

CURATED MEMORIES
NARRATIVE ARCHITECTURE WITHIN INDUSTRIAL HERITAGE

By
Giovanna Monaco
Bachelor of Architectural Science, Ryerson University, 2014

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Curated Memories : Narrative Architecture within Industrial Heritage
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Giovanna Monaco
Architecture Program I Ryerson University

abstract

Curated Memories will examine how Toronto's industrial heritage buildings and landscapes embody memory through a historical architectural narrative. Memory can be considered a projection of time revealed as layers of intellectual or physical events comprising the foundations of what we experience in the present. Moments of reflection or physical expression become manifested and it is manifested memory which will be explored through social and personal history, materiality and the senses. With a history of over 13,000 years, still not fully unearthed, Toronto's Davenport corridor is contributing to its evolving urban landscape. Its fabric articulates relationships between revealed relics and the memories that have shaped Toronto's development. The Bridgman Transformer Station will be explored through tangible moments of memory illustrating how new memory can be revealed, embedded and absorbed into the present and future landscape.

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dedications

This thesis is dedicated to my grandmother Rina Monaco, a woman with incredible strength, love and vision for her family. It is the reminder of her lessons that have motivated me every day.

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elements of memory
past

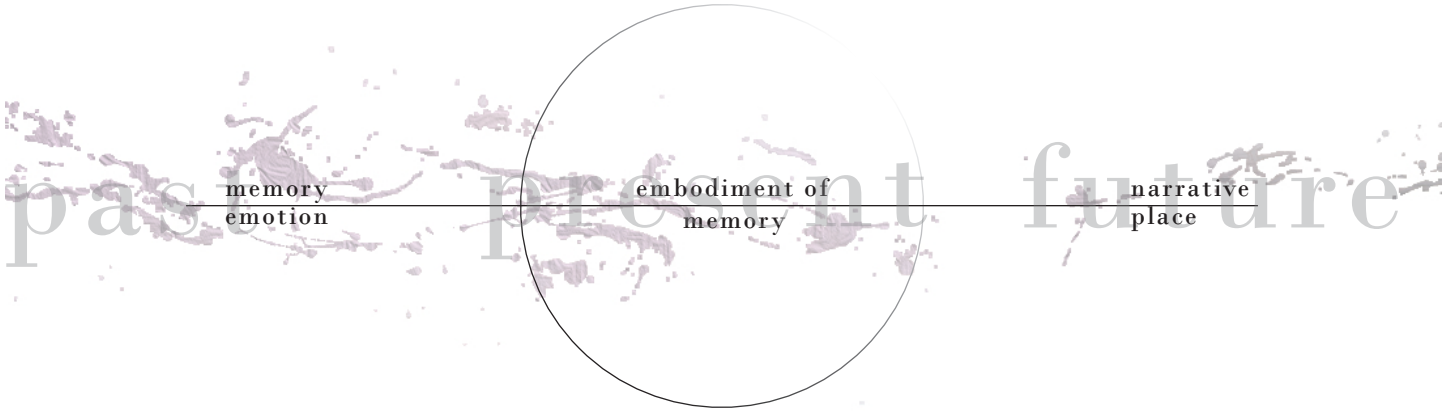


Fig. 2
Process of Memory
Giovanna Monaco
2016

research questions

How can memory and narrative of heritage built form translate into a contemporary architectural statement?

How can memory and mnemonic processes become a collective architectural narrative that can transform the contemporary public realm of heritage architecture?



Fig. 3
Modern Rome- Capo Vaccino
Joseph Mallord William Turner
1839

statement

A key characteristic of heritage buildings is their spirit of past time which, if allowed to transpire, leads to a dilution of their original meaningfulness.

By identifying and referring to the artistic origins contributing to the spirit of place, heritage buildings can continue to be relevant to the community in a new socio-cultural context.



Fig. 4
Bridgman Transformer Station - Interior Staircase
Giovanna Monaco
2016

0.0 introduction

Historic reoccurrence is the repetition of similar moments over time. This is inherent in the fabric of social evolution: we build the future with the past in mind, based on oral, written, and constructed narratives. Reoccurrence provides us with both a departure point and an arrival point for architectural narrative. Heritage buildings stand as tangible evidence of our origins. They retain and embody our identities in the development of our future cities. However, this role of heritage structures has diminished in post-industrial cities such as Toronto. Where there were once traditional large scale industries located in the inner city and along the waterfront, these have been replaced with new forms of specialized production in smaller and more modernized facilities, that are now chiefly located in suburban areas with more accommodating infrastructure for transportation and space. This has left inner city neighborhoods, previously centered on such industrial complexes, with a loss of identity and a diminished ability to adapt to the rapidly changing cultural fabric of the city. In some cases abandoned factories, warehouses, and other industrial structures in the city core stand vacant, creating a social vacuum. Nonetheless, not only do these buildings hold industrial heritage value, they have the potential to become iconic cultural landmarks within the city of Toronto, while simultaneously reviving communities. New and adaptive functions can be integrated that recognize the previous identity, which continues to define what it is known to be today.

Memory through the concept of stratification can become a useful tool when working with a heritage building and landscape. Not only is the building an important historical relic existing as a part of the current city fabric, but the surrounding site too is of relevance in the building's chronology. Layering as a historical experience becomes absorbed in our day-to-day perceptions, similar to our daily routines. We are constantly surrounded by layers of objects of different ages and origin existing simultaneously. In addition there are the traditions, connections and memories that exist differently within each individual. All of this gives a further historical dimension to our daily existence. In the same way, when new interventions into an existing context are made, an additional layer becomes integrated as a trace of its time referring to the conceptual origin of its belonging.

Memory through stratification will form the basis for the architectural narrative. It is through the embodiment of memory that meaningful architecture will transpire. Embodied memory consists of not only past memories, but also of places, experiences, moments, and events that offer a different perspective to each individual who encounters them. Therefore, this application of narrative will be explored and assessed through the role of heritage structures in post-

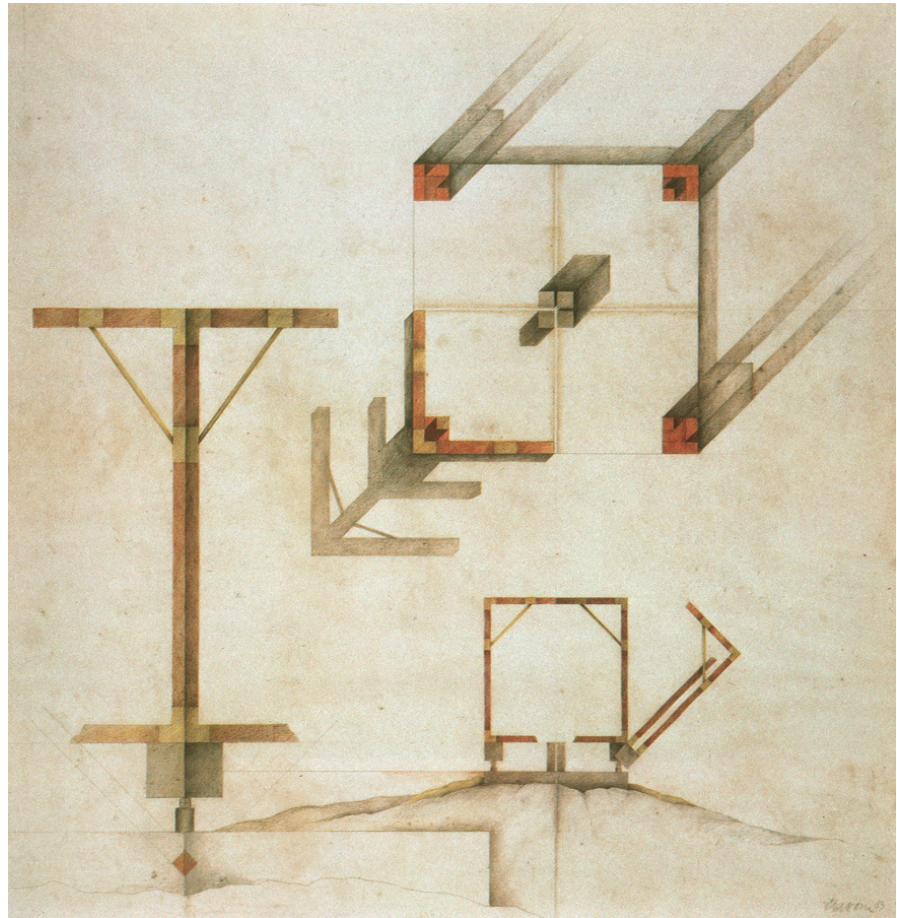
industrial Toronto. This curatorial context focuses on the historical timeline of existing places, spaces, and personal narratives. It will explore how narrative in relation to memory, as a sensory and cognitive emotion, can contribute to architectural space. By creating a new architectural narrative, overlooked and ignored structures can be offered a new practical existence which will serve to revive muted neighborhoods. Ultimately, embodied memory will be a key element of the future relevance of structures within their historic context. "One can say that the city itself is the collective memory of its people, and like memory it is associated with objects and places. The city is the locus and the citizenry then becomes the city's predominant image, both of architecture and of landscape, and as certain artifacts become part of its memory, new ones emerge."¹



Fig. 5
Bridgman Transformer Station
Giovanna Monaco
2016

Fig. 6
House for Euclid
Raimund Abraham
1983

The Dream: "In March of this year I experienced and recorded my first architectural dream. As my recollection of dreams has usually been vague, fragmentary and distorted, this particular dream left a precise and lasting imprint on my memory...It was the precision of my memory which enable me to demystify the imaginary quality of the dream: surreal and real became interchangeable metaphors."



Memory as a sensory function

1.0 defining memory

1.1 Mnemonics

Monumentum, the Latin word for monument, means “that which recalls memory”, memory being a sensory stimulation that assists the mind in recollecting the past. Scientifically, the act of remembering and recalling memory is a two-step process: “the first is successfully committing information to long-term storage. The second is recalling that information from memory.”² Memory and memory recollection therefore require both a moment in which the memory takes place and an event in which the memory is recalled. We tend not to be consciously aware of the daily role memories play in our lives unless they involve a moment which deems them worth actively remembering. The types of memories that we wish to remember or recall are called episodic memories: “If we want to remember, we have to think about it, and actively search our mind to recall that experience or event in our past. Because these are specific episodes of our lives we have experienced...”³ The individual act of memory and memory recall can become collective when a narrative is passed on as a common shared memory. The externalization of memories into architectural forms is one way that architecture may function mnemonically. When this occurs, the remembered moment is designed in space and can therefore recall emotions and trigger past memories in the individual.

The mnemonic value of a building, although originating as an individual experience, can also be a collective process. The process of judging mnemonic value on a larger scale can also be known as historic preservation. The historic value of a building may not relate to the construction of a particular individual's memory. However it holds a mnemonic value in the public eye owing to its monumental function. Marc Treib's book of collective essays on memory, *Spatial Recall: Architecture and Landscape*, offers different perspectives on externalized memory within architecture. Similarly, Jorge Otero-Pailos' essay on “Mnemonic Value and Historic Preservation” states that “For a building to become an object of historic preservation its mnemonic function must transcend individual purposes and become useful for constructing a collective identity.”⁴ This means that individual memories play a large role in the constructive identity of a building's collective memory. Because heritage value is acquired based on collective past experiences, mnemonic value in the present cannot be a singularly private event. Our individual recollections and personal experiences within a place remain personal. They cannot give an added value to a place, even though they can and do increase the meaning of a place personally for the individual. Therefore, a place's mnemonic function can be recognized as the outward expression of our individual recollections. “When experiencing a work of art, a curious exchange takes place; the work projects its aura, and we project our own emotions and percepts on the work. The melancholy in Michelangelo's architecture is fundamentally the viewer's sense of his/her own melancholy enticed by the authority of the work. Enigmatically, we encounter ourselves in the work.”⁵

How then do private mnemonic meanings transform into public mnemonic values? The relationship between art and person can be very much interpreted as a mnemonic process. Art, whether it is in the form of painting, sketching, sculpting, or other mediums, is representative of a reification process. Thought or memory in art can be transformed in various ways, whether through performance, installations, or objects. This experience is one that originates as a personal process for the artist. However once the work is made public it can no longer be considered only in reference to the individual who created it. Mnemonic values can therefore be measured based on their capabilities to endure as a concrete object in time. At this point, the question of “whose memory is a building being preserved for?” needs to be answered: it is both our individual and collective memories. Our individual memories related to a building remain personal and internalized. However, our collective memories are closely related to buildings monumental capabilities: “The mnemonic value of a place requires a process of reification, whereby personal remembrance is transformed into an object of memory.”⁶

In Juhani Pallasmaa's, *The Eyes of the Skin: Architecture and the senses*, it was explained that when experiencing a work of art like that of the architecture by Michelangelo, the work projects emotion and in reaction we project our own emotional response. Therefore Michelangelo's architecture can be seen as a projection of the viewer's own sense of emotion and melancholy triggered by the work. In short, a place's mnemonic function can be recognized as the outward expression of our interior recollections.

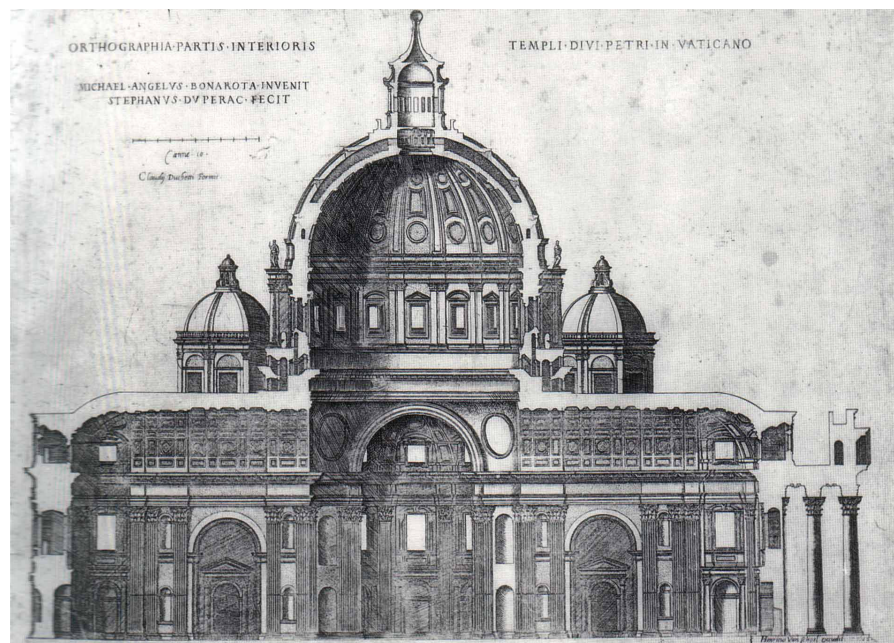


Fig. 7
St. Peter's Orthographic Section
Michelangelo
1546



Fig. 8
Henri - Louis Bergson
Berlin
1928

1.2 Individual Memory

"Everything, then, must happen as if an independent memory gathered images as they successively occur along the course of time; and as if our body, together with its surroundings, was never more than one among these images..."

-Henri Bergson

Individual memories are personal interpretations of events from one's own life. These memories provide a version of the past that helps us to navigate present and future, and are crucial to individual identity. Philosopher Henri Bergson begins from the hypothesis that all that we sense are images. Following Bergson, in this thesis the term "image" will be used to describe the objects that may trigger the human senses and evoke memories. In other words, image denotes a form or 3D object through which symbolic meaning may transpire. Through new layers of images, memories may emerge from the human experiences that have been stored away in the mind.

