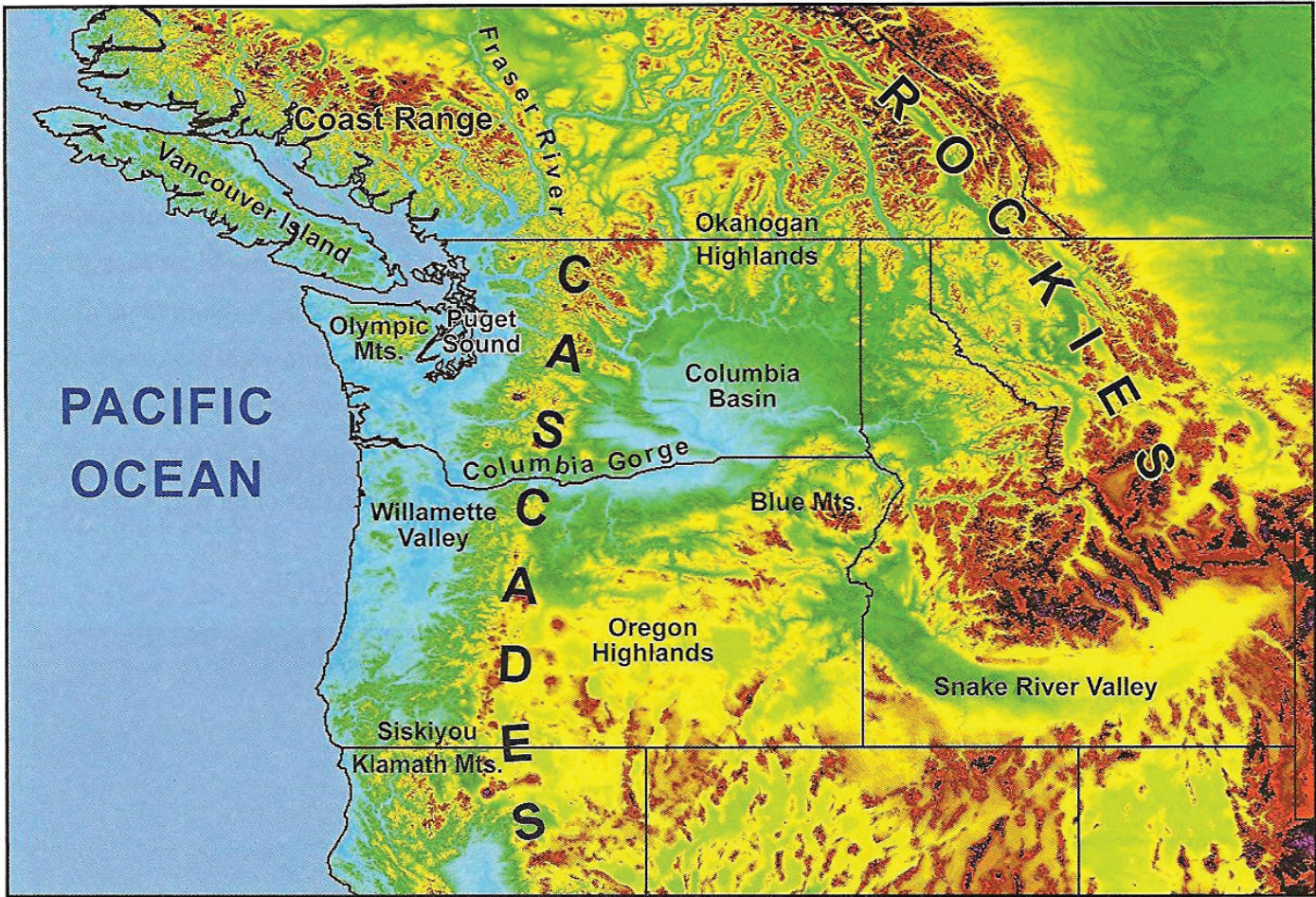


FIG.24 Geography of the Pacific Northwest.

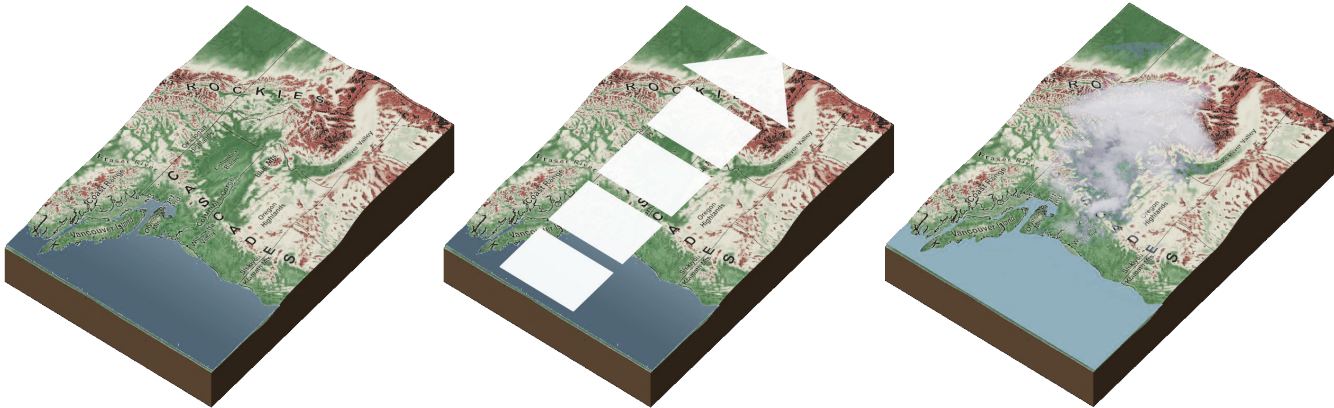


FIG.25 The warm pacific mansoon bring precipitation to Cascadia Ranges.

Seattle light

As a result of the geographic feature, Seattle is the most heavily clouded city in the US. According to weather data, it has about 226 heavily clouded days annually. Portland ranks 2nd with 222 days. Seattle has gained with a regional identity for its infamous rain.

This unique climate trait provides Seattle very special day light conditions which one cannot find in any other cities in the country.

- Clouds

Overcast or heavily clouded is a prevailing condition for Seattle's sky. "From October until June, the Pacific Northwest is cast in an even, milky, consistent light, sometimes called oyster light"¹⁸ for its creamy and milky appearance.

The milky sky looks magnificently large but shallow in depth. It is like a boundless back-lit opaque glass, which contrasts with the dark greenery at the horizon. The omni-directional light emitted from the sky is weak and soft lacking a sense of power and determination.

Being defused by layers and layers of the unique Pacific Northwest clouds, the sunlight is filtered with all its strength and dimmed to a level that bare eyes can look at it with comfort. It is very even, thus people find it pale and emotionless.

In theater, a special lighting technique, the accent lighting is about using highlights to articulate drama. However, here in Seattle, there is less accent

light but more gentle dreary peaceful ambient light.

Most people dislike the Seattle sky because it is weak, emotionless, and depressing. During winter seasons, given the sunlight is already scarce at the latitude of 47°, yet the warm ocean is constantly pushing its vapor over to the inner continent. It is the season for rain and clouds. During those days, the daytime atmosphere is dark and depressing, as some writer put it "almost an outdoor cave".¹⁹

18. Miller, David E. *Toward a new regionalism: environmental architecture in the Pacific Northwest*. Seattle: University of Washington Press, 2005, 5.

19. Fred Moody, "Oyster Light in praise of Seattle light", *The Weekly*, Jan. 21-Jan 27, 1987, Seattle: Seattle's news magazine, Cover page.