*'To some extent any object serves as an image in that it can call forth a knowledge-feeling response, but an art image is constituted differently from other objects in that its sense data may be selected and arranged so that it arouses deep layers of awareness affording insights into our personal identity, our bonds with nature, and our communion with other men.'*⁷

Marcel Proust, a 20th century French novelist, critic, and essayist, was one of the first writers to dwell on the relationship between an individual's past

and sequential experiences. For Proust, the memories worth discussing were those that we could not immediately recall but which resided below our consciousness. Therefore, this may mean that visual or sensory cues can result in feelings attached to previous experiences or awareness of the past. American photographer, Herb Greene builds a connection between art and architecture through the concept of image. Greene explains, "The complex feelings and high value associated with some art images result from the artist's ability to organize networks of sense cues to which previous meaningful experience has been attached."⁸

An example of this can be seen in Le Corbusier's chapel at Ronchamp. The overall aesthetic image is not specifically related to anything experienced in the past and yet possesses a multitude of visual cues associated with experiences valued throughout history. For example, one architectural technique used to cue visual experience is the use of natural light to create moments of memory. Thick expansive walls pierced by small openings bring to mind the association of European Fortresses or Mediterranean buildings. As Greene suggests:

*"...the mind processes the sense cues attached to a present image by referring to the qualities of shapes, colours, timbres, odors, textures, and other sense data that are already stored in the mind. Meanings and feelings that are referenced to these data are among the stored experiences that may be called forth by the image."*⁹

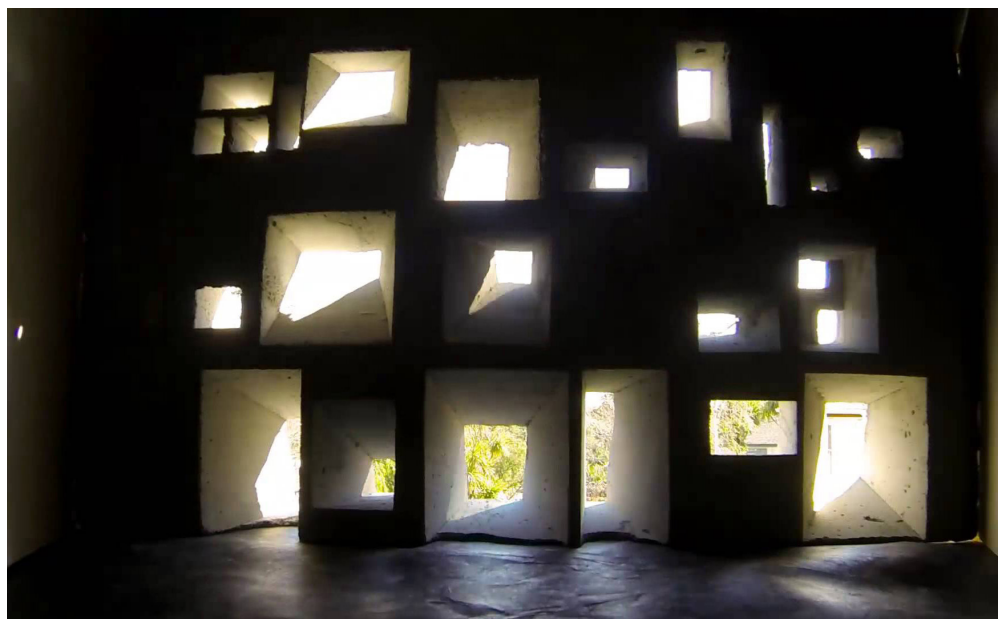


Fig. 9
Notre Dame du Haut
Ronchamp, France
Le Corbusier
1954

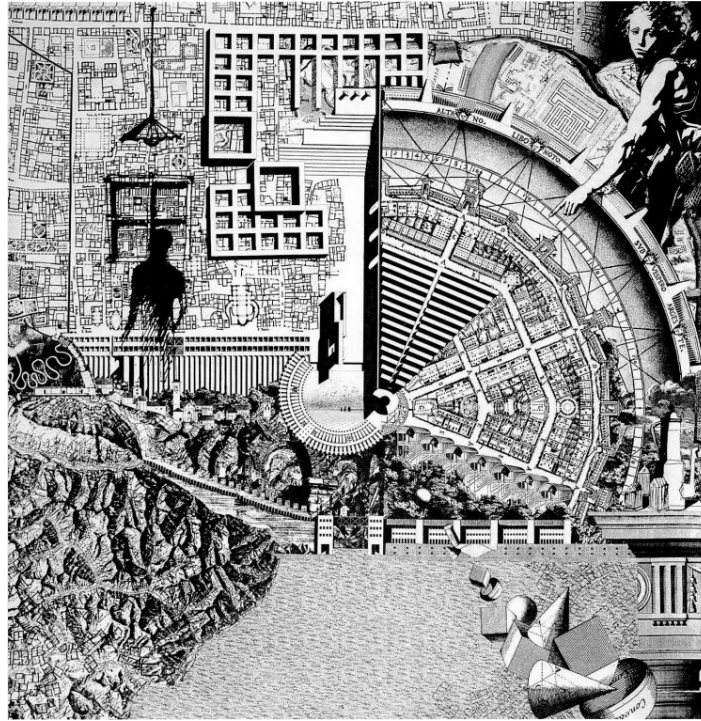


Fig.10
Aldo Rossi
Citta' Analoga
1976

1.3 Collective Memory

"One can say that the city itself is the collective memory of its people, and like memory it is associated with objects and places. The city is the *locus* of the collective memory"

- **Aldo Rossi**

In addition to Bergson's work on image, this thesis draws inspiration from architect Carlo Scarpa's use of historical multi-layering or "stratification" with respect to the evolving architectural narrative of Davenport Road. Collective memories are constructed based on the collective experiences, memories and events of individuals. Collective memory serves an important role in creating a sense of identity. Memory in this form takes place not only through the actions of individuals but can be seen through the geological layers of our surrounding landscape. This type of memory can reveal time chronologically through layers of stratification. Stratification in the study of archeology refers to the "analysis of largely horizontal strata created as cultures, peoples, or settlements declined and as human settlements were reorganized."¹⁰

In architecture however, stratification refers to "the superposition and apposition of layers and material."¹¹ This means that stratification is expressed aesthetically in the details of how an object or component of architecture is put together through the layering of materials, volumes of space, or spatial organization. In his analyses of the architectural work of Carlo Scarpa, Shultz uses theory and comparative analysis to gain an understanding of stratification. Shultz explains that "a purely sedimentative analysis of strata includes such

nonphysical components as memory, metaphors, and references to other places or buildings.”¹² Memory through stratification therefore becomes a useful method when working with a heritage building and landscape. Not only is the building an important historical relic existing as a part of the current city fabric. The surrounding site, too, is of relevance in the building’s chronological timeline.

One of Aldo Rossi’s concepts explains that the value of history can be seen as collective memory. It is the relationship of the collective to its place that helps to identify the significance of an urban structure. Rossi references Cattaneo’s principle: architecture is an event and a form. Thus the relationship between the past and present in architecture flow through the medium of memory, in the same way that memory flows through the life of a person: “memory becomes the guiding thread of the entire complex urban structure.”¹³ Rossi describes collective memory as the science of urban artifacts; as a whole it embodies a passage from nature to culture. It is when this story or past memory is conveyed to others that link between the city and nature becomes more clearly defined and transmitted as experience. In other words, collective memory exists not as an abstract thought but in the relationship between the urban fabric and those who live within it. The form of architecture constitutes a channel between the past and present, an infrastructure that allows for series of events to flow through it. It is these events or moments that become the history of the city.

What Rossi and Scarpa have in common is their sensitivity to, and ability to define, history as a narrative within architecture. As Schultz observes: “What was there earlier remains in existence like a kind of palimpsest and begins a communication with the newly added elements.”¹⁴ For Rossi the city itself and its landscape hold the collective memory of its people, and memory is associated to objects and places. For Scarpa memory within the city and landscape becomes an inspiration for defining geometries of space where materials or spatial sequences may be clearly and chronologically separated based on a particular historical narrative. Scarpa uses the concept of spatial stratification or stratification of material to both define space and to formulate a new layer or atmosphere that links past memory to the present. Using narrative as a primary tool, Scarpa utilizes a passageway in one of his most notable works, Castelvecchio, Verona, to lead visitors on a journey through the layers of a medieval castle. This is achieved through a layering of space and, more significantly, material. Scarpa’s use of different strata of material serves to define space in particular ways, and to convey narrative components organically related to the history, locale or material of the site. Again, following Schultz, we can see how “[f]orm and choice of material can carry memories of contexts that create mental connections between buildings and cultures.”¹⁵ Scarpa’s use of historical multi-layering with respect to this thesis will be used as inspiration towards evolving the narrative of Davenport Road.



Fig.11
Carlo Scarpa
Museo Castelvecchio
1959-73

Notes

- 1 Rossi, Aldo, *The Architecture of the City* (Cambridge: MIT Press, 1984), 130.
- 2 Mayer-Schonberger, Viktor, *"Failing to Forget 'The Drunken Pirate', Delete The Virtue of Forgetting in the Digital Age* (Princeton: University Press, 2009), 19.
- 3 Mayer-Schonberger, 19.
- 4 Treib, Marc, *Spatial Recall: Memory in architecture and landscape* (New York : Routledge, 2009), 242.
- 5 Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the Senses* (Cornwall: John Wiley & Sons Ltd, 2005), 74.
- 6 Treib, 252.
- 7 Greene, Herb, *Mind and Image an Essay on Art and Architecture* (Lexington: The University Press of Kentucky, 1978), xi.
- 8 Greene, 2.
- 9 Ibid, 2.
- 10 Schultz, Ann- Catrin, *Carlo Scarpa Layers* (Stuttgart : Edition Axel Menges, 2007), 9.
- 11 Shultz, 9.
- 12 Ibid, 9.
- 13 Rossi, Aldo, *The Architecture of the City* (Cambridge: MIT Press, 1984), 130.
- 14 Schultz, Ann- Catrin, *Carlo Scarpa Layers* (Stuttgart : Edition Axel Menges, 2007), 9.
- 15 Schultz, 16.



Fig. 12
Serra da Capivara
Brazil
28,000-6,000 B.C.

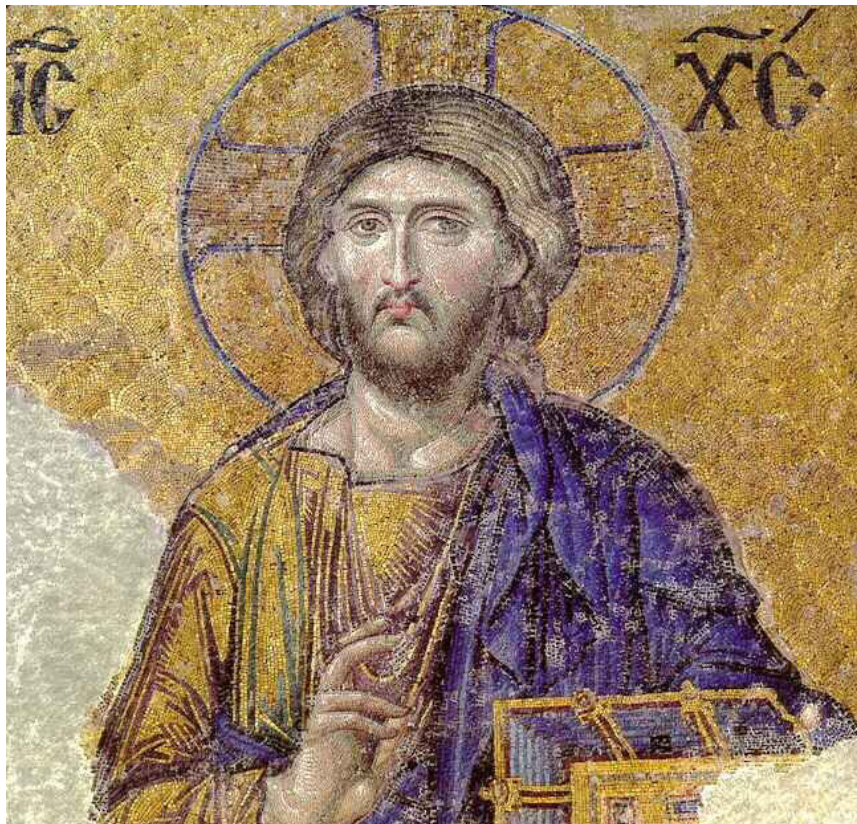


Fig. 13
Mosaic of the Deesis
Hagia Sophia
13th century

Art is the externalization of emotion

2.0 memory image

2.1 Art in architecture

In the preface to *Desire and Access: The Nineteenth Century Culture of Art* Jonah Siegel begins by questioning the relationship of art to architectural space, and, specifically the museum. “If the walls of the museums were to vanish, and with them their labels,” he writes “what would happen to the works of art that the walls contain, the labels describe? Would these objects of aesthetic contemplation be liberated to a freedom they have lost, or would they become so much meaningless lumber?”¹⁶ This question serves to remind us that, in relation to memory, art and painting are acts of externalizing memory. By writing, drawing, dancing, or reading we are seeking to externalize our memories and capture an event or emotion in time. These acts of externalized memory enable us to recall more vividly, and they facilitate the recollection of common shared memories. Painting in particular is one of the oldest forms of externalized memory, since “paintings were used to chronicle events, and thus to preserve human experiences.”¹⁷ The oldest known paintings date back more than 30,000 years found in caves across the world where painters drew animals, perhaps wishing they would appear.

At its origin, painting was linked with elements of the supernatural and higher forms of enlightenment. Religion played a large role in the establishment of this role for painting as a mode of representation. Early Christian art, also known as Paleo-Christian or primitive Christian art, included architecture, painting, and sculpture. This period spanned from the beginnings of Christianity until the early 6th century in Italy and the Mediterranean.¹⁸ The art characteristic of this period reflected a trend in the Roman Empire towards mysticism and spirituality, similar to the intentions of early cave paintings. Narratives reflected in paintings, sculpture and architectural elements depicted scenes of the Old and New Testaments. Such scenes described the life of Christ through miracles from passion to crucifixion and functioned as an earthly description of an immeasurable supernatural power.

The paintings of this period had a major impact on later periods both their art and their architecture. Suddenly the church needed to produce art and architecture that would reflect ideals similar to those already depicted in paintings, but now on a more ambitious scale. Consequently, the Basilica became the typology for Christian worship and the preeminent building type of European architecture throughout the Roman Empire. Leading up to the Renaissance some of the greatest examples of religious architecture, which drew their inspiration from the art of painting, can be seen in the Byzantine and Gothic styles. Santa Maria della Salute (1631-1681) is a votive Roman Catholic Church dedicated to the Virgin Mary and constructed to celebrate the end of the plague. The church is located on the narrow edge of Punta della Dogana’s canal in Venice, Italy. This church is not only an example of religious art, as it is depicted within the building. Its architectural gestures as well, form a narrative unlike any other built at that time. As Alessandra Boccato explains, “The church was given an

octagonal form and raised almost theatrically onto a sort of platform preceded by a series of steps. This stupefying composition of volumes forms a 'crown' that was supposed to refer directly to the crown worn by the Virgin Mary as an emblem of victory."²⁰ The narrative unfolds through the experience of approaching the church and walking through its vast, open dome. Situated next to the canal, the church further symbolizes themes of heaven and water in opposition to death and darkness. This experience is strengthened as the visitor ascends the church steps, being elevated towards enlightenment. The dome of the Salute – the "round Baroque machination" was an important addition to the Venice skyline, "which, with its conceptually innovative design, was to assume a specific meaning for Venice, underlining its symbolic function and acting as a visual link within the enormous void of St Mark's Basin."²¹ The dome was later seen depicted as a source of inspiration in paintings by artists such as Canaletto and J.M.W. Turner's *The Dogana and Santa Maria della Salute, Venice* (1843).



Fig. 14
Santa Maria Della Salute,
Venice, Italy
Giovanna Monaco
2016

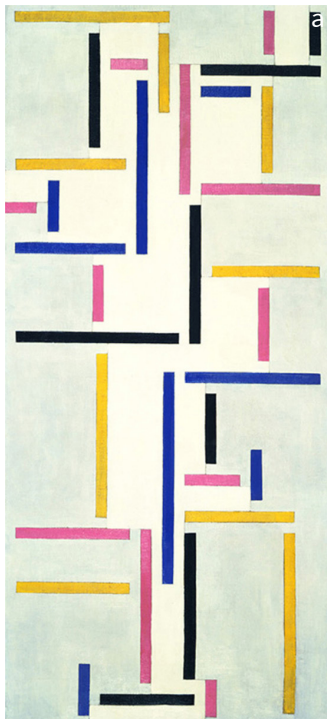


Fig. 15
The Dogana and Santa Maria Della Salute, Venice
Joseph Mallord William Turner
1843

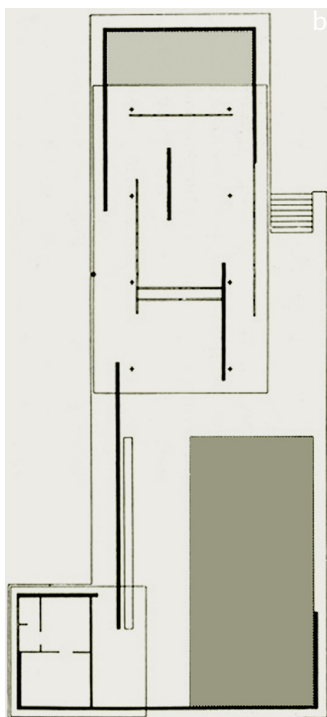
Fig. 16

a.
Rythm of a Russian Dance
Theo van Doesburg
1918

b.
Rythm of a Russian Dance
Theo van Doesburg
1918



As we can see painting has a long history of influencing architects and architectural form. More recently, in the 20th century, the 1920's and 30's saw the De Stijl movement emerge in the Netherlands, partly as a reaction to the decorative Art Deco style. By contrast the visual language of De Stijl introduced simple geometric forms and stylized patterns: "the reduced quality of De Stijl art was envisioned by its creators as a universal visual language appropriate to the modern era, a time of new, spiritualized world order."²² A painting by De Stijl artist Theo Van Doesburg influenced Mies Van Der Rohe in his plan for the Barcelona Pavilion in 1927. Similarly, architects such as Zaha Hadid, Santiago Calatrava, and Frank Gehry are contemporary examples which illustrate the continuous intercourse between art and architecture. Preserving memory through painting captures a moment in time. But in the process it not only reflects our memories and events we experience, but our emotions as well.



Romanticism as a movement occurred over a period from the late 18th to the mid-19th century. It derived from of an emotional response to the industrial revolution, then spreading throughout England, France and America. This movement gave birth to a variety of paintings, works of literature, musical compositions and architectural works, which reflected attitudes characteristic of western civilization at the time. In the latter part of the 18th century the industrial revolution introduced a new market economy that was heavily based on technology, and which brought about drastic socio-economic and cultural changes. This was the first mass introduction of machine tools and machine power in replacement of human, animal, and natural power. Industrialization greatly influenced the ideals of western civilization as new philosophies such as enlightenment began to change dominant was of thinking about the human relationship with the environment. The period alternately referred to as "the Enlightenment," "siècle des Lumières" (literally "century of the Enlightened")²³, or "the Age of Reason", was a time of dramatic intellectual movement. Thinkers began to question established order and to posit a life based on reason rather than tradition. They sought to establish an orderly system of aesthetics, ethics, government, and religion, which would allow humans to obtain a level of truth or fact applicable to all the questions of life. Reason was understood as being in opposition to perception, to feeling and desire, and to emotions, all of which the enlightened thought to be illogical.

Romanticism was therefore a counter movement to enlightenment, a rejection of the values of order, scientific thought and rationality that defined the 18th-century enlightenment period. Romanticism emphasized the individual, and espoused a sentimental longing for nature. Romantics challenged the idea that there was one narrative to uncover the truth of life. Rather they believed that these mysteries could be uncovered variously through emotion, imagination, and intuition. Romanticism characteristically emphasized a deepened awareness of, and appreciation for, the relationship between humans and nature, through which the beauty and mystery of nature could be revealed to the mind of

man. Romantic artists became fascinated with nature in a way that resembled a nostalgic longing of a more peaceful past, prior to industrialization. For the Romantics, nature not only reassembled memories and past experiences, but recalled human emotions as well. The pull of these emotions was far stronger than that of the machine. Paintings were created in the hopes of inspiring an emotional response to those who viewed their art. However, similar to the Baroque artists, the Romantics did not seek to inspire faith, but to evoke a nostalgic yearning for rural life, the wonder of life's mysteries, and the presence and grandeur of nature.

In Romantic art, nature and its relationship to man was the primary subject. Nature offered an alternative to the ordered world of enlightened thought, which placed itself atop a hierarchical order of thought. Nature, however, represented an uncontrollable power, one much stronger than industrial power and order. Nature therefore offered unpredictability and an aesthetic of the sublime. As observed by French philosopher Denis Diderot "All that stuns the soul, all that imprints a feeling of terror, leads to the sublime."²⁴ Nature could therefore uncover the highest level of enlightened thought, because the Romantic artists believed that it was through emotion and sensory experience that enlightenment could be achieved. English Romantic landscape paintings emerged in the late 18th and early 19th centuries through the work of J.M.W. Turner and John Constable.²⁵ The work of these artists emphasized nature through light, atmosphere, and colour, in order to portray emotion, thought and transient experience.

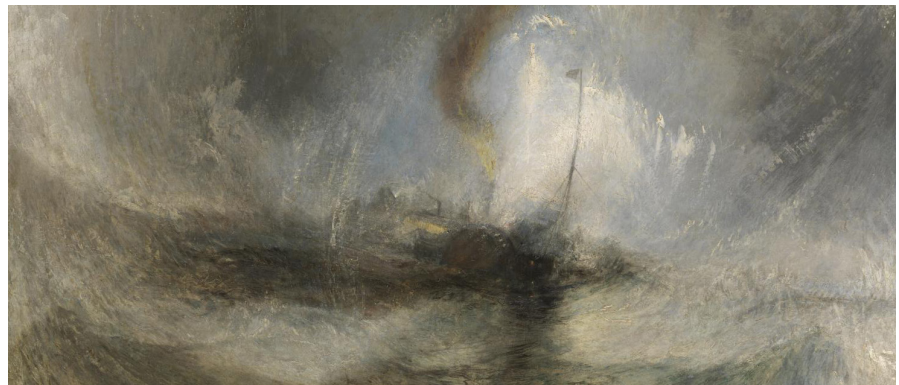


Fig. 17
Snow Storm: Steam-Boat off a Harbour's Mouth
Joseph Mallord William Turner
1842

2.2 Emotion through architecture

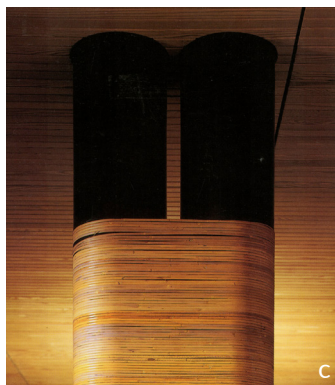


Fig. 18
(a,b,c,d)
Emotion as experience

Emotions influence our ability to remember information and recall past memories. Psychologist A.M. Waude contends that “emotions are believed to play a role in determining whether we can recall a stored memory at the time we try to revisit it... It appears that emotionally charged situations can lead us to create longer lasting memories of the event.”²⁶

Emotions have always been the driving force and central system motivating human kind. They are the source and origin of many decisions and reactions that humans make. Artists, writers, and musicians have become masters at tapping into an audience's emotions by moving them through symbolic communication. Similarly, when experiencing architecture, we often feel certain emotions in connection with architectural space that can evoke a religious or personal experience. Juhani Pallasmaa describes this emotional exchange between art and architecture as one that should be experienced in relation to deeply embodied memories and projections:

“In the experience of art, a peculiar exchange takes place; I lend my emotions and associations to the space and the space lends me its aura, which entices and emancipates my perceptions and thoughts. An architectural work is not experienced as a series of isolated retinal pictures, but in its fully integrated material, embodied and spiritual essence. It offers pleasurable shapes and surfaces moulded for the touch of the eye and other senses, but it also incorporates and integrates physical and mental structures, giving our existential experience a strengthened coherence and significance.”²⁷

The relationship between artistic expressions and how that expression is embodied in a given architectural structure are linked in the attempt to externalize inner emotions into concrete spatial forms. Juhani Pallasmaa and Sarah Robinson highlight the work of architects Frank Lloyd Wright and Alvar Aalto as examples of architects who are able to design buildings which embody emotive and unconscious feelings: “Both Wright's and Aalto's masterworks are examples of an architecture that benevolently embraces us, which can hardly be explained intellectually. This is an architecture that is directly connected with our human nature by the architect's own intuited wisdom.”²⁸ Frank Lloyd Wright's Taliesin West situated in the Arizonian desert outside of Scottsdale, Arizona (1937-1959) was designed to be the winter home for Wright and his wife.²⁹ He used the landscape not as a mere background, but as an integral aspect of the experience of his home and studio. The landscape shaped the home, shaping and inspiring the geometric and tectonic qualities of the resulting architectural form.



As Pallasmaa and Robinson explain:

"As we enter this compound, we are placed center stage to experience the desert and the sky, light and shadows, intimacy and vastness, materiality and weightlessness, nearness and distance, in a manner that we have not experienced them before. We are invited inside a unique ambience, an artistically structured world of embodied experiences, which addresses our sense of being, balance, horizon, and temporal duration in a way that bypasses rationality and logic."³¹

The composition of architectural elements of Taliesin West in balance with its natural context curates an experience which is intended to evoke a variety of emotions. The home reflects Wright's own personal expressions and imagination, and, along with experience and memory, imagination is an embodied act. This home is a compilation of Wright's own memories, experiences and expressions. Gaston Bachelard argues in *The Poetics of Space* that the home is the center of ones of imagination and dreams: "chief benefit of the house [is that] the house shelters daydreaming, the house protects the dreamer, the house allows one to dream in peace.... The House is one of the greatest powers of integration for the thoughts, memories and dreams of mankind."³²

Similar to Wright's Taliesin West, Aalto blurs the line between nature and the built environment through his design for Villa Mairea. Built as a guest-house in rural Finland, the house was used as an experiment for Aalto's own thoughts and expressions. The most intriguing aspect of the home is Aalto's use of material and structure. The shift from exterior to interior space is paralleled by a transition in materials, mimicking the natural landscape. As space shifts from domestic to intimate, so too do the materials shift: from stone to timber boarding or rugs. Vertical columns were placed in a variety of shapes throughout the house to mimic its natural surroundings. In this way Wright and Aalto are both able to extend architecture beyond the strictly visual or functional use of space into the emotional and intellectual realms of art and architecture.



Fig. 19
Wheel of Emotions
Robert Plutchik
1980

Robert Plutchik, a professor and psychologist at the University of South Florida, dedicated his research to the study of emotions, suicide, violence, and psychotherapy. His most influential work involved a theory of basic emotions that consists in eight primary categories: anger, fear, sadness, disgust, surprise, anticipation, trust, and joy. He developed these categories of emotions into a pictured wheel in order to demonstrate how emotions might be related. Plutchik argues for understanding emotions in terms of these eight basic categories by describing each to trigger behaviours similar to that found in the non-human animal world. In this thesis six of Plutchik's basic emotions were selected for an initial spatial and architectural exploration: anger, fear, sadness, surprise, anticipation, and joy. The exploration revealed that emotion in relation to space is dependent on the individual user. Therefore a predetermined emotion could not be prescribed for a given space or building.

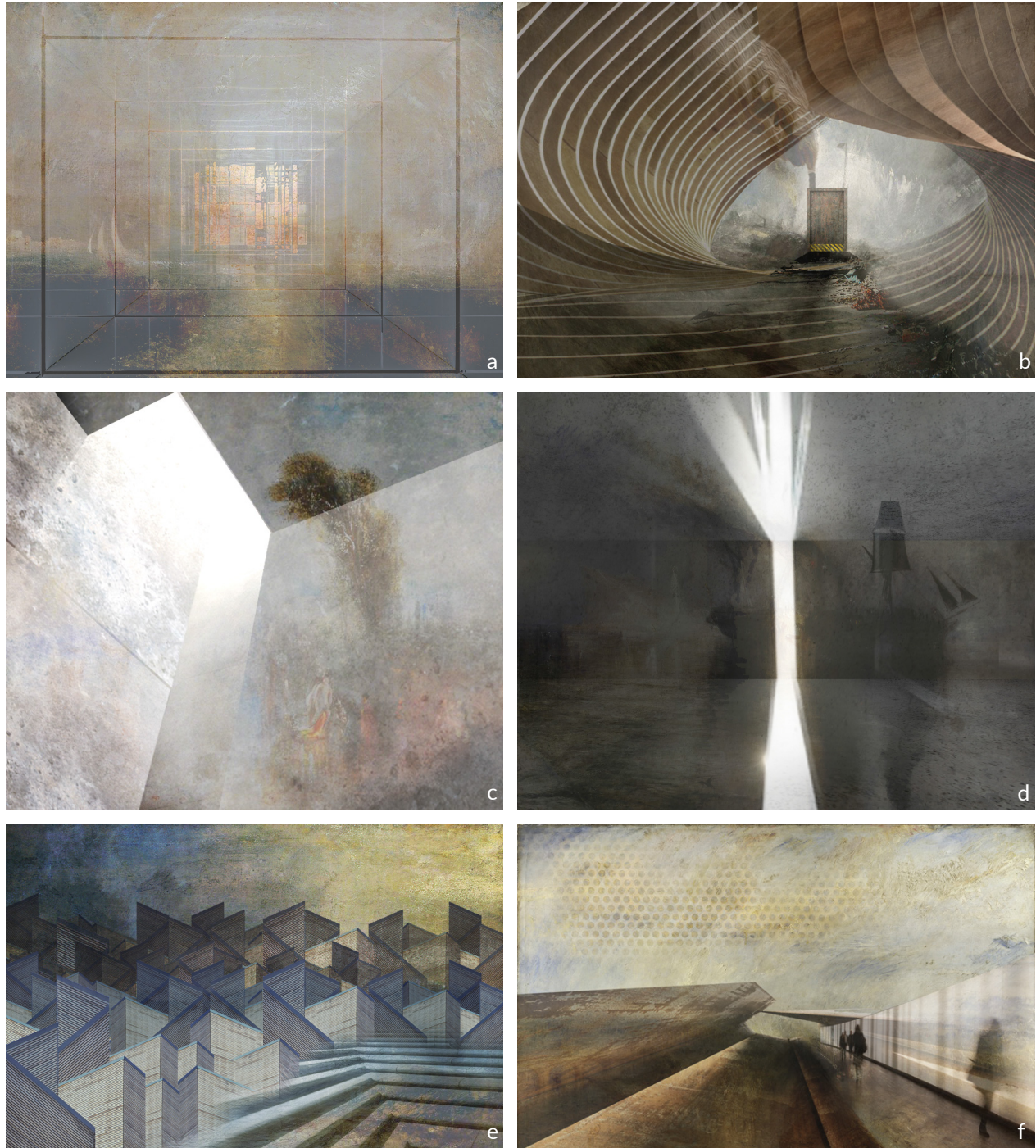


Fig. 20
Translation of Art to Form
Giovanna Monaco
2016

- a. Joy
- b. Anger
- c. Surprise
- d. Sadness
- e. Fear
- f. Anticipation

The above examples illustrate how qualities of built spaces and can represent and embody emotions through form and other aspects of artistic expression. Each image represents an emotion category as per Plutchik's work, through which the relationship between emotion and space can begin to be explored. These drawings question what emotions look like in architectural space. As subject matter, the paintings of the Romantic artist J.M.W. Turner were used. His paintings were studied because of their ability to capture the sense of emotion and the atmospheric qualities of light and perspective. These qualities were taken into consideration when creating a new representation of the image.

2.3 Artistic Methodology

As previously discussed, visual art gives us a unique insight into human's psychology. It has the ability to connect the psychological world, and one's inner emotions and feelings to an exterior physical world. While the visual arts consist of many disciplines, what is common to all is the aspect symbolic meaning or narrative. Many painters have sought means of expressing the connections between viewers and experienced events beyond the singular object or event represented in a painting. For example, in Rembrandt's Jewish Bride, "[t]he model becomes a reference to infinity to which particular experiences called up by the image can be attached-experiences, for instance, of warm colours, deep space, and man-women relationships."³³ An analogous phenomenon can be seen in architecture, through the composition of spatial depth, perspective, and transparency. Pierre von Meiss describes the relationship between painting and architecture as one of spatial depth. He interprets the transparent, overlapping layers, which, together with perspective produce the effect of depth:

*"Medieval painters and those who paint in a different way, such as Gris, Braque, Le Corbusier, and later Slutsky, are masters of shallow depth-space, in which superposed planes appear crowded and close together. The architects, too, have tried to structure their buildings with minimal and undefined intervals between them, not only shallow-depth space, but also the phenomenon of transparency created by fragmentary disappearance and reappearance of one plane behind the other."*³⁴

Many artists have sought to evoke emotion or specific kinds of feeling through the organization of visual cues. These visual cues correspond to past experiences stored in the mind, or in other words the experience of memory. Sensory cues in particular, such as shape, proportion, or light are meaningful to humans because of their ability to invoke emotions or previous experiences from our past. These cues are not necessarily tied to one particular emotion or individual. Rather, they may speak to any number of stored meanings, accumulated through daily encounters and experiences. J.M.W. Turner, for example, utilized light as a central sensory cue to evoke an emotional response. His paintings dealt with the concept of nature and structured light and shadow were used as a key visual cue within each of his paintings. He created depth through the texturized layering of colour and paint to mimic elements of nature, much like Scarpa's layering of materials in order to create new atmospheres in architectural space.