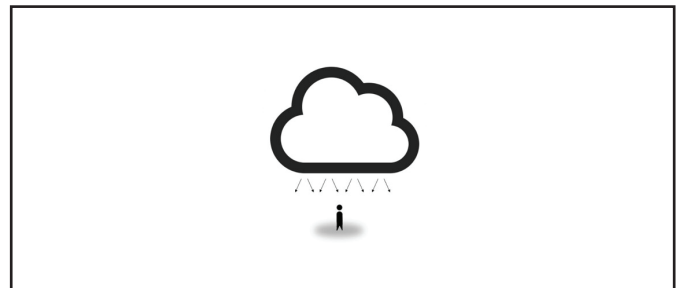


FIG.26 Cloud is a big diffuser of sunlight.



FIG.27 a rainy day at Seattle.

- The wind

Due to the difference of heat capacity between the Pacific and inner continent, Seattle has strong winds all year. There are a lot of movements overhead in the sky. It is a dynamic drama constantly played just above the city.



FIG.28 The dynamic movement of clouds.



FIG.29 20 minutes' time lapse in twilight of Oct 29th 2016, UW IMA parking lot.

- The rain

Ample amounts of precipitation bring surface runoff. They create a unique landscape with everything soaked in a reflective shimmering layer of water. This moisture also introduces a contrast, since the soil, rock and concrete appears darker in the rain, while the light colored buildings and greeneries seem brighter and get more saturation in color.

In addition, more contrast also comes from the reflection in ponds on the ground, dew hangs on tips of twigs or leaves and shiny beads of raindrops. They are dynamic, jumping around and ready to surprise anyone walking in the street with a shining ephemeral brightness.

This reflectivity, in rain-dominated seasons, bounces between the wet shiny surface of buildings, streets, and tips of the needle leaves of the dark evergreens. Local architect Nick Davidson adds his understanding: "Northwest light changes, moves and dances because its source, in the course of a day changes angles constantly. Because the Northwest is far north of the equator, the path from sunrise to sunset traces a circuitous course along the horizon rather than directly across the sky."²⁰

20. Fred Moody, "Oyster Light in praise of Seattle light", *The Weekly*, Jan. 21-Jan 27, 1987, Seattle: Seattle's news magazine, Cover page.



FIG.30 Reflection.

4.1 Program

Seattle has so many unique regional features from its natural environment. The identical natural features are a treasure waiting to be recognized. To test its feasibility, experiments should be conducted to explore its aesthetics and value to design.

Speaking of a modern structure which can be a vehicle to conduct this experiment, the 1962 Seattle Center is an ideal site. The initial theme for that world expo was actually about regionalism. It had been "Festival of the [American] West". However, with the escalation of Space Race during the cold war, the theme of the world expo succumbed to becoming a show-off of contemporary technology. It was aimed to tell "the United States was not really 'behind' the Soviet Union in the realms of science and space"²¹. As a result, the structures of the park completely ignored the expo's original intention to tell the stories of the west but invites architects around the world to bring their ideas about most futuristic structures. The only criterion is to resemble the latest technologies across the world.

One of most featured projects in the Expo, the Central Monorail was designed and constructed in 1962 by the German company Alweg. Its universal style clearly shows an absence of regional identity. Regarded as a grand new transportation technology, it was imported directly from Germany without any consideration of the local context. However, today, with an awareness of the regional identity, it is necessary to adjust this structure by transforming universal technology for localized application.

The proposed project is to remodel the terminal for the central monorail. The idea is to change the

²¹ *Lesson Twenty-five: The Impact of the Cold War on Washington: The 1962 Seattle World's Fair*, HSTAA 432: History of Washington State and the Pacific Northwest, Center for the Study of the Pacific Northwest, University of Washington. Accessed online October 18, 2007 (<http://www.washington.edu/uwired/outreach/cspn/Website/Classroom%20Materials/Pacific%20Northwest%20History/Lessons/Lesson%2025/25.html>)

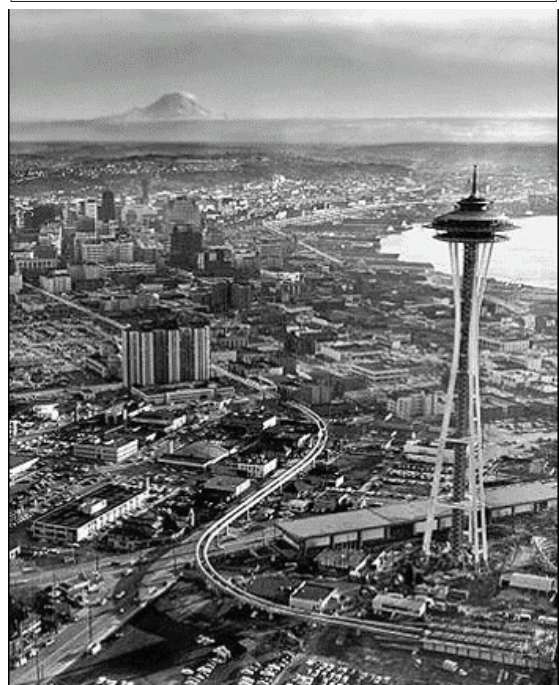
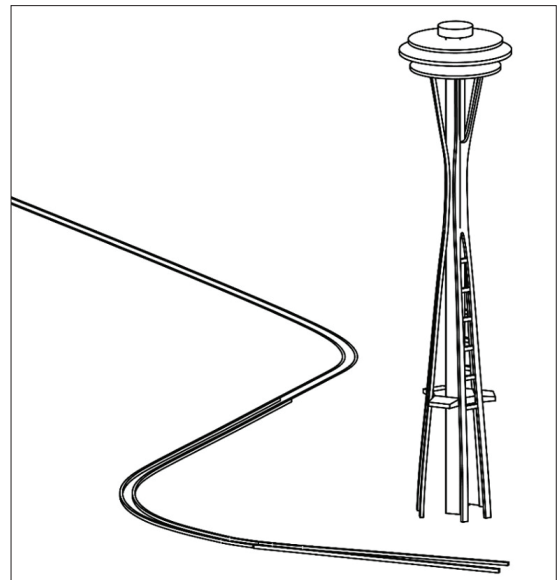


FIG.31 1962 Seattle Expo.

existing steel post-and-beam structure into a new form that is reminiscent of Seattle's unique climate features. It adapts the symbolic natural properties and actively teaches and exhibits them to visitors. Like the surrounding museums, it will be an active museum to engage people through interactive activities with true functional purpose not just being a dead record of the region.

Synthesize

While the traditional Regional identity is distinguished, the natural regional characteristics in climate and geography remain prominent and waiting to be recognized.

The unique climate of the coastal Pacific Northwest region has the potential to help designers establish a future regional identity. Their unique qualities in light, form and movement deeply associate with this region and have special values for their uniqueness and rareness.

By adapting the local climatic qualities to design, a universal-style structure will acquire a regional feature, which can resonate with the local spirit of places. A rootless global technology will be transferred to a customized local design and eventually find a proper home.