We can, therefore, extract these as examples as a methodology for designing narrative in heritage landmarks of the city. By utilizing the existing heritage form, we can begin to construct a narrative based on a particular building's site and historical context. Art or paintings may not be directly related to a buildings identity. However we can refer to the structure of a particular painting or style that may evoke certain sensual qualities in order to highlight specific moments within the building's form. I applied this method to the selected heritage site – the Bridgeman Transformer Station – by relating a selection of J.M.W. Turner's paintings to the former hydro-substation. In each painting I specifically looked



Fig. 21
The Jewish Bride
Rembrandt
1662

towards Turner's focus of light and overall atmospheric qualities and applied these same qualities of emotion to particular spaces in the former Transformer Station. While Turner's work does not directly relate to the site, I drew on the aesthetic qualities of his paintings as the basis for an architectural technique that allowed me to understand the more complex heritage aspects.

By focusing on light, I sought to highlight elements of the building that reveal historical aspects, rather than to imagine a scenario where the building is altered or torn down. As such, light was crucial tool of sensory design as applied to this heritage building. The overlapping and texturized quality of Turner's paintings also made for an interesting reference point when analyzing the transformer station. Much of the building's materials and textures convey a narrative of their own, since most of the materials used to build the station were taken from the surrounding landscape. The texturized quality and structure of Turner's paintings also aided my decision to maintain a distinction between the layers of the existing building and the overlapping layers of new additional elements.

Notes

- 16 Siegel, Jonah, *Desire and Excess: The Nineteenth Century Culture of Art* (Princeton: Princeton University Press, 1963), preface.
- 17 Mayer-Schonberger, Viktor, *"Failing to Forget 'The Drunken Pirate', Delete The Virtue of Forgetting in the Digital Age* (Princeton: University Press, 2009), 29.
- 18 Encyclopaedia Britannica, "Early Christian Art" [Retrieved from Britannica] [<https://www.britannica.com/art/Early-Christian-art>]
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- 27 Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the Senses* (Cornwall: John Wiley & Sons Ltd, 2005), 12.
- 28 Plutchik, Robert, *The Emotions* (London : University Press of America, 1991)
- 29 Juhani Pallasmaa, Sarah Robinson, *Mind in Architecture: Neuroscience, Embodiment, and the Future of Design* (London : The MIT Press, 2015), 65.

- 30 Kroll, Andrew, "AD Classics: Taliesin West / Frank Lloyd Wright" *Archdaily*, March 29, 2011, <http://www.archdaily.com/123117/ad-classics-taliesin-west-frank-lloyd-wright> (accessed 11 22, 2016).
- 31 Pallasmaa, Robinson, 57.
- 32 Bachelard, Gaston, *The Poetics of Space* (Boston : Beacon Press Books, 1994), 6.
- 33 Greene, Herb, *Mind and Image an Essay on Art and Architecture* (Lexington: The University Press of Kentucky, 1978), 62.
- 34 Schultz, 10.

The embodied memory of a place

3.0 space and place

3.1 Depths of Space

*"...Man imagines in the first place the space which surrounds him and not the physical objects which are supports of symbolic significance. All static or mechanical dispositions, as well as the materialization of the spatial envelope, are only means for realizing an idea which is vaguely felt or clearly imagined in architectural creation... Architecture is 'art' when the design of space clearly takes precedence over the design of the object. Spatial intention is the living soul of architectural creation."*³⁵

Space can be defined as a "container of things", or that which is structured by the presence or absence walls, objects, and the ground. Theories of space have been a topic of discussion since the time of the ancient theoreticians. Aristotle described space as the container of things, an envelope encompassing everything around us from what is "within the limits of the sky" to the "smallest gap in between a series of Russian dolls."³⁶ The concept of space for the architect can be described as the gap between the ground, walls and the ceiling. It is the reason for the creation of concrete form, to give space a container or hollow relative to the movement which people require. Elements of the arts such as painting, sculpture, and music all have spatial qualities of their own; they embody space in the mind. Architecture enables the individual to externalize the imagined spaces that exist in the mind, into concrete forms. As human beings we do not consciously register all of the fragments of space that may be present, in order to gain an understanding of a given spatial order. This is because we use other senses apart from vision, such as hearing and touch, to gain an overall idea of space. The space created by the architect is space experienced. It is carefully curated by the architect in order to filter our perceptions and overall experiences while travelling through it.

In painting the most common and effective indicators of depth and perception are perspective and texture. Pierre von Meiss offers Le Corbusier's *Still Life* (1920) as an example of the practice of layering and stratification. Corbusier attempts to decompose his painting into layers or planes of concrete form, which can be seen in his axonometric diagram.

The space between gaps, objects or layers of materiality, are known as spatial stratification. This concept is notably used by architects Scarpa, Wright and Miess van der Rohe. In Scarpa's work, art and architecture are essentially combined. Influenced by the De Stijl movement, he de-composed elements, abstracting them into individual components and limiting space. For example in the renovation of Castelvechio, Scarpa used the addition of horizontal and vertical slabs in order to define a range of different elements. On a smaller scale this can be also seen in works such as the staircase in the Olivetti Store in Venice, where he makes visible the separation of individual parts by maintaining a gap or hollowed space.

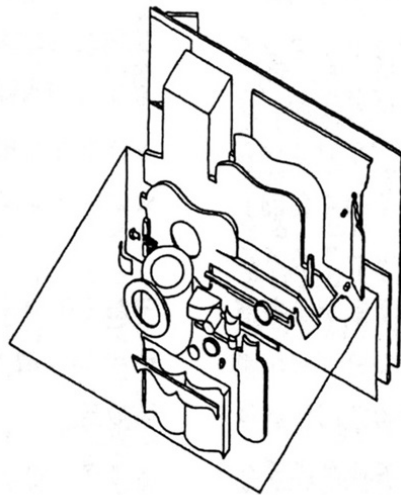


Fig. 22
Axonometric Still Life
Le Corbusier



Fig. 23
Still Life
Le Corbusier
1920



Fig. 24
Olivetti Showroom
Venice, Italy
Carlo Scarpa
1958

The concepts of layering and spatial stratification are crucial to the design elements of the Bridgman Transformer Station presented here. The layering of new materials and planes were used to create moments within the buildings overall narrative. A gap was maintained from the existing structural form and the new layers in order to define and demarcate the old from the while simultaneously respecting the building's heritage value.



(Previous Page)
 Fig. 25
 Venice Biennale
 Venice, Italy
 Giovanna Monaco
 2016

Fig. 26
 Van Brunt & Howe: Interior of Electricity
 Building
 Chicago World Fair
 Chicago, Illinois
 1893

3.2 Light and Shade

The use of lighting in architecture has changed drastically over the centuries. Light was once discussed in terms of maximizing a structures ability to let in natural light. In religious architecture, light was used to arouse feelings of mysticism and create a sacred atmosphere. The Ancients sought to use architecture and light to establish a link between earth and the mythical sky. The Pantheon in Rome (AD 118-28) was built as a temple dedicated to all of the gods. Within the building's mass lies a volume of space that takes the shape of the perfect circle beneath a hemispherical dome. Light streams into its centre from a single source, a huge oculus, filling the interior and sweeping around the drum. As previously discussed, in Christianity light and daylight were a symbol of God, which influenced the specific form of many of the Gothic Cathedrals in Europe.

With the invention of electricity, lighting shifted from natural to artificial, which brought both advantages and disadvantages. Electricity has extended the working day, allowed the better management of traffic, and the introduction of new means of transportation making urban life safer and more efficient. In the world of architecture the possibilities became endless, as the giants of scientific invention such as Thomas Edison, Nikola Tesla and George Westinghouse, raced to light the world at events such as the 1893 Chicago World Fair. The 20th century brought another shift in our understanding of light, spurred by developments in both science and art. Light was now understood as a duality of both natural and artificial energy, one that may flow through physical things and is in constant motion. Simultaneously light was being explored in the visual arts by impressionist painters such as J.M.W Turner and Monet. Light was explored drifting through a canvas giving the impression of smoke or mist to create the illusion of light and matter thus veiling or unveiling an object.





This new understanding of light influenced architects of the 20th century as well: figures such as Frank Lloyd Wright, Le Corbusier, Alvar Aalto and Louis Kahn. The most poetic in nature was Kahn who considered light as a metaphysical presence within space:

*We were born through light. The seasons are felt through light. We only know the world as it is evoked by light, and from this comes the thought that material is spent light. To me, natural light is the only light that makes architecture, architecture."*³⁷

Over the past century, the concept of artificial light has transformed the art of building. Rather than conceiving a building through natural forces, the building is essentially designed with a disregard to nature, and light is incorporated as an entity that must be infused into the building through artificial means. Because the subject of this thesis deals with a pre-existing built form, the ability to conceive a building using light as a primary design tool is challenging. The design strives to extract and illuminate elements of the existing building while shedding light onto moments within it. Light is used as a narrative element orchestrating time, space, and rhythm. Similar to its use in painting, light can be used to veil or unveil already existing objects in the building in order to evoke and emotional intensity. Incisions of light can be used to create moments that flow in sequences of light and shadow. A contemporary example of this can be seen in Tadao Ando's Koshino House wherein space is not defined by a specific moment but by prolonged sequences of light and shadow that alter the space at different hours of the day.

Fig. 27
Koshino House
Ashiya, Hyogo, Japan
Tadao Ando
1984

Notes

- 35 Schmarsow, August, "The Essence of Architectural Creation" April 1, 2017. http://designtheory.fiu.edu/readings/mallgrave_schmarsow.pdf
- 36 Meiss, Pierre von, *Elements of Architecture from form to place* (New York: Spon Press , 1990), 93.
- 37 Plummer, Henry, *The Architecture of Natural Light* (New York: The Monacelli Press , 2009), 10.

elements of memory
present

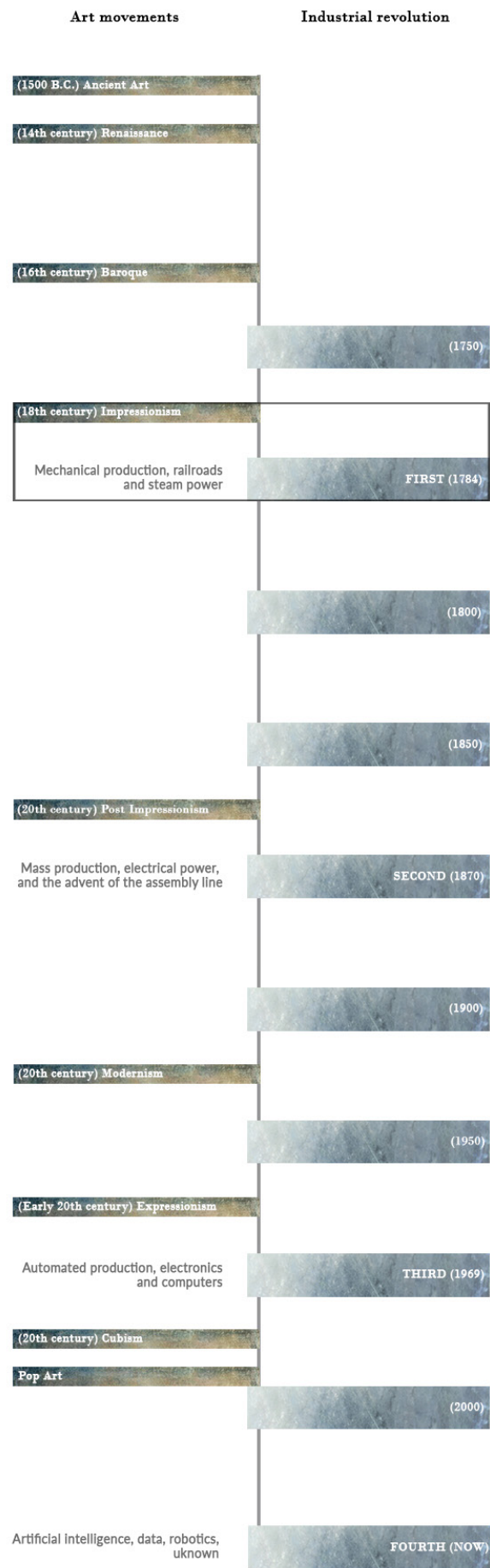


Fig. 28
20th Century Industrial
Movements
Giovanna Monaco
2016

The consequence of history

4.0 experience

4.1 Narrative in architecture



Fig. 29
Narrative Sequence
Giovanna Monaco
2016

Inspired by the work
of photographer
Eadweard
Muybridge

Narrative begins from how people interact with their environment, mapping their experiences of the world in mental space. The act of memory recalls what is around us, be it a past moment, an event, or the trace of an image that reminds of what was once there. This allows us to recall fragments of a historical past while experiencing space in the present. This ability to revisit moments allows us to experience space differently by fusing the past and present into a single narrative. It is movement in space that allows the individual to alter their spatial experiences. In this way, narrative in relation to memory can be thought of as a succession of planes or spatial sequences, similar to the concept of stratification in memory. For example, a sequence of layers in architectural space may be interpreted as the relationship between a human and the succession of rooms or objects organized within a space. The organization of architectural elements through a sequencing of layers can create an impression of spatial complexity and distance. This is similar to spatial depth and construction, particularly as they are used in painting.

The relationship between humans and nature has been a persistent topic in the study of architecture, as a discipline which mediates between the two, through the design of built form. Romantic art depicted the natural landscape as the highest form of power, one that evoked a feeling of the sublime. In Immanuel Kant's *Observations on the Feeling of the Beauty and Sublime* (1764), he discussed the aesthetic qualities and experiences constituting the nature of the experience of the sublime. The sublime is essentially both beautiful and terrifying, while beauty, by contrast, is ornamentation, without the power to evoke or fear. The sublime is mysterious and incomprehensible:

*"The sublime is in turn of different sorts. The feeling of it is sometimes accompanied with some dread or even melancholy, in some cases merely with quiet admiration and in yet others with a beauty spread over a sublime prospect. I will call the first the terrifying sublime, the second the noble, and the third the magnificent. Deep solitude is sublime, but in a terrifying way."*³⁸

In the present design project, the concept of emotion is expanded in philosophical and mathematical terms through chronological experience as proposed by Immanuel Kant. Taking this perspective, the narrative can be described through a chronological ordering of our emotive responses when faced with the sublimity of nature. In this case, it is the context of human kind and memory that is sublime. In metaphysical terms, memory will denote human thought, past memory, emotion, and activity. In this way, industrial buildings can serve as the medium for memory recollection and experience.

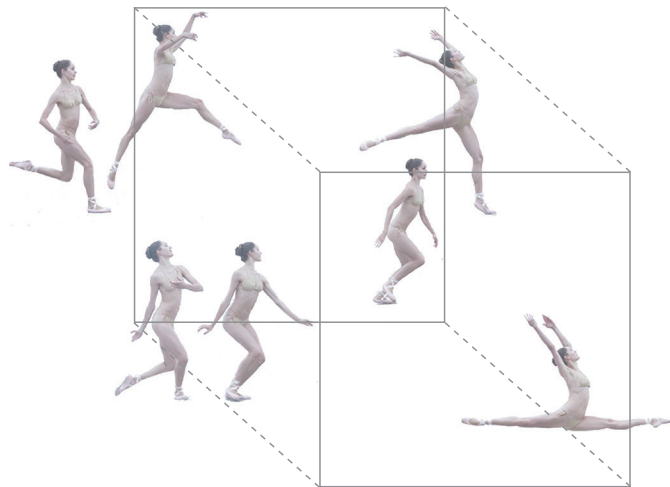


Fig. 30
Narrative Spacing
Giovanna Monaco
2016

4.2 Memory and symbolism

It is important to define the boundaries between memory and symbolism. Related but distinct concepts, the two are often be mistaken for the same thing. Memory in this thesis focuses on retrieval through architectural cues. There are three main stages of memory: registration, creation and recollection. To recall a memory the stored information becomes apparent when triggered by a response to a sensory cue. Symbolism has many different strands. Its basic definition refers to something that represents an idea, belief, or action. Memory and symbolism can therefore work together once an event or piece of information has been stored in the mind, as a symbolic gesture may be able to trigger stored information. Examples from the arts highlight different approaches to symbolic meaning. Symbolism in the late 19th century became an art movement in poetry and other arts common to France, Russia and Belgium. Symbolists rejected the secular outlook, scientific theories, and rationality that defined the 18th century. As previously discussed, the enlightenment period gave birth to Romanticism. The symbolist painters used techniques similar to that of the Romantic tradition, drawing on mythology and dream imagery to represent a reaction to the effects of urbanization evident in the Industrial Revolution. The symbols used by painters did not depict familiar emblems or icons. Rather they were characterized by intensely personal and obscure references. Turner, whose work was a precursor to the symbolist movement, used symbolic references within his work to convey a broader message. As Sarah Monks explains:

"This sense of painting's ability to transcend the impact of change and the stark temporal difference wrought by modernity referenced the broader re-conception of art's powers which had been elaborated in aesthetic theory since the late eighteenth century. There, art had increasingly been deemed capable of challenging the distance not only between past and present but also between seeing and feeling."