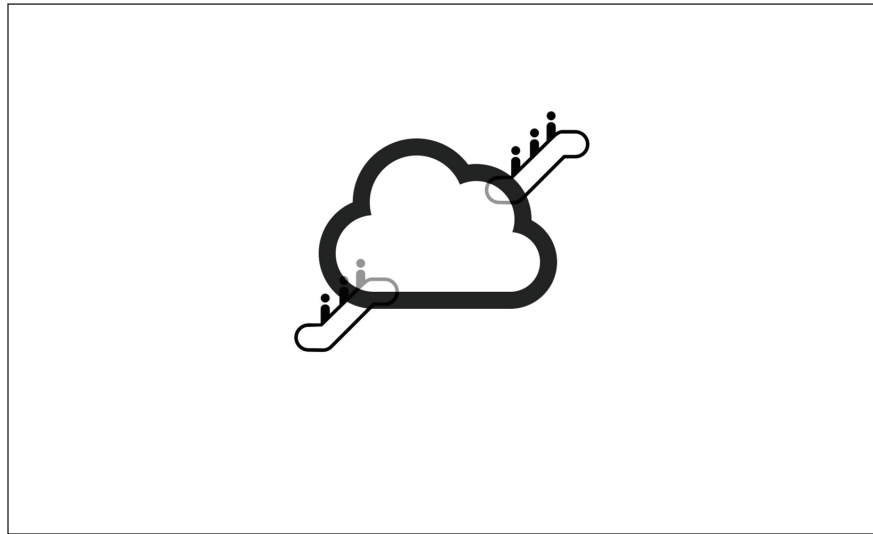


FIG.32 A cloudy experience.

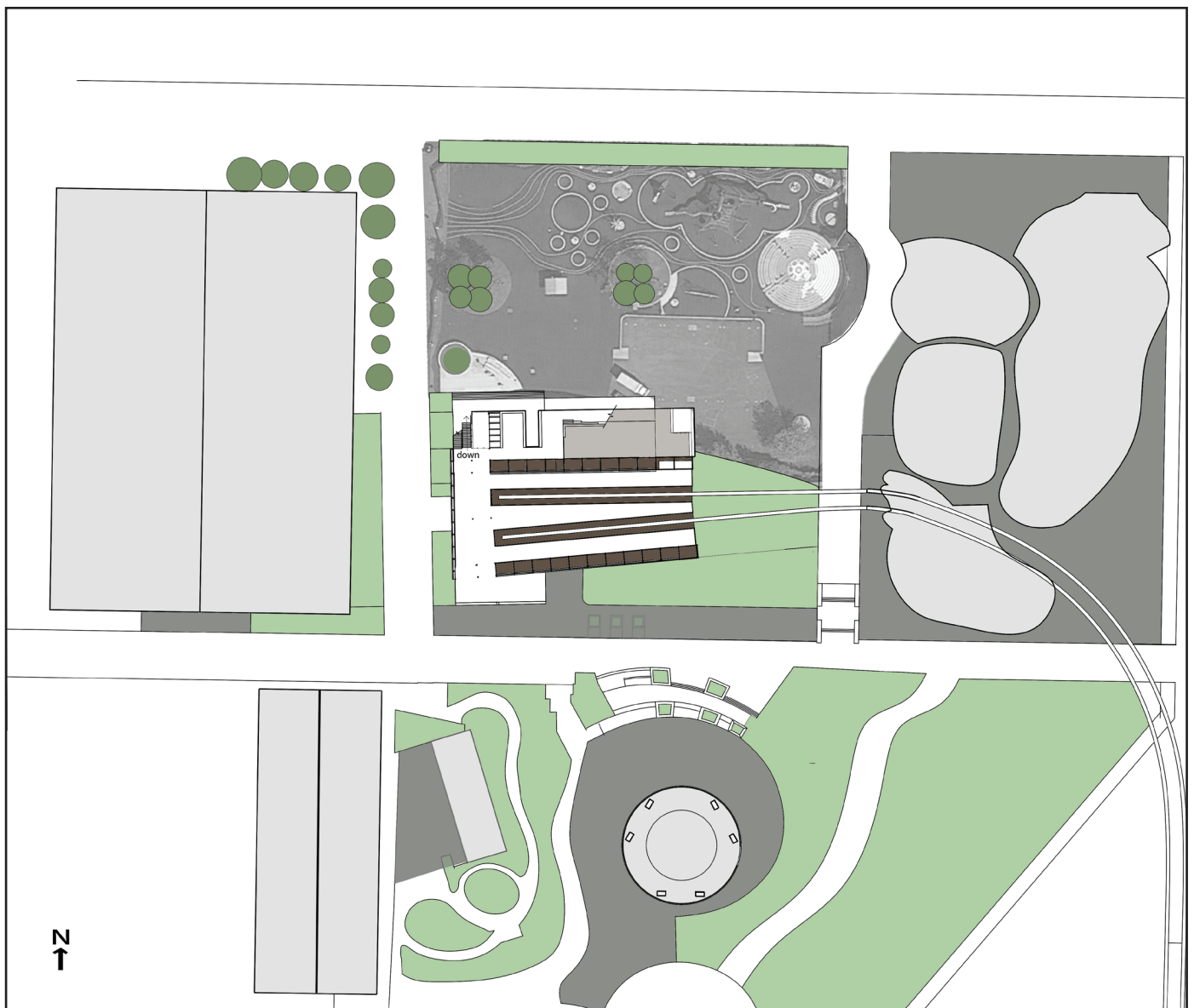
"A museum of clouds"

4.1 Site analysis

The current monorail terminal is located at the south east corner of the Seattle Center. The rail track connects it to the other station in downtown Seattle at Westlake. Before arriving at the Seattle Center, the monorail passes through the Pop Music Museum, which acts like a gate to indicate to the passengers their arrival at the Seattle Center. To the west the terminal station is the Armory Museum and on its north is an open public plaza.

A primary pedestrian path, in East-west direction, connects the south side of the station. Across that is the 600' tall Space Needle.

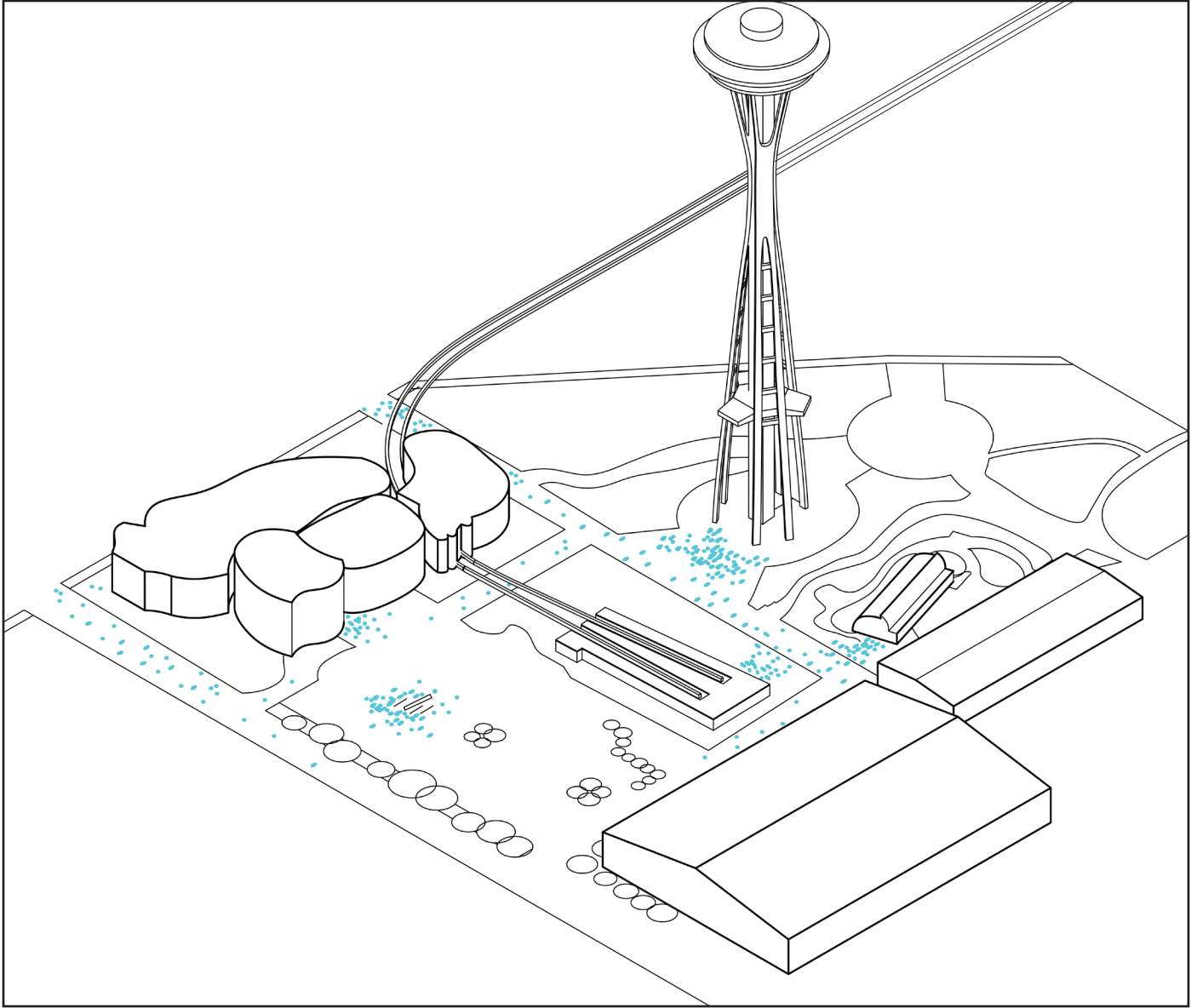
FIG.33 Site Plan.



Most people coming to Seattle Center walk down the pedestrian artery between the space needle and the terminal station. In the vicinity, there are a few gathering spots: the area under the Space Needle, the plaza to the west of the Pop Culture Museum and the playground to the north.

The monorail station consists of three platforms. The central one is for departure and the two on the sides are for arrival. Due to the fact that this is also a maintenance station, the inoperative train will occupy one side, leaving the other side in service.

FIG.34 Site Diagram.



The station

The monorail station has two rails, with two running trains, red and blue. When one of two rail is in operation, the other is held for maintenance. The structure has two stories. The public has access to the upper-level platform while the half-underground lower-level base is used to hold maintenance activity.

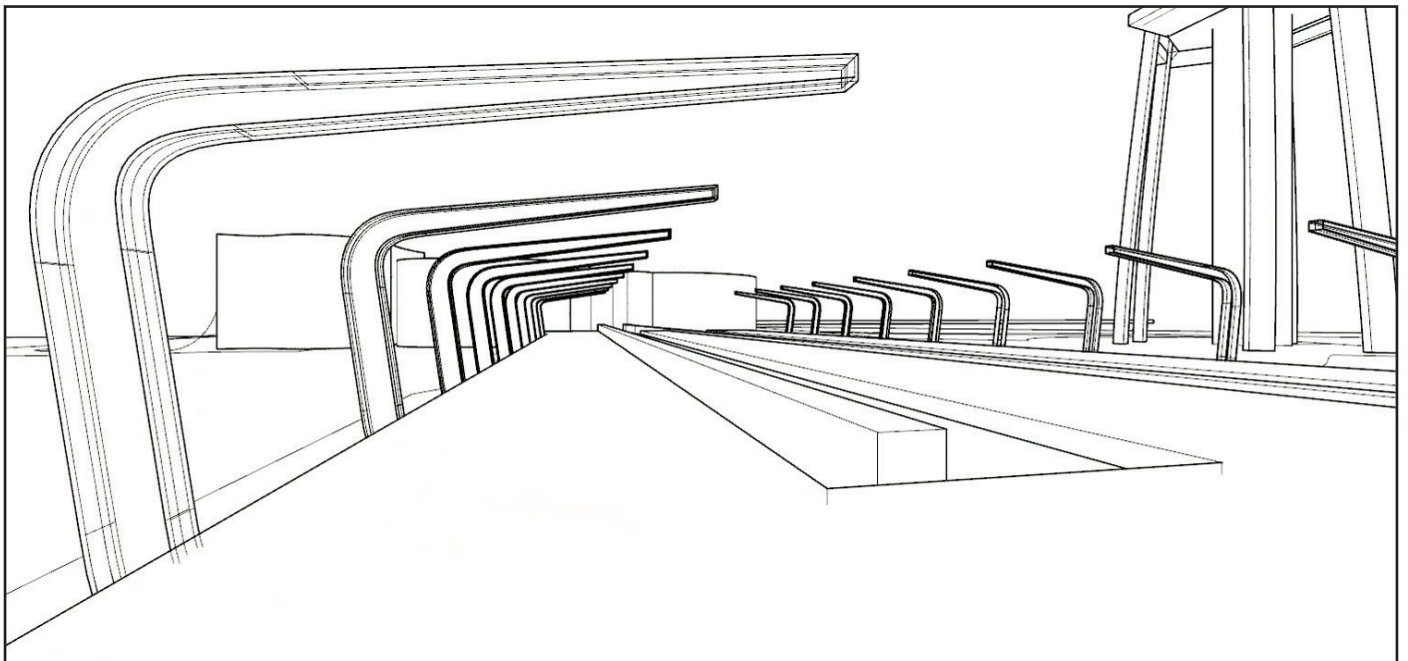
Built in a customized steel structure, the roof for the platform is generic. Its corrugated metal decking is tilted as rain shades from 7 feet on the side to 10 feet at the center. There the metal decking meets the clear polycarbonate vault.

It is a station structure so typical that one could also find it in other places besides Seattle. It is efficient and economical yet has no clear relation to its context of a theme park as Seattle Center.



FIG.35 Site photo.

FIG.36 Site Diagram.



4.2 Design features

According to Seattle's regional climate features, there are three aspects to be carried out in the proposed remodel plan. First is the major feature of the soft and omni-directional light. Second is the movement and dynamics of the sky. Third is the surprising shimmering light from water reflections.