39

Water is represented in a number of Turner's paintings and is seen to demonstrate a multilayered relationship between both surface and depth, and past and present subjects. For example, in Turner's Snow Storm- Steam-Boat off a Harbour's Mouth (1842), the circular composition of the seascape propels the viewer's aesthetic experience of the unfolding of the painting in space. In this thesis, I applied different qualities of Turner's paintings to architectural space, such that the visual organization of each of the six design moments correlates to a specific Turner painting. Each moment draws on the overall composition and aesthetic experience of the painting in order to evoke a greater sense of emotion in situ at the design site.

In particular water is used in architectural moments in the Bridgman Transformer Station, functioning both as a symbolic reference and sensory cue. First, the water symbolically references the historical presence of the former Lake Iroquois on the site, constituting its first layer of memory. Second, the water triggers a number of sensory cues: visually it contrasts with the nature of the electrical substation, and in terms of auditory stimuli, the water functions to transport the visitor deeper into the space, by distancing them from the noise of the surrounding cityscape. Therefore, water acts as a threshold to deeper sensory experiences. Similar to its use in Turner's paintings, water represents both a historical past and a present symbolic gesture, related to the deeper sensory qualities of memory.

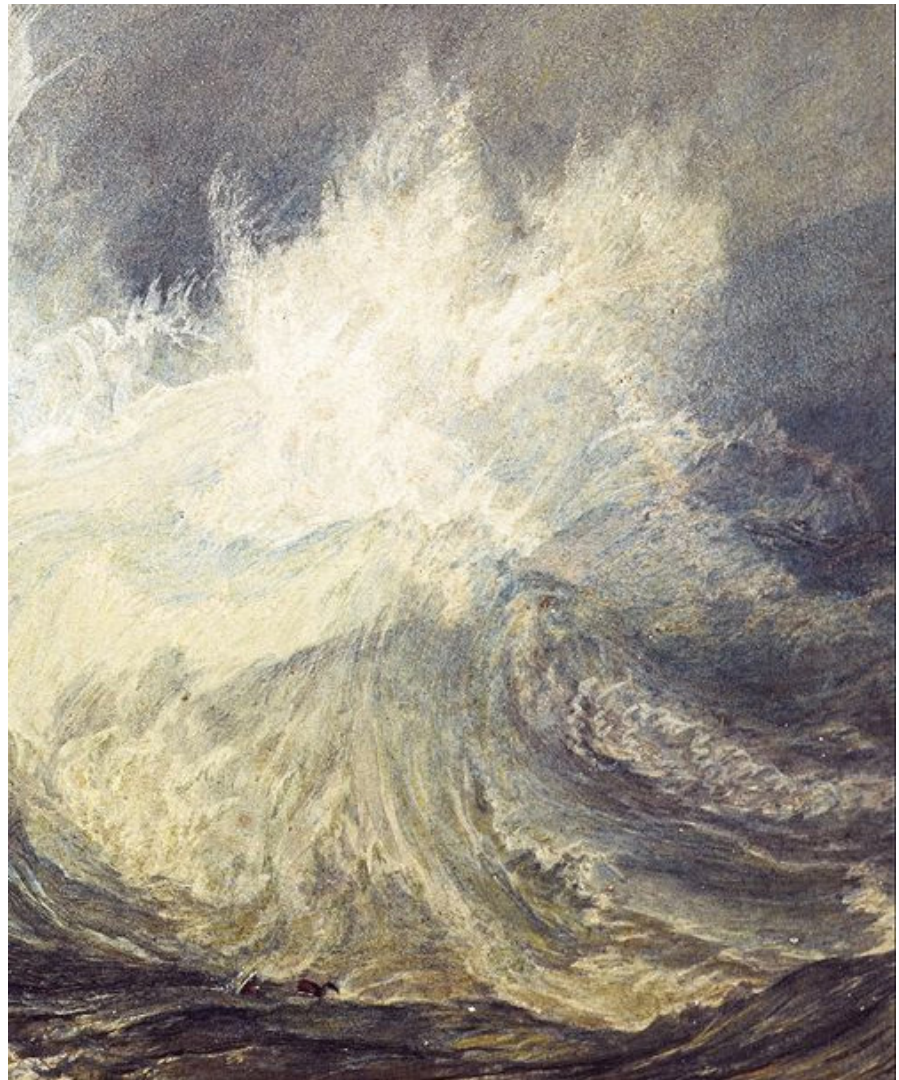


Fig. 31
Bell Rock Lighthouse
Joseph Mallord William Turner
1819

4.3 Movement through architecture

Our experience with art is much more than an everyday encounter: it is a personal moment and aesthetic experience. As we experience art our brain and mind react according to what triggers or evokes our emotions. When speaking about our feelings we often use expressions or gestures that link our emotions to positions or movements in space. For example, a feeling or memory of joy might be described with an upward motion or hand gesture, or we may often return to places that remind us of happy memories. A negative emotion may trigger a gesture of downward movements, or we may use similar gestures in attempt to escape from a sad or frightening memory. Recent studies published in *Cognition Journal*⁴⁰, suggest that bodily movements can influence the recollection of emotional memories. The studies conclude that bodily movements can influence the rate at which we recall autobiographical memories as well as the emotional content of the memories. A link was also found between the direction of movement and the type of autobiographical memory being recalled.

In other words experience and memory can be directly related to the external world, and our emotions and thoughts reach out beyond the self into the built environment. If we are able to trace memories and experiences based on movement, a narrative sequence can then be projected into architectural space. Yi-Fu Tuan defines experience as “a cover-all term for the various modes through which a person knows and constructs reality. These modes range from the more direct and passive senses of smell, taste, and touch, to active visual perception and the indirect mode of symbolization.”⁴¹ By this he means that the organization of human space is directly related to, and uniquely dependant on, the human senses: “Human spaces reflect the quality of the human senses and mentality.”⁴²

When experiencing art in a gallery or walking through a museum the same patterns occur: as we project our emotions and feelings into space, an artifact or object becomes a part of an imaginary narrative conceived in our mind. Memory in relation to movement can also be described on a larger scale when applied to the city. The city becomes a constantly moving and transforming product of experience. It does not emerge or evolve from a single act but rather a collection of experiences. As Rossi observed “the city itself is the collective memory of its people and, like memory, it is associated with objects and places. The city is the locus of the collective memory.”⁴³ In this sense, architectural space becomes the product of both its makers and its users. Architecture may not be in motion but its inhabitants, their memories, and their existence in time can set a building in motion.

Bernard Tshumi is an example of an architect who uses movement notation as a means to derive architectural form. His experimental drawings are featured in *Manhattan Transcripts*. Here, classic architectural drawings were developed to outline the movements of different individuals in relation to space, presenting individuals as actors on an architectural stage. Movement was used as a form of notation to recall that architecture is about the human users, with a focus on their bodies in space. As Tshumi explains, “[i]ncreasingly the drawings became both the notation of a complex architectural reality and drawings (art works) in their own right...”⁴⁴

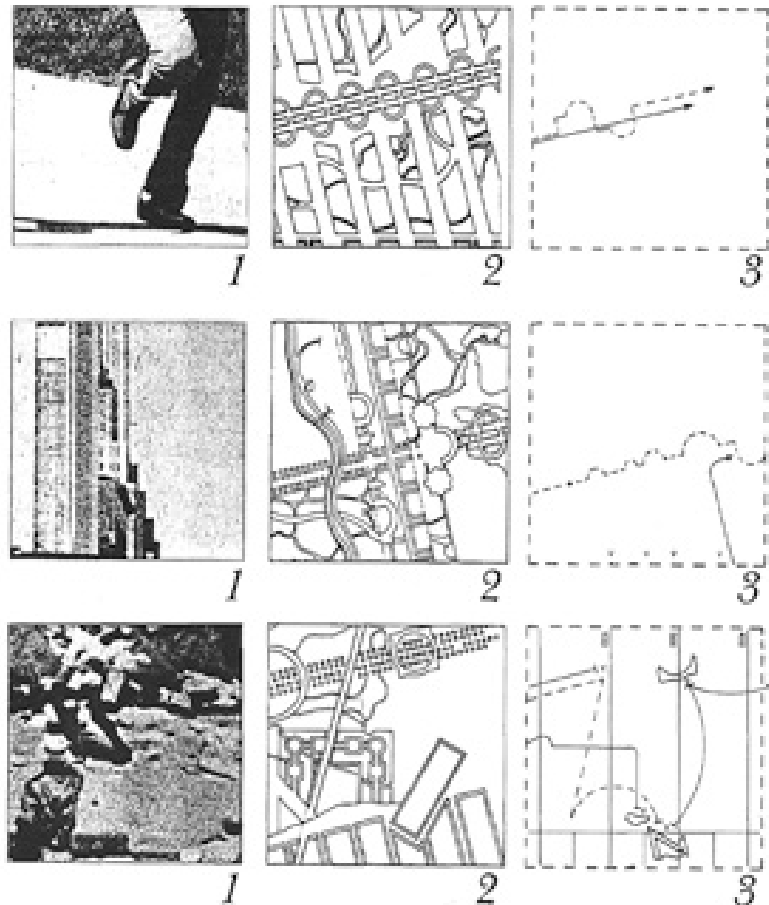


Fig. 32
The Manhattan Transcripts
Bernard Tschumi Architects
1976-1981

Neither projects or fantasies, the *Manhattan Transcripts* interpret events through space, and movement. The main purpose of the transcripts was to analyze the relationship between spaces and their use, type and program, objects and events.

Notes

- 38 Kant, Immanuel, *Observations on the Feeling of the Beautiful and Sublime and Other Writings* (Cambridge : Cambridge University Press, 2011), 51.
- 39 Monks, Sarah. "'Suffer a Sea-Change' : Turner, Painting, Drowning ." Tate Research Publication, <https://www.tate.org.uk/art/research-publications/the-sublime/sarah-monks-suffer-a-sea-change-turner-painting-drowning-r1136832>
- 40 Science Blogs, "Bodily motions influence memory and emotions", *Neurophilosophy*, <http://scienceblogs.com/neurophilosophy/2010/04/21/motions-influence-emotions/>
- 41 Tuan, Yi Fu, *Space and Place The Perspective of Experience* (Minneapolis : University of Minnesota Press, 1977), 8.
- 42 Tuan, Yi Fu, 16.
- 43 Rossi, Aldo, *The Architecture of the City* (Cambridge: MIT Press, 1984), 130.
- 44 Tshumi, Bernard, *Architecture and Disjunction* (Cambridge: MIT Press, 1994), 148.

Sensory cues

5.0 materiality

5.1 Texture

*"The city, however, does not tell its past, but contains it like the lines of a hand, written in the corners of the streets, the gratings of the windows, the banisters of the steps, the antennae of the lightning rods, the poles of the flags, every segment marked in turn with scratches, indentations, scrolls."*⁴⁵

As we previously discussed, architecture can be seen as unwritten history of the past. With time, nature and energy give form to material composition leaving traces of historic pasts. Whether we are considering an old industrial ruin or the carefully preserved floors or walls of a historic building, the lines of the past show through the buildings depressions and signs of wear. These signs are not originally intended works of art but they represent history and the embodied memories of visitors past. When walking through a building that has retained its locus or constructed nature—such as a Venetian church, or, in this case an abandoned industrial building—one gets the sense that one is walking through memory. In the Renaissance period when a new church was to be built, it was christened by the body of a patroned saint and the floor's surface was made up of burial slabs with decorative marbled patterns. This forced visitors to remember the historical events and the important people that made up their community who were buried beneath the floor that they walked upon. A similar effect can be produced when applied to industrial heritage in the form of its current structural composition. Signs of wear on the Bridgman Transformer Station remain on its walls and floors, marking the places where machinery was removed from the building's interior, once it was no longer needed. These machines left depressions of the walls and floors, leaving outlines of where they once stood, symbolizing a change in industry and technology. This reinforces the message that the building continues to serve as a container for historic embodied memory.

For an architect, the form and space of architecture are conditioned by the character of the materials present or available, whether they are the ruins of an existing site or new construction materials: all form stratified layers of material that contribute to an overall atmosphere. Light, too, is a contributing factor to this. Similar to the type of paint or technique used to create a work of art, materials are crucial to the conveyance of narrative: "present materials are bearers of messages from history and culture with a potential for poetics."⁴⁶ Surfaces and the materials used are intended to represent a specific quality of emotion. Scarpa, for example, achieves this by emphasizing a particular area with a type of cladding, or, the absence thereof: "The interrelationship of the surfaces is just as important as their relation to the incidence of light and to elements in the surroundings. They act communicatively, establish connections, and stimulate associations (often through colors taken from the paintings)"⁴⁷



Fig. 33
Chiaroscuro painting vs. cinema

'Chiaroscuro', and Italian term, is used as an effective tool for focusing viewers eyes on a subject as it darkens the background and highlights the topic of interest in a three dimensional shape and sense of volume.

Texture and material presence can also be produce through the use of relatively intangible entities such as light and sound. Water, when exposed to light, can alter the aesthetic appearance of surrounding materials through its transparent and fluid reflections. Water can therefore be used as a reflective layer that has both a physical presence and is a source of atmosphere. Both water and light have the ability to transform a space and material by the ways in which they create the illusion of spatial depth. Stratification of material is used by Scarpa in order to capture, contain, and demonstrate the spatial qualities of light. These qualities, in combination with reflection of water and direct light, often create the impression of 'chiaroscuro', an effect of contrasted light and shadow created through the manipulation of light and surfaces often used in drawing and painting.

The underlying geological foundation of many buildings in our city have also contributed to their material presence. Sedimentary layers of sandstone, shale, and limestone orginated as sand and mud on the floors of the now vanished ancient seas. Throughout Southern Ontario the sandstone and limestone formations have provided buidling stone, road material, cement, lime, and fertilizer. The materials used to build the Bridgman Transformer Station are mainly materials originating from the surrounding landscape such as brick, limestone, and terracotta. Clay and shale were also extracted from the land to produce many of the building materials used to construct Toronto's current landmarks such as the Old City Hall, Osgoode and the Bridgman Transformer Station.

Fig. 34
(a,b,c,d,e)

Each of these examples present a texture, detail or combination of both illustrating architecture's capacity to embody particular qualities without necessarily being literal. A narrative can be seen through the remains of a building's history while also being redefined through its architectural intervention.

a.

Castelvecchio Museum
Carlo Scarpa
Verona, Italy
1958-1974

b.

Bridgman Transformer Station
E.J. Lennox
Toronto
1904

c.

Bridgman Transformer Station
E.J. Lennox
Toronto
1904

d.

Querini Stampalia Foundation
Carlo Scarpa
Venice, Italy
1961-1963

e.