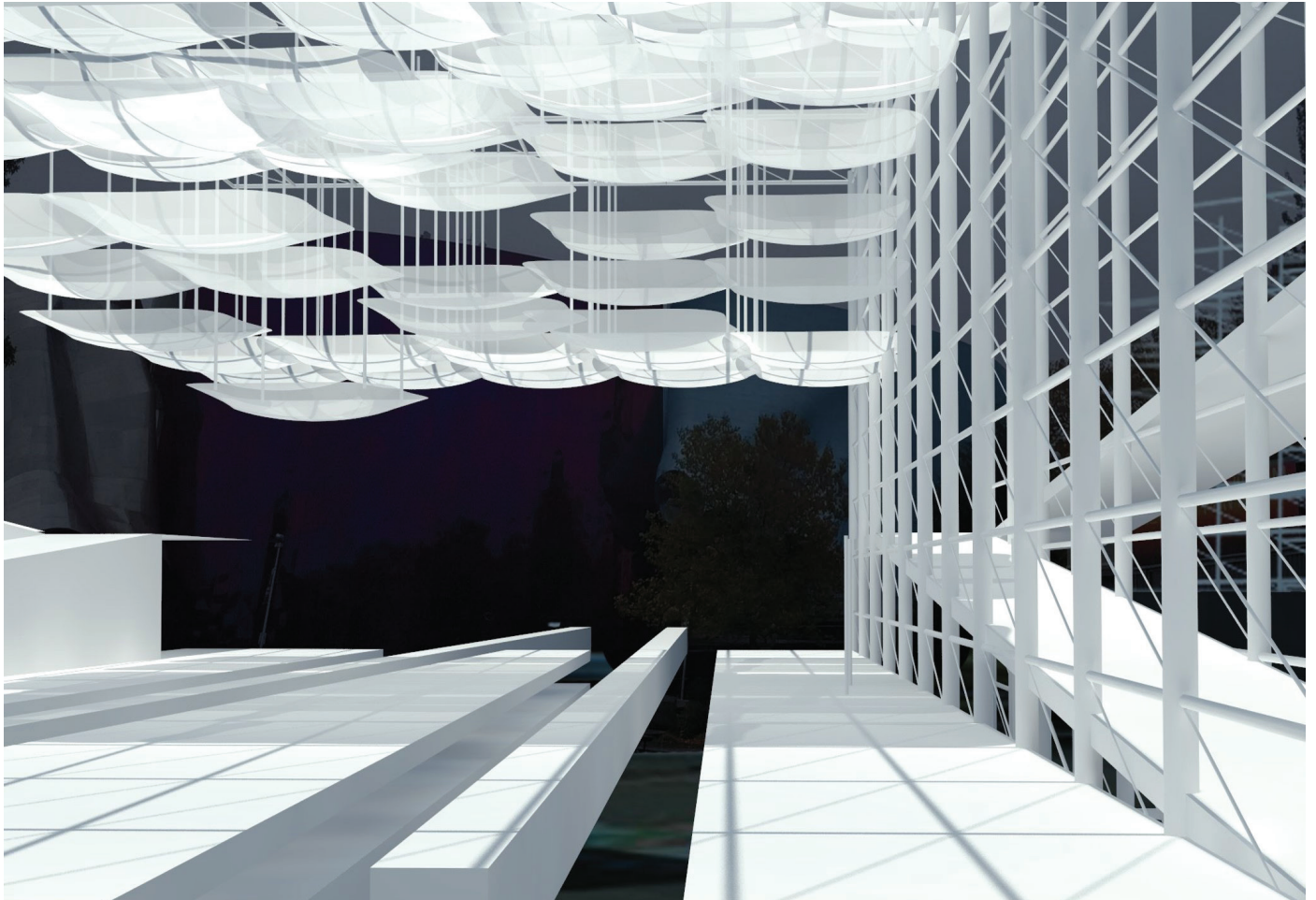
i soft and omni-directional light

To resemble the softness of the nature light diffused by the clouds, a series of semitransparent fabric panels are proposed to replace the existing metal decks.



FIG.37 The diffusion of light.

FIG.38 Rendering of Platform.



ii. Dynamic movement of clouds

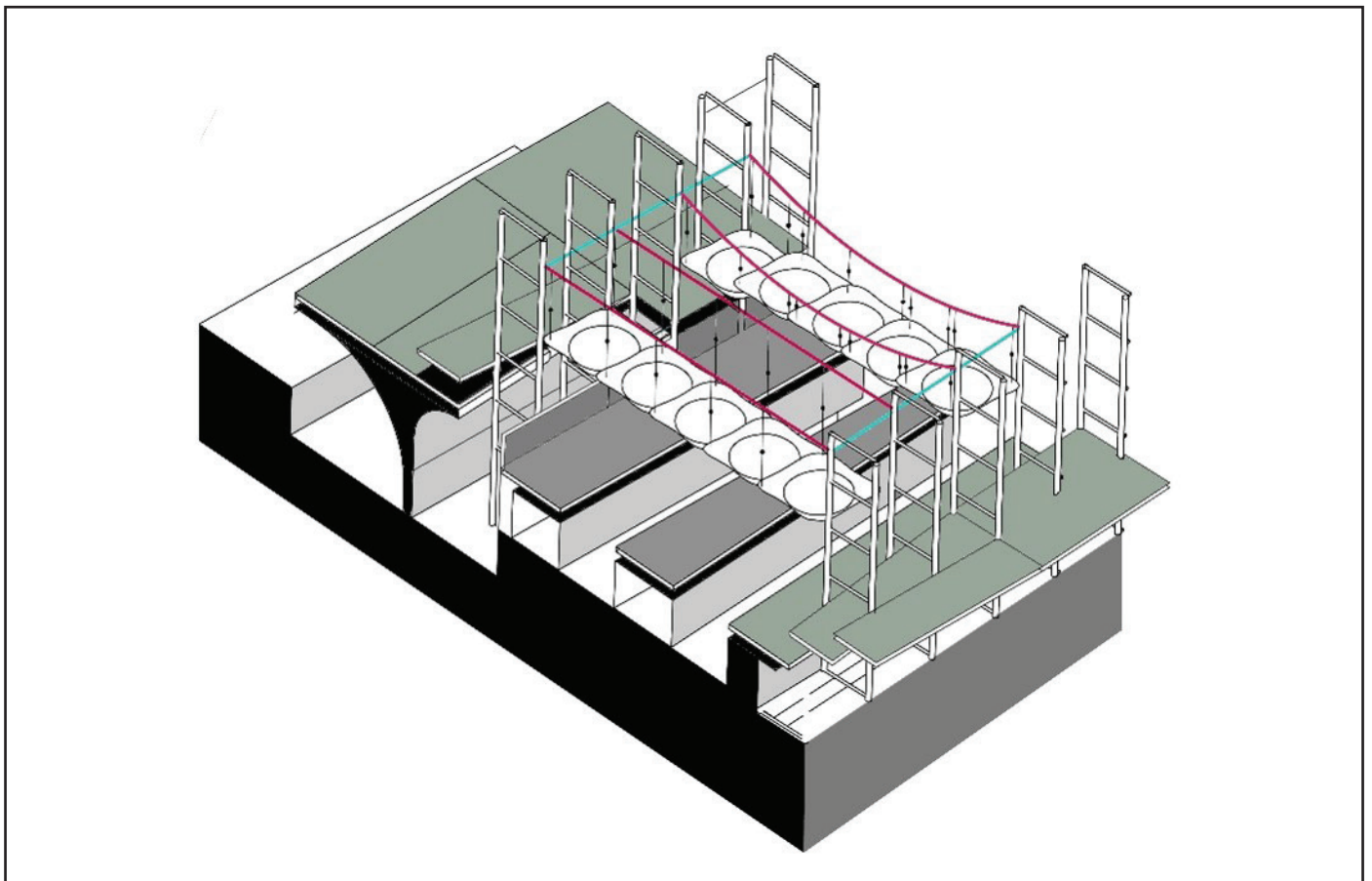
The suspended panels are operable. In sunny days, people can stack them at one end of the station by rotating the cranks under their posts.

The north and south edges of the existing platform are not parallel. The two rails separate a larger departure at the west end of the station. This provides more space for passengers who would wait for the train on the central platform. Picking up this existing condition, the suspending cables straighten when they are deployed and moved to the west. Each panel has individual flexibility to move and tilt. They are all controlled by the passengers from the platform down below.



FIG.39 The movements of clouds

FIG.40 Mechanism Diagram.



Interaction

The goal to make an operable dynamic roof is to let people be the source of randomness. Since a cloud's movement and shape are random, the station roof panels will resemble the same quality as

they are operated separately by different people. Their height and location will change constantly. Passengers on the platforms come and go. Their participation is random.

FIG.41 Rendering of people interact with operable panels.