Park Avenue Armory
Herzog & de Meuron
New York
2013

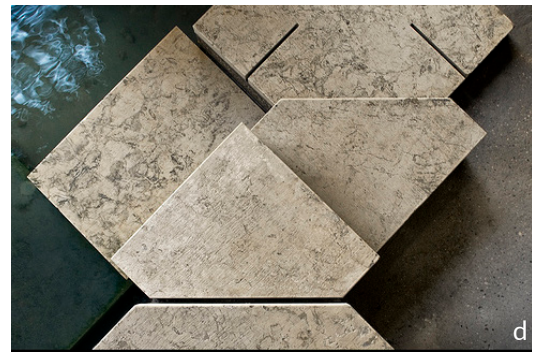
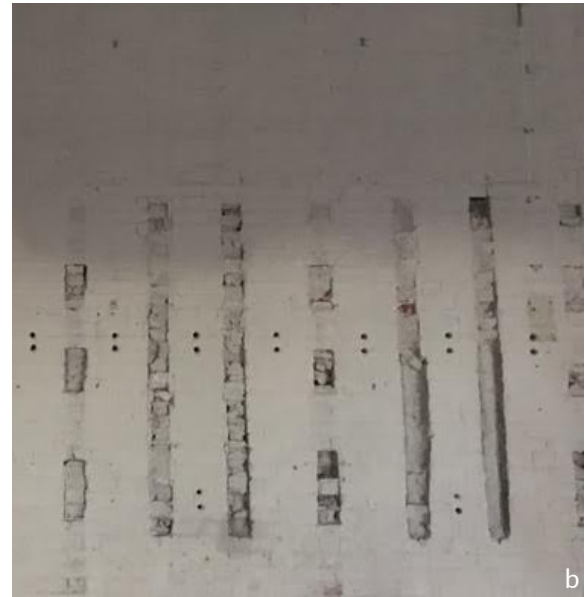
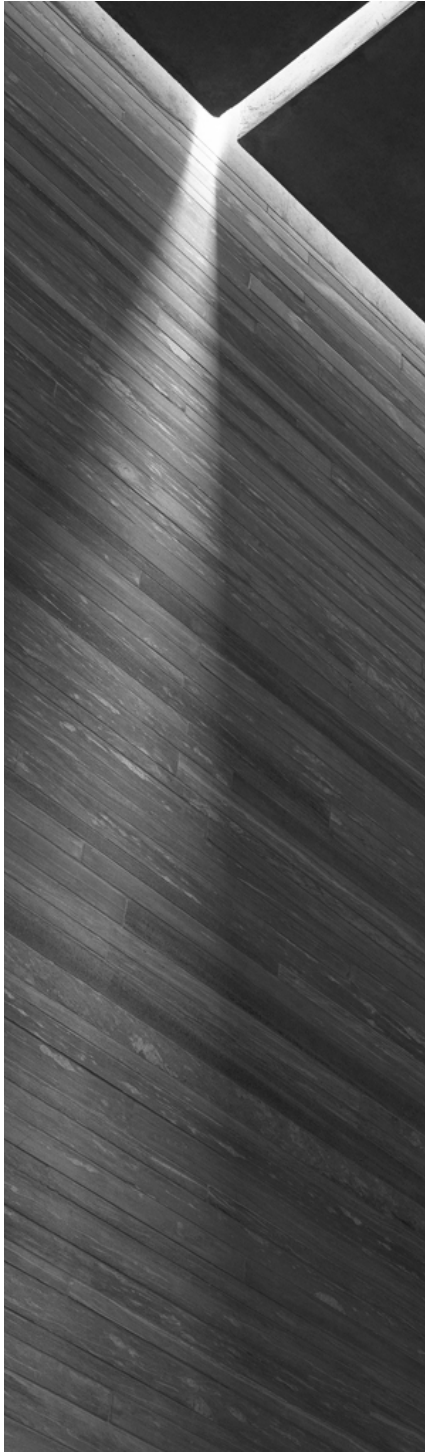


Fig. 35
The Therme Vals
Graubünden, Switzerland
Peter Zumthor
1996



5.2 Atmosphere

Architecture in relation to the mind and inner expression underlines the fact that architecture is much more than a purely visual experience, “The craft of architecture is deeply embedded in this human sensory and mental complexity.”⁴⁸ Atmosphere is a quality that surrounds us in our daily experiences, much like energy. Embodied memory in this context is the accumulation of human thought, memory, emotion and activity. Atmosphere is, therefore, the mood and ambiance of space in relation to memory. Aspects of energy such as emotion and memory can be deployed architecturally through the use of light, shadow, material and scale. For centuries architects have tried to describe atmosphere through architectural form, to answer the question “what is it that that contributes to an overall atmosphere or emotion within space?”

Arguably, it is atmospheres created by architects through modest means, such as colour palettes and the presence of absence, that most powerfully shape experience. These “shape and position sources of light to shed subtly varied illumination on a limited palette of unadorned materials, using few elements with much repetition, while avoiding formal rhetoric and gesture.”⁴⁹ Peter Zumthor’s approach to achieving atmosphere within architectural space is inherently ethereal, as light is used as the primary source of experience amongst a uniform palette of materials. In Zumthor’s baths in Vals, light is used to reflect solids and spaces on every surface as if they were seeping out of a hallowed mass. Light seeps in from cracks in the roof creating beams of light that draw an analogy between light and water.

This technique to atmospheric presence parallels similar movements in minimalist art where the process of reduction brings forth a new space that can be filled by atmosphere or by one’s own imagination and memory. Such encounters are made possible by art that leaves spaces empty in order to break down perceptual habits. Similarly, minimalist architecture leaves spaces open to reflection or interpretation. The work done by the abstract expressionist painter Mark Rothko is an example of this. Rothko’s signature style of simple, richly coloured squares expressed emotion through minimalist composition. As with Scarpa’s technique of stratified architecture, in Rothko’s paintings colour and structure were inseparable. He blended texture and materiality to achieve a layered depth and shadow and create a whole new composition.

An alternate concept of emotion resulting from light derives from pure white architecture, in which the space is visibly white and everything physical has been removed. This leaves nothing but the simple beauty of light which can only be improved by the subtraction of space in order to add more light. Alvaro Siza uses whiteness in his Serralves Museum

Fig. 36
White Center (Yellow, Pink and
Lavender on Rose)
Mark Rothko
1950

Fig. 37
Serralves Museum
Porto, Portugal
Álvaro Siza Vieira
1999



in order to achieve a seriousness in his atmosphere: "Interrupting Siza's stillness are liquid episodes in which pale illumination wavers and drains into shadow, often around transitional elements of entry or window, parapet or stair." ⁵⁰ Architects use the concept of whiteness infused with light and shadows to create experiences that can satisfy a contemplative need, one that heightens perception and reflection. It is this technique that I will apply to the Bridgman Transformer Station in order to achieve a heightened sense of atmosphere and reflection.

Notes

- 45 Calvin, Italo, *Invisible Cities* (Florida : Harcourt Brace and Company, 1972), 9.
- 46 Meiss, Pierre von, *Elements of Architecture from form to place* (New York : Spon Press , 1990),
- 47 Schultz, Ann- Catrin, *Carlo Scarpa Layers* (Stuttgart : Edition Axel Menges , 2007), 20.
- 48 Juhani Pallasmaa, Sarah Robinson, *Mind in Architecture: Neuroscence, Embodiment, and the Future of Design* (London : The MIT Press, 2015), 61.
- 49 Plummer, Henry, *The Architecture of Natural Light* (New York: The Monacelli Press , 2009), 12.
- 50 Plummer, Henry, 12.

The inevitability of change

6.0 time

6.1 Toronto's Changing Landscape

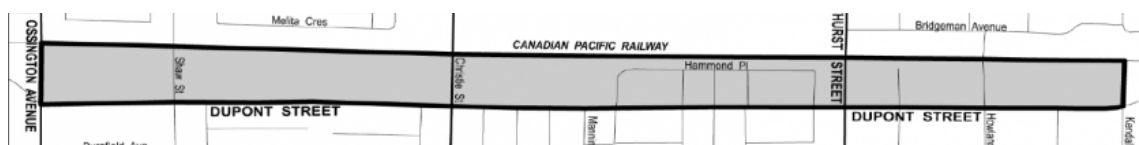


Fig. 38
Davenport Road
1907

Toronto, Ontario's Capital city, has a continuously changing history of growth and transformation. The earliest known settlement in Toronto began with the Aboriginal Settlers on the Laurentide Ice sheet, a continental sized glacier that covered North America approximately 12,500 years ago.⁵¹ Small groups of Aboriginal settlers began to move into the area now known as Toronto to hunt for animals. Interconnecting trails and footpaths were integral to the lives of the Aboriginal settlers as they provided links to trade routes, hunting, fishing, and harvesting grounds as well as a map of the terrain. The Davenport trail, now Davenport Road, is a surviving example of an ancient Aboriginal trail that has evolved to become a busy urban street. Running "between the Humber and Don Rivers, an ancient trail now long hidden underneath the asphalt of Davenport Road avoided difficult terrain by following the base of the 13,500-year-old shoreline of Glacial Lake Iroquois."⁵²

After European settlers arrived the trail became a vital link for trader and farmers as it linked growing villages such as Yorkville and Carlton to the rest of the city. By 1812 the town of York, a frontier village located on Lake Ontario's harbour in what is now known as the Fort York district, became the fastest growing town in Upper Canada, with over 9,000 inhabitants by the end of the war. The city's increasing popularity as a place of settlement was also a boon to its productivity and efficiency. The downtown core grew accordingly, with its street organization adopting a grid pattern. Nevertheless, Davenport remained a curvilinear route, true to its original path. The 1840's marked the first indications of industrialization in the city as gas lighting and sewers were installed to service the main streets. Following the preceding melting of a continental glacier that once covered the area, Toronto was left with a series of rivers and creeks, many of which were subsequently buried. The Nordheimer Reach and the Castle Frank Brook are now lost rivers that once previously supplied water to the neighbourhoods surrounding the downtown area: "[a]t Boulton Drive we reach the place where Castle Frank Brook entered glacial Lake Iroquois. The fossil shore cliff of this glacial lake is located immediately to the north of Davenport Road to the West and of Poplar Plains Crescent & Alcorn to the East."⁵³

A focus on Toronto's landscape dating back to the glacial period will form the basis of architectural memory in this project. Historic references throughout the Bridgman Transformer Station are meant to inform the visitor of the sites historical past, once the memory becomes processed.; Tthe buildings interventions act as a vehicle to trigger deeper memories and emotions through sensory architectural cues. The first moment occurs when descending alongside Davenport Road and the Transformer Station. Descending down a long set of stairs with a water feature wall the visitor experiences multiple historical references. The first is the evolution of Davenport Road, from a once aboriginal trail to a now bustling city road. The second moment references the former Lake Iroquois, descending alongside the stairs and the transformer stations foundational walls the visitor experiences being submerged below water, as the site was once the shoreline of the Lake. Therefore each moment oscillates between four distinct time periods, the Glacial Era, Aboriginal settlement, the Industrial revolution, and the present, each of which informs the sites stratified layers. By experiencing each moment through the sensory qualities of the design, the collective memory of Toronto's changing landscape also becomes part of our own more personal and individual memories.



6.2 Memory on Davenport Road

Fig. 39
Dupont Corridor
City of Toronto
2016

In addition to the Bridgman Transformer Station, built in 1904, there are two other historic buildings: the High Level Pumping Station (1906) and the Hydro Sub Station H on MacPherson Road (1910). Like Bridgeman, these were built in order to provide water and electricity to new parts of the city. On the site between these buildings there laid the remains of an old pond. To provide cheap energy to spur economic growth in the city, hydro- electric power was needed. Electricity first came to Toronto in the late 1880's financed by a number of private companies and wealthy investors. By 1908 the Toronto Hydro-Electric System was formed which subsequently partnered with the Hydro-Electric Power Commission of Ontario.⁵⁴ The Toronto Electric Light Company was an early private electricity supplier in the City, founded by John Joseph Wright and owned by Sir Henry Pellatt, known for his large mansion, Casa Loma, located on the escarpment above Davenport Road. In addition to the electrification of the city, railways, streets and thoroughfares began to be constructed in order to physically unite towns regions in and around Toronto. The Canadian Pacific Railway was founded in 1881, with a mission to link populated city centres in the East with the relatively unpopulated West.⁵⁵

The Bridgman Transformer Station, located at 391 Davenport Road at the intersection of Davenport Road and Macpherson Avenue, was built in 1904 by architect E.J. Lennox a Toronto based architect who designed several of Toronto's landmarks, including Casa Loma. The construction of was funded by the Toronto Electric Light Company in partnership with the Electric Development Company in Niagara Falls. The station was to be the Toronto powerhouse for electricity transmitted from Niagara Falls, over a 60,000 volt transmission line.⁵⁶ The electricity was needed to supply light and power the city's streetcars. The substation was built and designed in tandem with the power house in Niagara Falls in the Edwardian Industrial style. Eventually, most of the station was left idle, as technology changed. Today only a portion of the building is used, for equipment storage. The transformers now currently on site are housed outside of the building and provide electricity to the surrounding neighbourhoods. Davenport Road was widened during the 1930's to accommodate automobile traffic within the city. Nonetheless, its ancient origins remain.

The Dupont Corridor lies between the neighbourhoods of Casa Loma and the Annex in downtown Toronto bounded by Avenue Road to the East and Bathurst Street to the West, Cottingham Street and Davenport Road to the North and Bernard Avenue to the South. The area is currently under-utilized in relation to the rapidly developing city but has the potential to become a revived and active part of the city. The once highly industrial area now serves as a transportation route to the core of the city. The corridor has a rich history of both Aboriginal and European colonial urban development that has since been ignored, leaving industrial historical buildings and plots underused and abandoned. These buildings have the potential to serve as heritage landmarks to the City and to act as mnemonic devices to Toronto's historical landscape. At one time,



Fig. 40
Transformation of Davenport Road

This series of maps shows where Dundas street was originally meant to cross the Humber river, the footpath at the base of the escarpment shown as a dotted line was discovered to be the first noted trail of Davenport Road.

- a. Survey of the Township of York created by Alexander Aitken around 1793
- b. Plan of Dundas Street, created in 1795 by Surveyor General D.W. Smith
- c. Davenport Road in 1851
- d. Davenport Road in 1954

important manufacturing industries populated the area such as a Ford Model T Factory, an Evening Telegram newspaper building, a Hamilton Gear Plant, the Mono Lino Typesetting Building, the Yorkville Waterworks, and the Bridgman Transformer Station, all of which contributed Dupont Street's industrial prestige. To this day, the industrial history of Dupont Street is still evident in the building facades and built forms, which remain evident along its entire stretch from Avenue Road to Dundas Street West.

Accepting that memory and emotion are extracted from manifested memory in the past in order to derive a narrative and place in the future we can perceive that The Bridgman Transformer Station was built for the sole purpose of providing service to the city of Toronto. Its architectural appearance had little relevance to its surrounding context. However its intangible meaning and social purpose held its importance internally. The building provided the city with its first source of hydroelectric power, acting as a mediator between two locations, Toronto and Niagara. The energy that was transmitted from Niagara Falls to Toronto served the surrounding neighbourhoods and streetcars, pushing the city's industrial success forward. Thus, today, the Bridgman Transformer Station has accumulated value based on its historical presence and purpose in the community. However its relevance in relation to its intangible value remains of a lesser importance. Given that historic manifested memory (human thought, memory, emotion and activity) can act as a mediator between the past memory and future narrative of a place, the Bridgman Transformer Station's structure remains as a vessel which houses and can provide a new kind of energy.

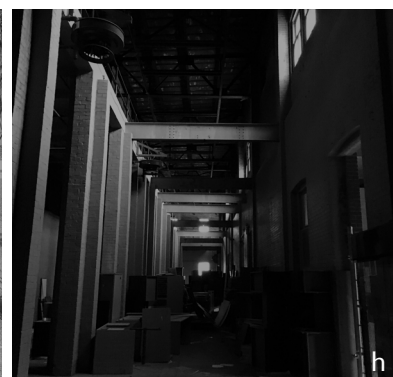


Fig. 41
Bridgman Transformer Station
Giovanna Monaco
2016

- a. Aerial Image of Davenport Road
- b. West Facade
- c. North Facade
- d. Second Level
- e. East Facade
- f. Imprint of former industrial remains
- g. Remaining industrial track
- h. Interior Atrium

Notes

- 51 Careless, James Maurice Stockford, "Toronto," July 27, 2015. <http://www.thecanadianencyclopedia.ca/en/article/toronto/>
- 52 Heritage Toronto, "The Davenport Trail," January 07, 2013. <http://heritagetoronto.org/the-davenport-trail/>
- 52 Careless, James Maurice Stockford
- 53 Toronto Green Community, "Lost Rivers," November 22, 2016, <http://www.lostrivers.ca/content/Nordheimer.html>
- 54 Toronto Hydro Corporation, "History" November 22, 2016, <https://www.torontohydro.com/sites/corporate/AboutUs/Pages/History.aspx>
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- 56 Kennedy, R.L, "Old Time Trains," 2007, <http://www.trainweb.org/oldtimetrains/radial/niagara.htm>

elements of memory
future

The distillation of all elements

7.0 Curated Memories

7.1 Narrative Sequence

Drawing upon the study of memory in relation to architecture the design of the Bridgman Transformer Station focuses on moments of reflection or physical expression, in order to develop and extend the buildings historical narrative. By Integrating the architectural expressions and techniques that were used in my own earlier studies, a sense of emotion through memory can be evoked. The design transitions past a broad understanding of memory that is abstracted through sensory cues. The project progressed into a more layered approach to understanding memory within architectural space. This was done by concentrating on transitional moments within the building and the users experience with space, form, light, materiality and texture. On a macro scale, the design focuses on the transition through the narrative of Davenport Road, its past history and present day function as embodied in the industrial transformer station. On a micro scale, each moment comprises elements of memory that together form a new composition of the site.

The Bridgman Transformer Station is situated within a rich historical context. How the building came to be integrated into the present day landscape is essential to understanding the buildings past history, geography, and surrounding context. Ultimately, its forces, historical past, memory, and experiences are what comprise the buildings new layer of design. The focus of the design is rooted in the site's landscape and history. As previously discussed, Davenport Road forms the shoreline of Toronto's lost Lake Iroquois which was left over from a Laurentide Ice sheet, a continental glacier. As settlers began to move into North America, interconnected trails and footpaths were created to avoid more dangerous terrain and to provide links to trading routes. The Davenport trail is a surviving example of an ancient Aboriginal trail that has evolved into what is now Davenport Road. Drawing inspiration from this history, it is primarily the surrounding natural geography of Davenport Road that has become the driving force for the design. As Schultz remarks in reference to the work of Scarpa:

*"The experience and memory of humankind are laid down in layers in the physical environment, concretely and graphically. Every new part exploits ancient forms, materials and ways of making. Building is, at base, a sign of hope, a sign of society's belief in future, a gesture forward in time."*⁵⁸

Bearing this in mind, the initial foci of the design for the Bridgman Transformer Station are form and material. The design will use these to create a mental connection between the building and its forces. Informing the design concept is the idea is that the building's materials work chronologically and in sedimentary fashion, as the narrative experience of the site unfolds, along both vertical and horizontal axes, within each moment. The overall composition of the building is integrated into the landscape to create the impression that the building is partially underwater, emerging from the former Lake Iroquois. Within the building this effect is emphasized consistently by a gap between the layers of new and old material, which forms a negative seam.

The selection and demonstration of these layers is elaborated below, in a discussion of the design's six constitutive mnemonic moments. The narrative sequence unfolds as the visitor transitions through the building, each moment is revealed through a series of sensory cues, the main source being light. Light guides the visitor through a series of dark to light spaces, in order to achieve a sense of emotion.



Fig. 42
Historic Lakes and Rivers
Giovanna Monaco
2017

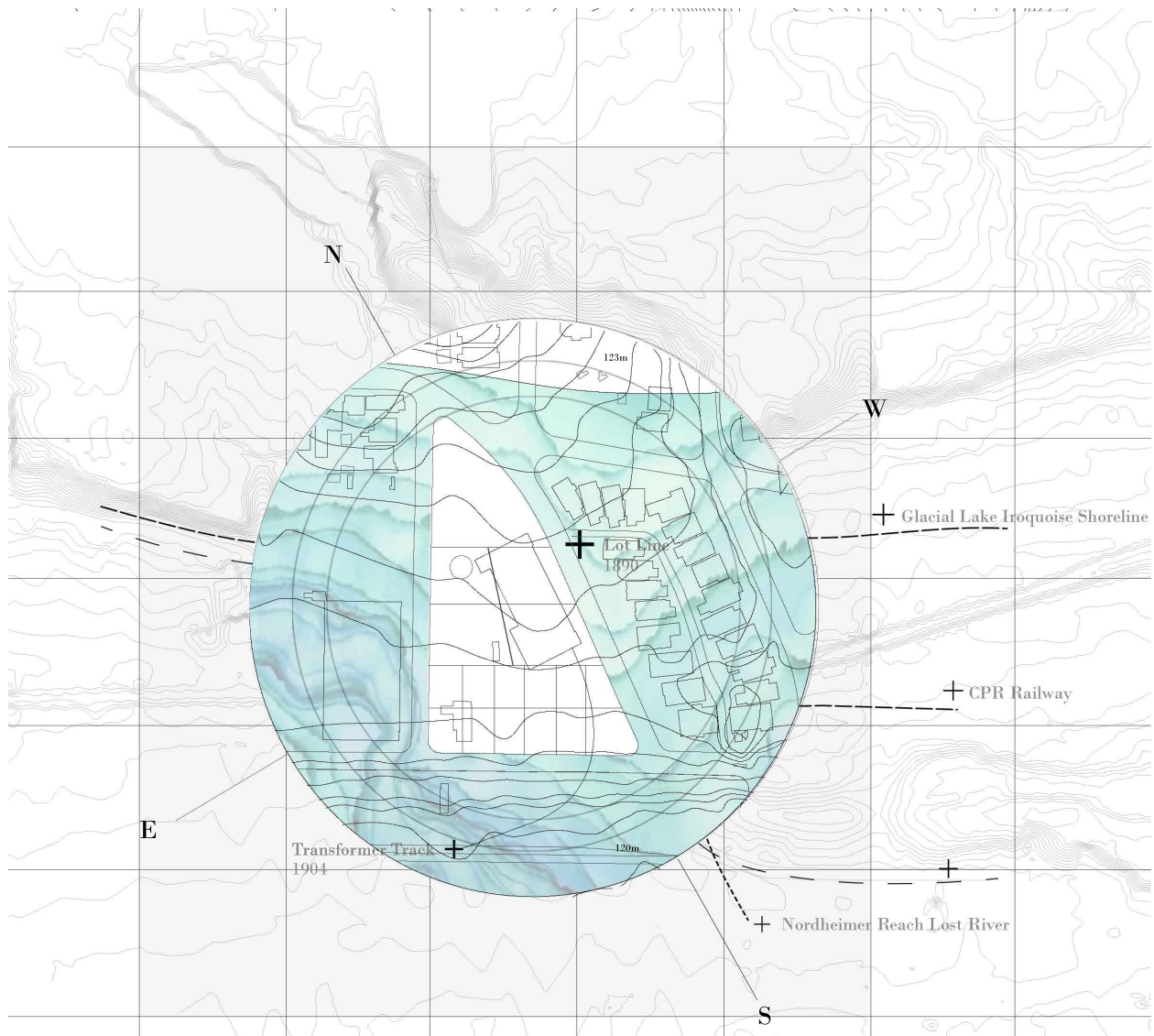


Fig. 43
Industrialization of Davenport Road
Giovanna Monaco
2017

7.2 mnemonic moments

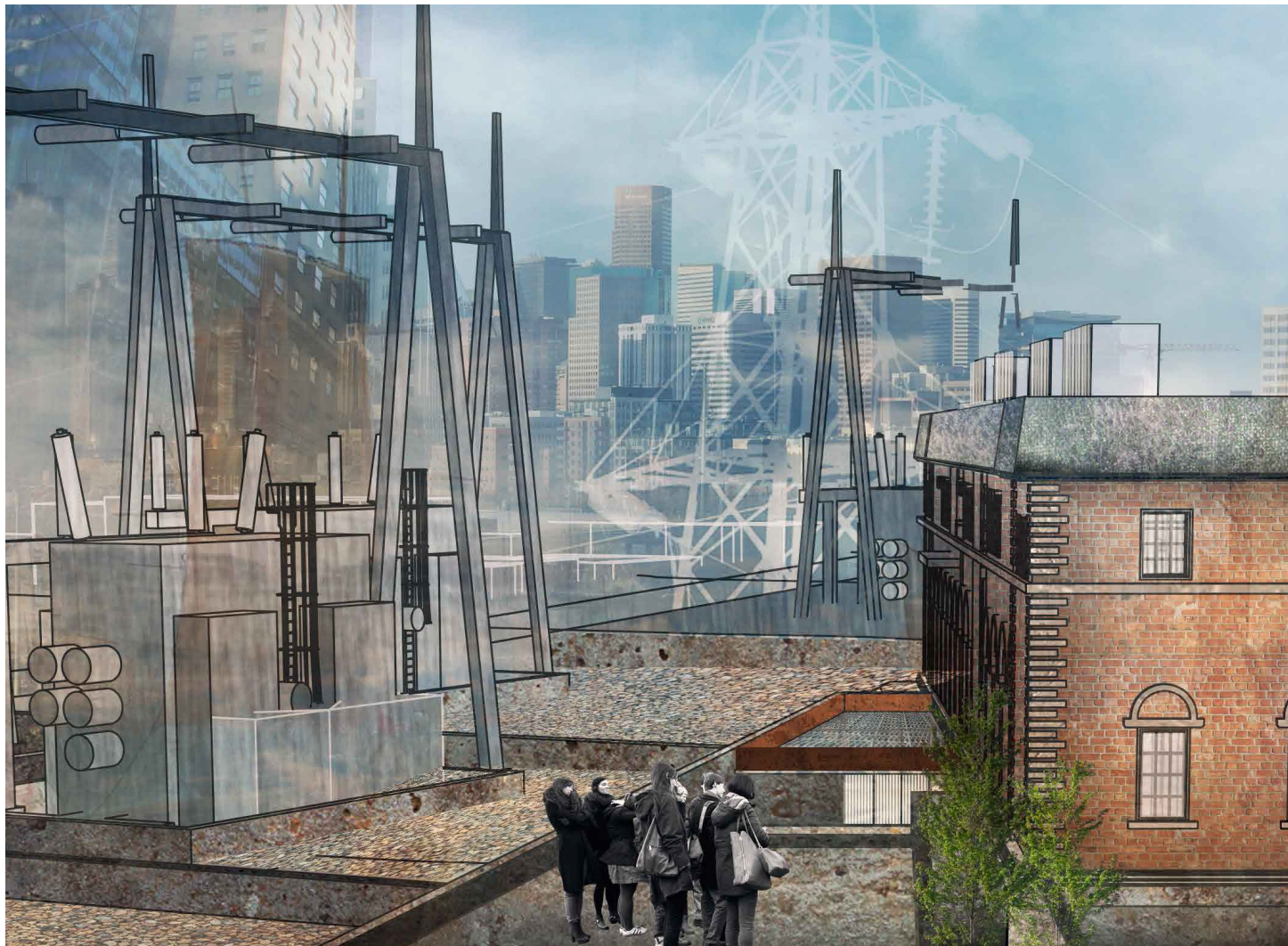


Fig. 44
Perspective of Transformer Park
Giovanna Monaco
2017



The following image sequences explain the narrative of each mnemonic moment within the transformer station. Each moment began with a painting by J.M.W. Turner, my artist of choice. I chose to use Turner paintings for their overall atmospheric qualities, texture, structure and light positioning. These qualities evoked a sense of emotion personally which were then translated into architectural space. The first image sequence begins with the original painting used in consideration of each moment with regards to their emotional qualities. The second outlines the structural qualities of light and perspective used in each painting. The third image presented is a large-scale outcome of a designed mnemonic moment within the station. The final two images illustrate structure and light applied from the Turner painting to a particular space within the building, the darker components illustrate what remains of the heritage building within my design.

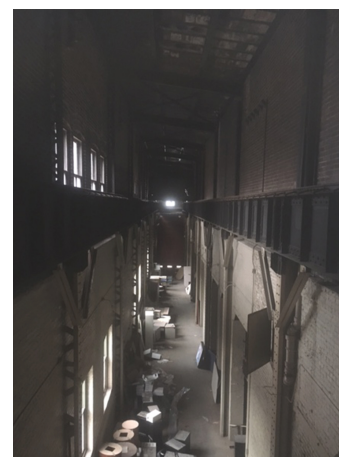
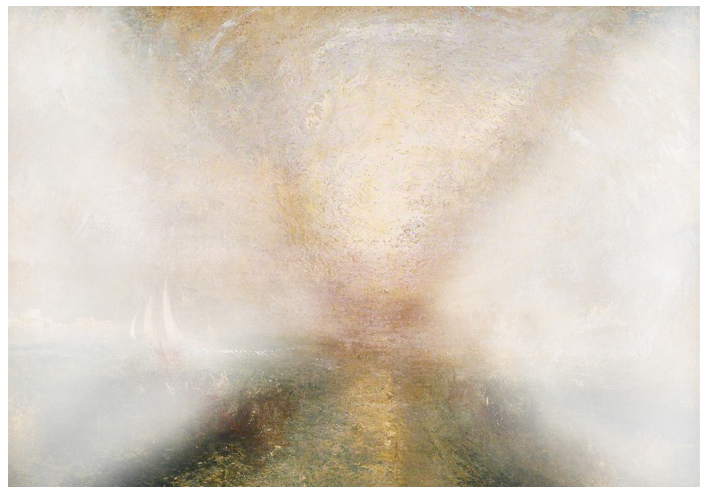
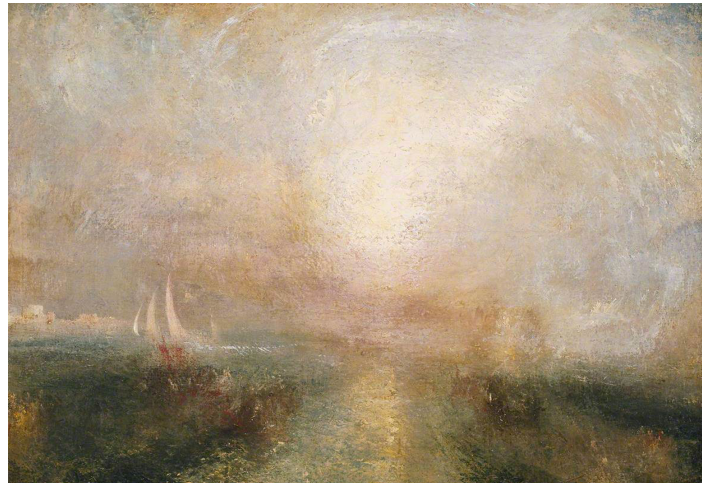


Fig. 45
Translation of art to space

*"The accumulated experiences of our lives, including our unique personal and cultural experience and the organic memories which reverberate from prehistoric time, are at every moment within us. Much of the richness of this experience recorded and distilled into meaning by the feelings and intellectual activities of a life time can be reached by an image presented at a given moment."*⁵⁹