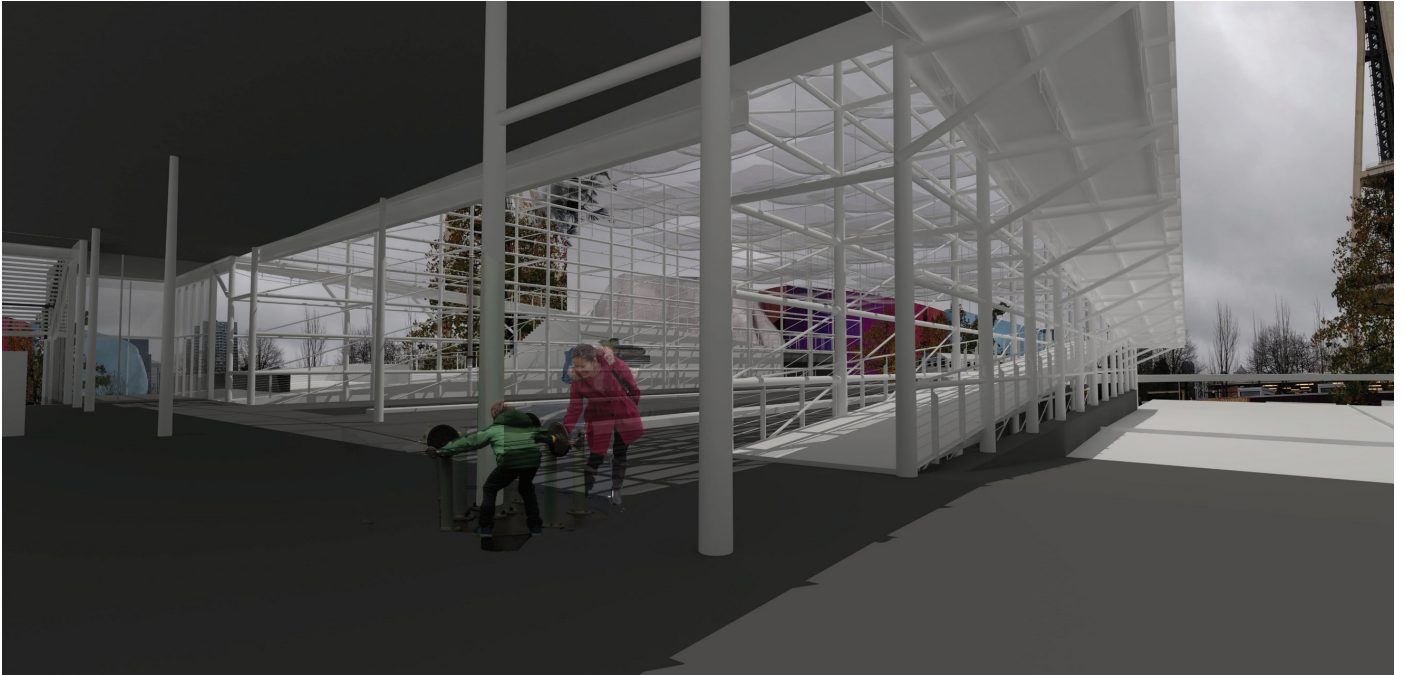
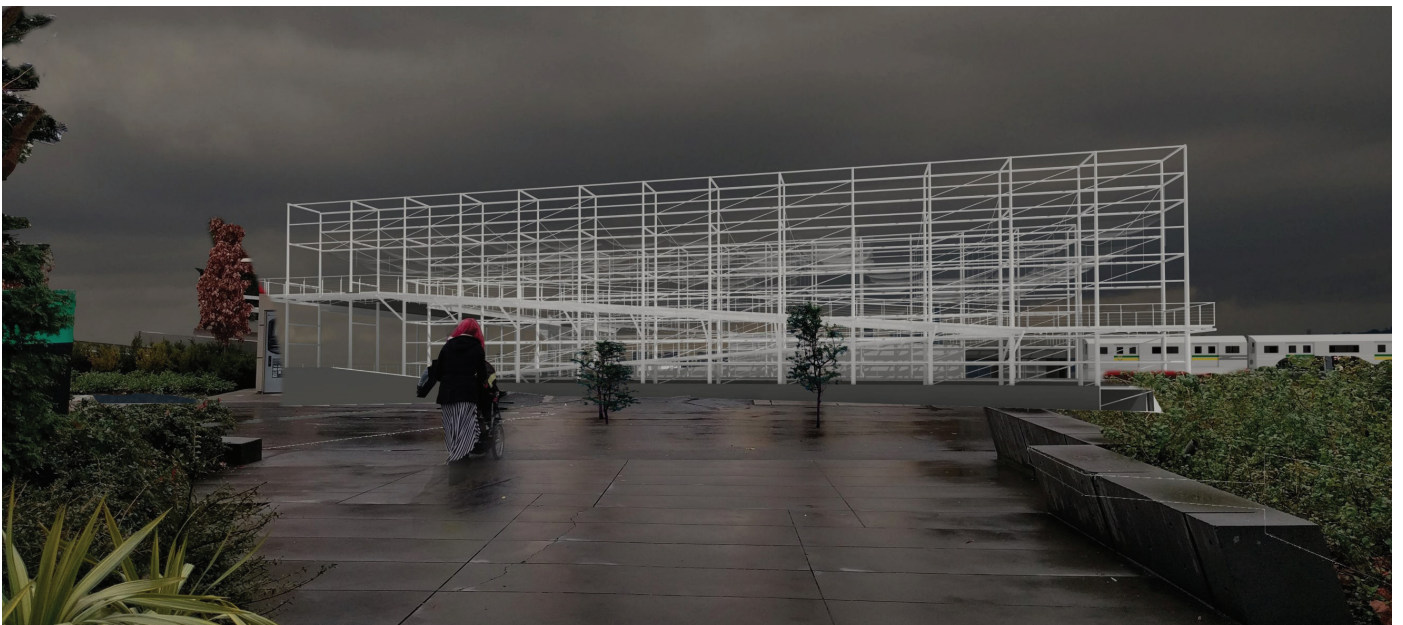


FIG.42 Rendering at the front of the station.



Spatial sequences

① Front

At distance, The overall appearance of the new monorail station will be a semi-transparent volume of steel structural members. It resembles the mechanism of shattered sunlight passing through clouds.

② Ground lobby

It is a gathering space that allows people to form lines before the ticket booth.

③ Departure platform

After passing the ticket booth, riders wait on the central platform for the train to arrive.

④ Arrival platforms

Riders from the downtown Seattle get off the train there.

⑤ Ramps

The crank handles that operate roof panels are located at the bottom of each structural post

alongside the ramp.

Also for people who hope to get a closer look at the details, they can go up to the second level of the platform.

⑥ 2nd level platform

It is a gathering space that allows people to have a closer look at the roof panels.

⑦ Spectator seats

The north playground is a popular spot in the Seattle Center, these seats provide a gathering area that lets people have a picnic and also watch others on the north playground.

⑧ Gallery

At the end of the sequence, a half-below-ground space will function as gallery space. It consists of a collection of spaces with different lighting features.

⑨ Pond

The central court is a pond to receive the water cascading from the roof panels.

FIG.43 Perspective from the West of the station.

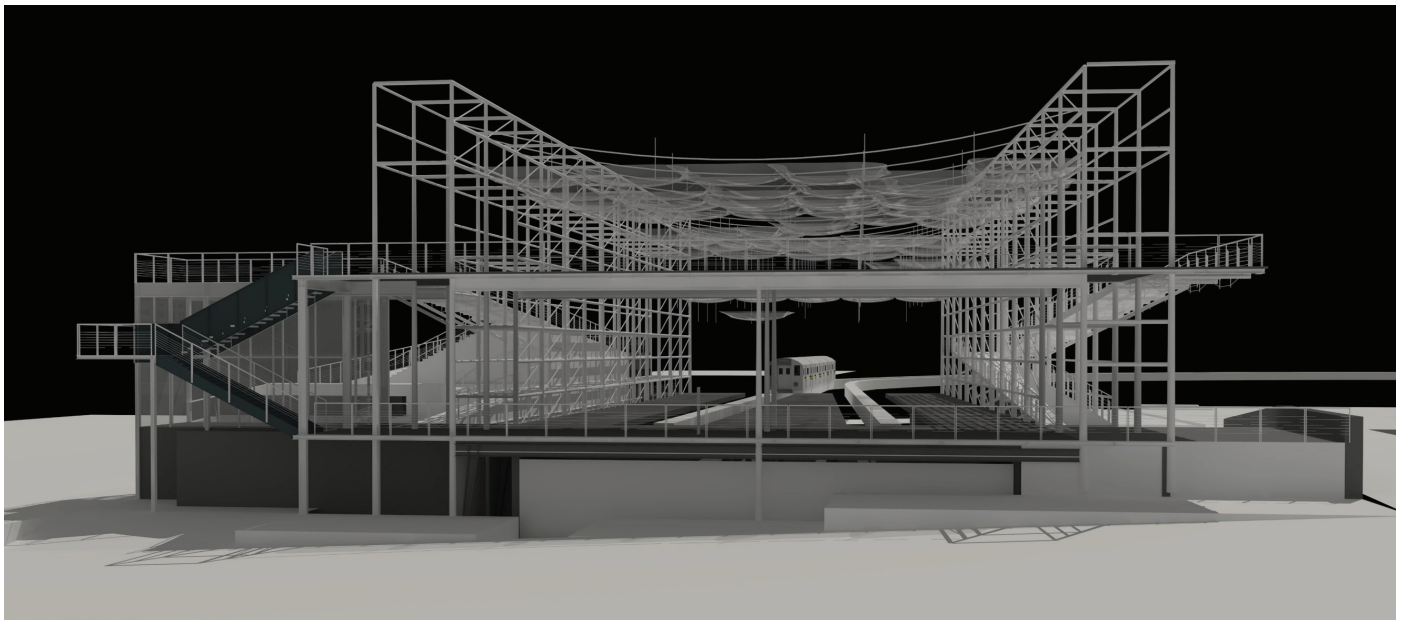
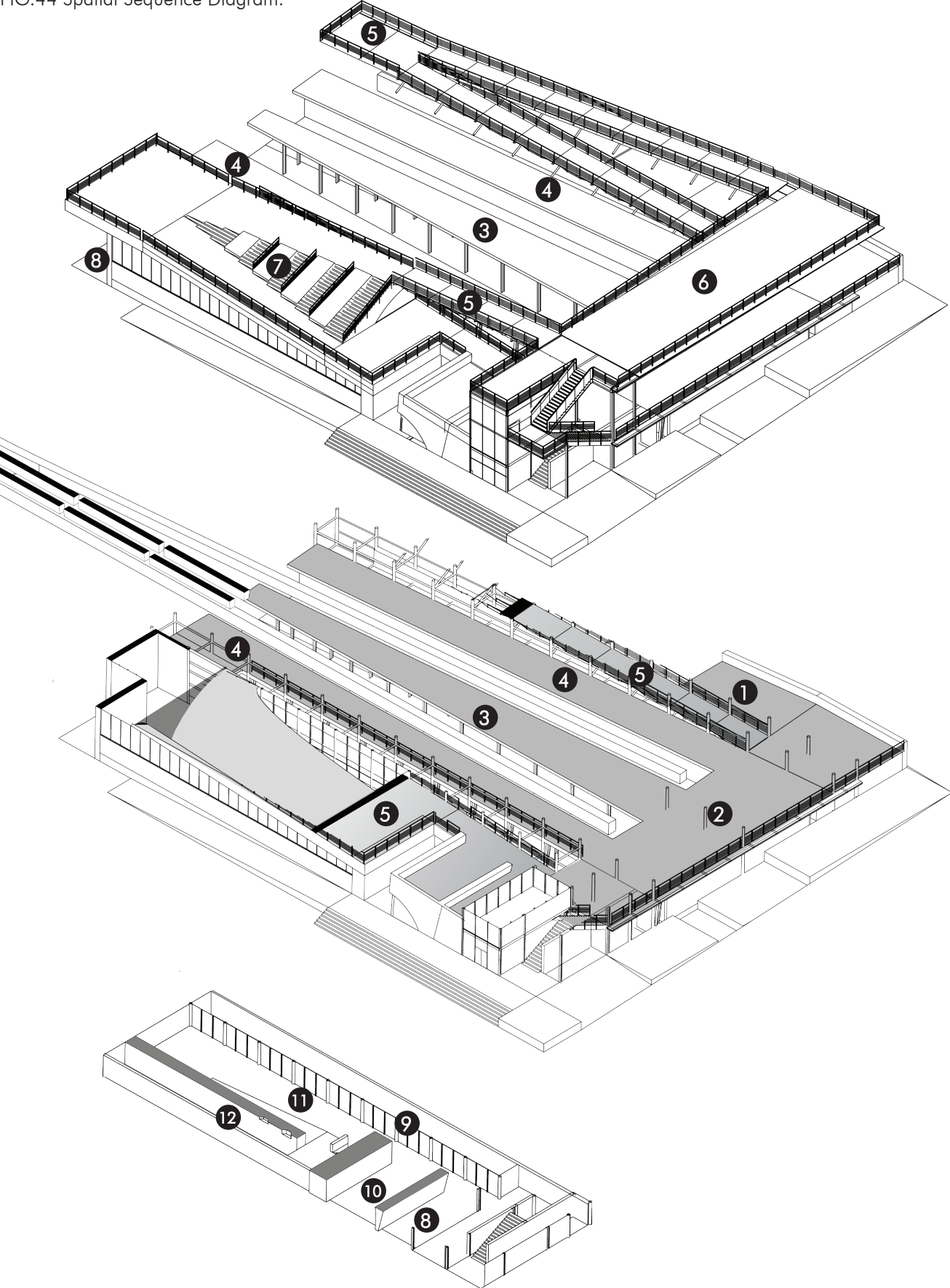


FIG.44 Spatial Sequence Diagram.



iii Reflections

The rain water collected by the roof panels drains in the north direction. The water falls off the last panel and falls into the central pond. The cascade resembles the varied reflections in the Seattle climate.

Gallery

The half-underground gallery collects three spaces that show the poetic quality of Pacific Northwest light. At the entrance chamber, a skylight washes the monolithic wall giving a evenly ambient light. It resembles the overcast sky condition in Seattle. In the main hall, a vaulted roof is canvas to catch the reflections from the central pond. It is aimed to adapt the dynamic spirit of local light. At the end, is a linear hallway. Its high side windows capture the low-angle light of the 47°N and cast them on the vault, creating the ambient light that is most typical to the region.



FIG.45 Rendering of linear gallery.

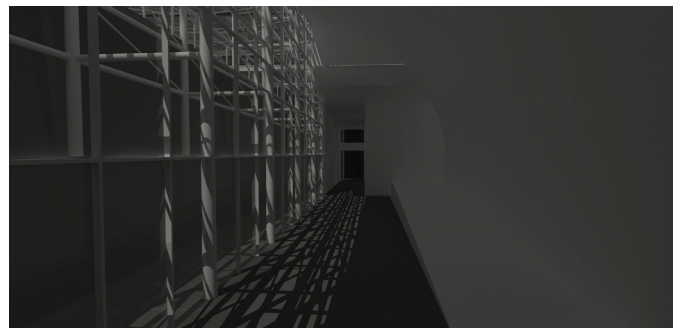
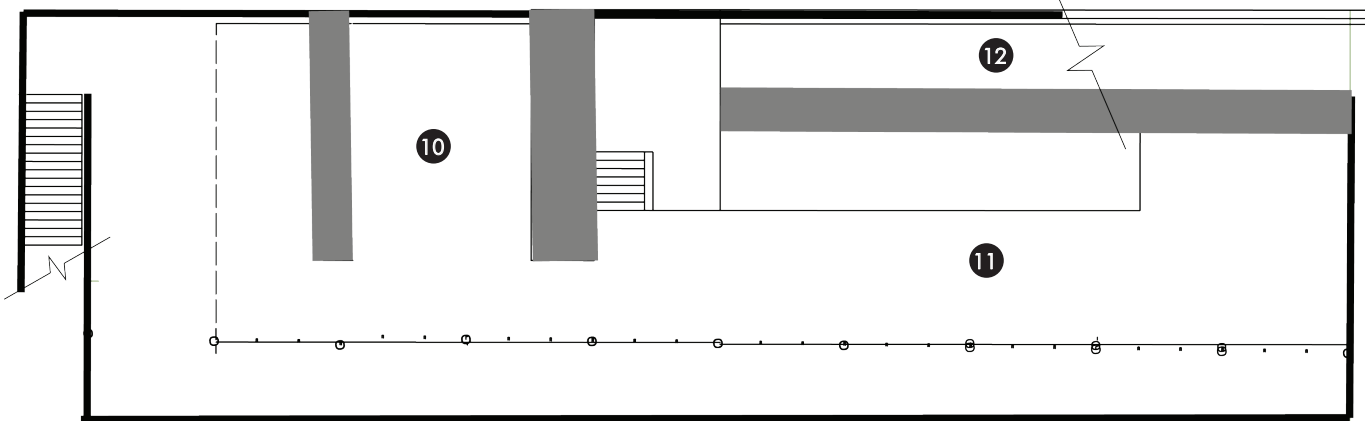


FIG.46 Rendering of main gallery.



FIG.47 Rendering of entrance chamber.

FIG.48 Gallery Plan.



Design synthesis

The new station with an annexed gallery together constitute a spatial sequence. It is a museum to intuitively impart the local lighting quality to visitors. The construction of each component is standardized steel, however, they together form a space expressing the unique regional lighting characteristics.

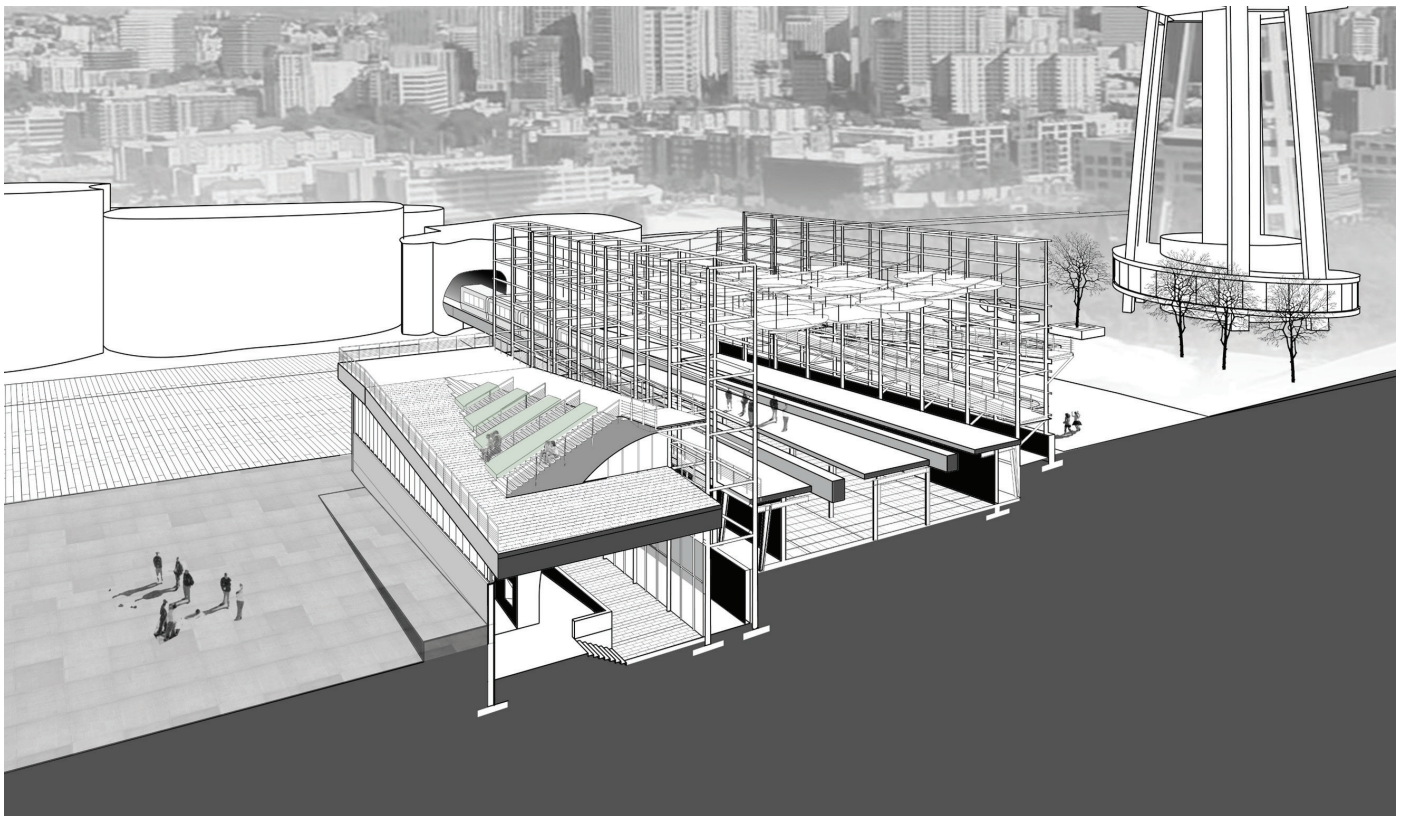
For the situatedness, aside from adapting local lighting conditions, as a remodel project, it is based on the existing site situation. The wedge shape of the existing platform provides a distance variation between posts which leads to the tightening and sagging of the suspension cables when they deploy panels. The mechanism of movements is generated by the site.

For the knowledge aspects, regional lighting features have not been recognized in people in their daily life. Through sensitive observation and years' experience, the designer realizes them and presents them through this architecture. The settings of spaces are intended to evoke people's senses and awareness.

For the interaction, this design uses a functional program to engage people's contemporary life.

Following these principles, this museum tries to establish a new identical regional style which resonates with the natural features of Seattle.

FIG.49 Section perspective.



Chapter 5 Conclusion



FIG. 50 Museum of Seattle's clouds.

"Retrieving regional identity"

Land and territory have long been the subject that people associate their life with. They are not only spaces. They convey stories and memories. They have characteristics and identities.

In the adaptation of imported technologies, people should not give up what is unique to their own region. To resist the homogenizing force of globalization, it requires the birth of a new identity keeping up to the pace of development. It requires an awareness to respect the land and environment.

The refusal of technology is unwise. It is better to discover a competitive new force for the local resources to resist universalization. This thesis offers an experiment, and a desire that the diversity of regions will never perish.

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