Fig. 46
Site Plan



1:1500





1:5000

Fig. 47
Site Plan in
context of the city

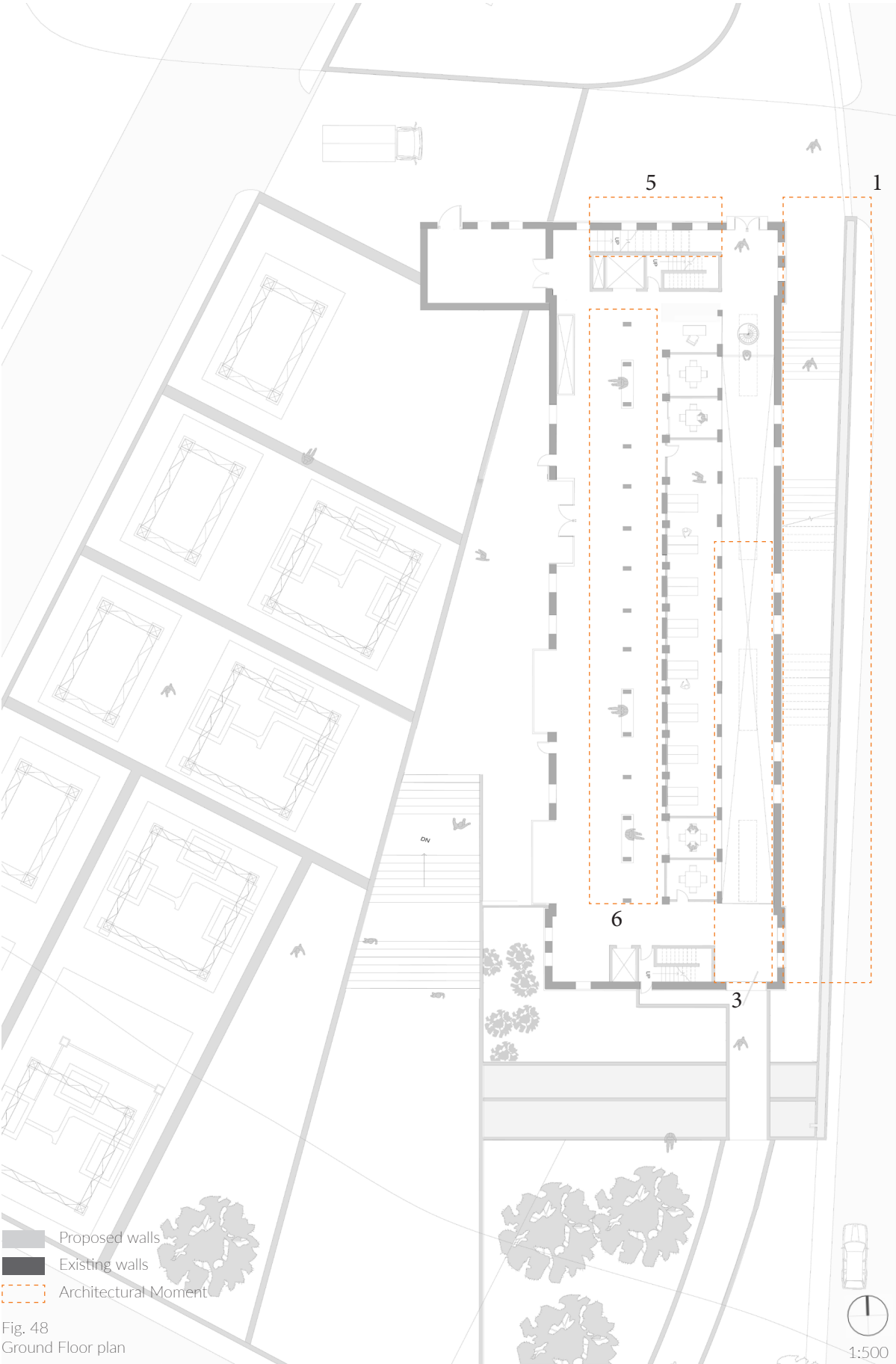




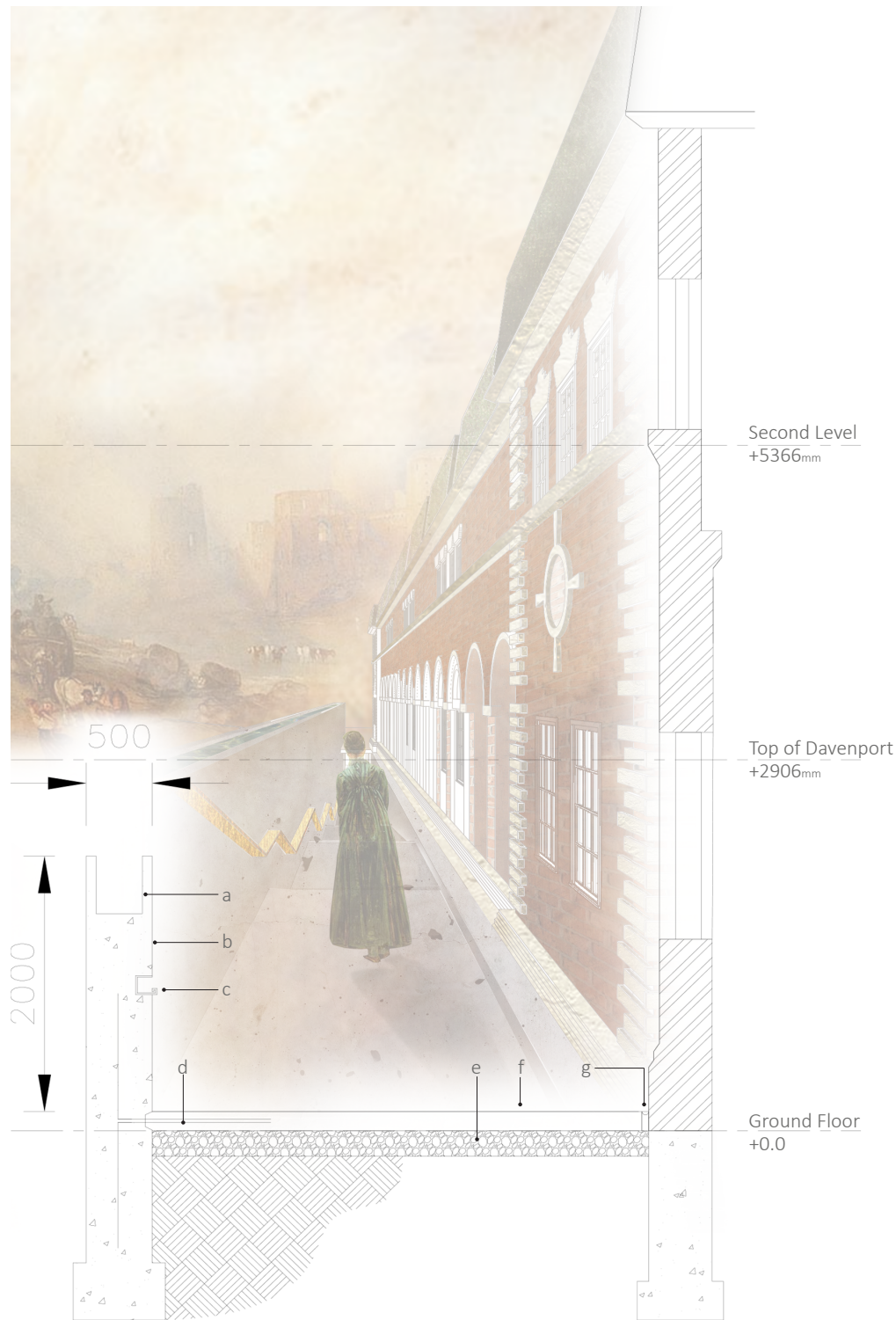
Fig. 49
Descent translation

Fig. 50
The Descent



Moment 1:

The first mnemonic moment encountered in the narrative sequence begins with a descent alongside Davenport Road and the West façade of the station. The visitor approaches a wall at the highest point of the site relative to Davenport Road. This point references what was formerly submerged by Lake Iroquois. The wall creates a boundary for a series of stairs and the exterior of the Transformer Station. The wall itself holds a small stream of water which flows alongside the descending staircase to a subsequent moment that will be experienced once the visitor enters the building. The water from the wall flows down to form a shallow pond, contrasting with the solidity of the building and its surrounding electrical transformers. The idea informing the design for this moment is to recall the site's history under a glacial formation, the surrounding rivers and ravines, and the steepness and curvilinear form of Davenport Road that the glaciers left behind. The visitor becomes submerged, leaving the present day busy traffic of the road behind, and entering into the still, dark quietness underground. To create this moment the first step was to understand its historical production. After analyzing the site's history I decided that a reference should be made to the glacial effects of the landscape surrounding Davenport road. This is important since the leftover rivers and deposits formed a baseline for the circulation surrounding the Transformer Station. It became clear that the addition of water in this moment would contribute to the evocation of landscapes of the past. Turners painting,



original state



extraction



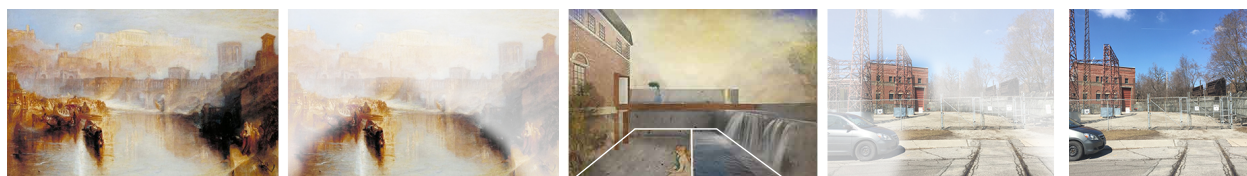
addition

- a. Recessed water feature
- b. Concrete retaining wall
- c. Recessed Steel hand rail
- d. L shaped rebar 25M
- e. High performance bedding
- f. Concrete pad
- g. Expansion joint with top bead of caulking

Fig. 51
Moment 1
1:50

Fig. 52
Moment 1
Applied Method

Rain, Steam and Speed-The Great Western Railway, 1884, was used as the basis for creating sensory cues. By utilizing the overall perspective and light cues within the painting the materiality and composition of the moment was designed. Similar to the painting, the wall forms a perspective that narrows towards a deeper light. The same feeling occurs when descending down the wall into an increasingly darker space of the unknown. Concrete was used as the material of choice throughout much of the interventions because of its atmospheric qualities and ability to reflect light and shadow.



Moment 2:

Directly opposite to the main entry a second public entry way exists, which was one of the buildings original entry points. It was originally a large arched garage door used for the purpose of transporting machinery. The arched frame was later squared off to adapt to modern usage. This doorway hosts two different points of view and accessibility. The second level of the entryway corresponds to the ground floor level where a pedestrian bridge leads the visitor outside the building on a passageway that was once a train track used for machinery maintenance. The view point from the bridge frames the train tracks at the end of the site. The Corten steel addition to the doorway helps to frame this view. Descending alongside the exterior wall and parallel to Davenport Road the visitor encounters a sunken courtyard. The water alongside the wall leads the visitor on a descent into darkness before transporting them into an open and bright exterior courtyard. Light and water vary in terms of their strength while progressing through the building. The intensity of light breaks up the



original state



extraction



addition

- a. Recessed water feature
- b. Copper water run off
- c. Concrete formed pond
- d. Water line
- e. HPB Gravel
- f. Prefabricated steel stair
- g. Corten Steel Door

(previous page)

Fig. 53
Water feature translation

Fig. 54
Moment 2
1:50

Fig. 55
Moment 2
Applied Method

programmed passage through the building while the water acts as a noise boundary. The sound of water intensifies once the visitor has descended to the courtyard, separating the soundscape of the station from the surrounding city. Once outside, the exterior wall retaining spills water into a large pond surrounding the south façade of the station, giving the impression of that the visitor is in water. Turner's painting, *Norham Castle, Sunrise, 1845* was used to compose this moment. The perspective of the paintings directs the eye to a setting sun reflecting off of the calm water giving the space a light and airy feeling. In the courtyard space, there is a focus on water and natural light in order to create a feeling of calm and quietude.

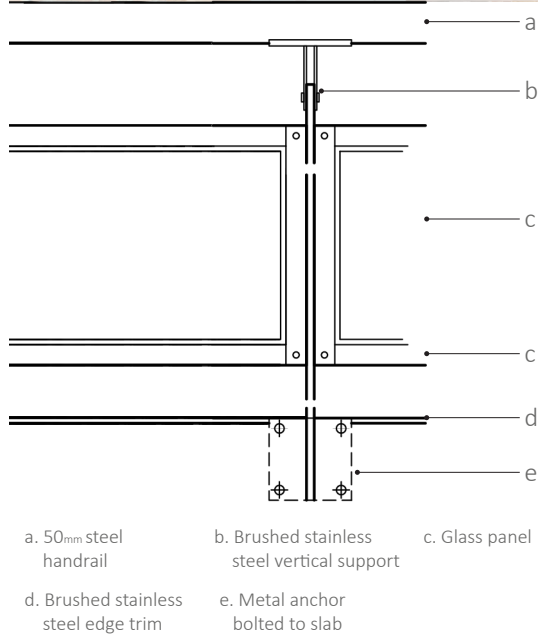
Moment 3:

There are two public access points into the transformer station, the first of which takes advantage of the buildings original arched garage doors, later adapted to modern usage. Accessing this entry-way from the most northerly point of the triangular site, the redesigned door is accentuated with weathered steel, a type of steel common to industrial use. However, inset from the steel profile a glass door further separates the old from the new. The layers within this moment were intended, first to reference the buildings original industrial framework. The original arched doorway once occupied by larger wooden doors and was later adapted to modern day usage with an industrial garage door. This existing frame is now outlined in order to highlight the buildings original access points. This design intention is similar to Scarpa's work at the Fondazione Querini Stampalia. In this building the entry bridge leads the visitor into a space where the use of refined lines and materials contrasts with the rougher, existing brick walls. The heaviness of the door is meant to create a view thorough darkness towards the light of the interior balcony: when the visitor enters the passageway vertical lines on the ground draw their eye to a balcony, overlooking the 3 storey open space below



Fig. 56
Water feature

Fig. 57
Crane Runway



original state



extraction



addition

Fig. 58
Moment 3
1:50

Fig. 59
Moment 3
Applied Method

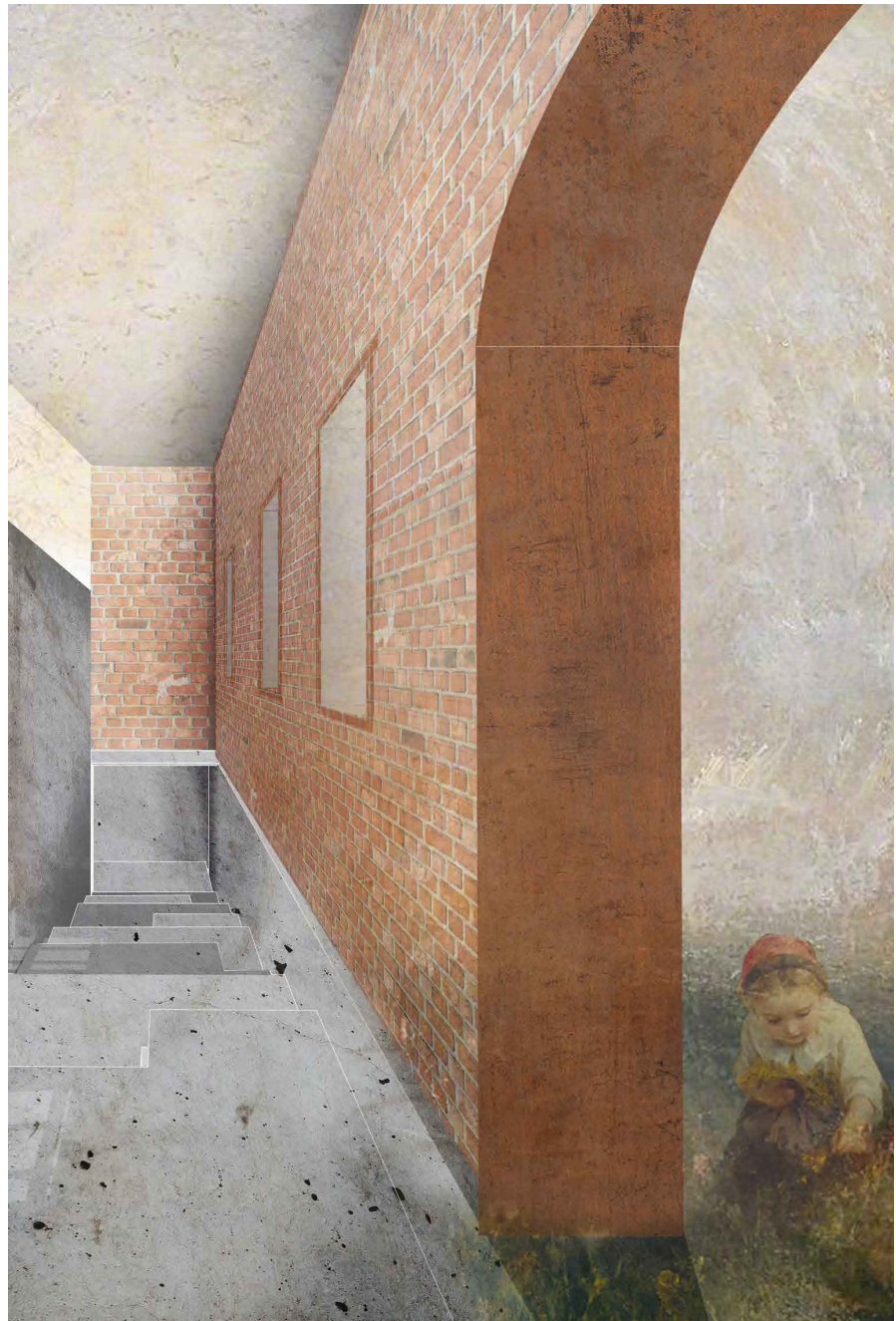


Fig. 60
Former Staircase
(opposite page)

Fig. 61
Private Entrance
Translation

Moment 4:

When entering the lower level of the station you approach a long corridor of triple height space. This corridor was used at the ground level as a crane runway to carry heavy machinery from the railroad to the transformers. According to archival documents (see appendix A), the basement level in this area was originally unexcavated. It is in this moment that the ground plane is extracted to reveal deeper space below. The longitudinal section reveals uneven footing placed according to the underlying uneven bedrock below the footings. By following these levels a series of steps was created alongside the original foundational walls. The new steps remain offset from the original walls to clearly demarcate the new and the old. It is cast in polished concrete in order to blend with but also contrast to the original foundational walls, giving a muted feel. The design also added a skylight in the roof structure above. The effect is such that there is a strip of light running through the entire midsection of the corridor, echoing the symmetrical patterning of the building. During the cooler months on sunny winter days when the sunlight is allowed to enter, small patches of sunlight seep through the roofs skylight onto the concrete stairs below. The light patterns reference the former track runway, creating a passageway for the visitor. To create this moment Turner's painting *Regulus*, 1837 was used. The light within the painting guides the viewer's eyes along the reflection of the water, and the surroundings are heavier in tone and weight. A similar effect is used in this moment to lead the visitor eyes along the path of the former runway and up towards the light of the skylight.



Moment 5:

A separate employee entry and staircase lines the west façade taking advantage once again of the original door locations. A series of steps similar to those within moment number 2 wrap around the original walls where light enters through the buildings industrial windows. The steps form distinct concrete shapes, each of which is offset from the other to maintain a constant gap. This concept not only distinguishes the new from the old, but is intended to reference Davenport road's former nickname "Plank Road". This name comes from the fact that planks were used to line the street, to protect travellers from the muddy terrain caused by the surrounding lakes and rivers. The steps descend into the basement revealing a light well at the base. Upon entering the basement level, the viewer experiences light shedding onto the base step of the stairs, illuminating the threshold between what is old and what is new.

- Proposed walls
- Existing walls
- Architectural Moment

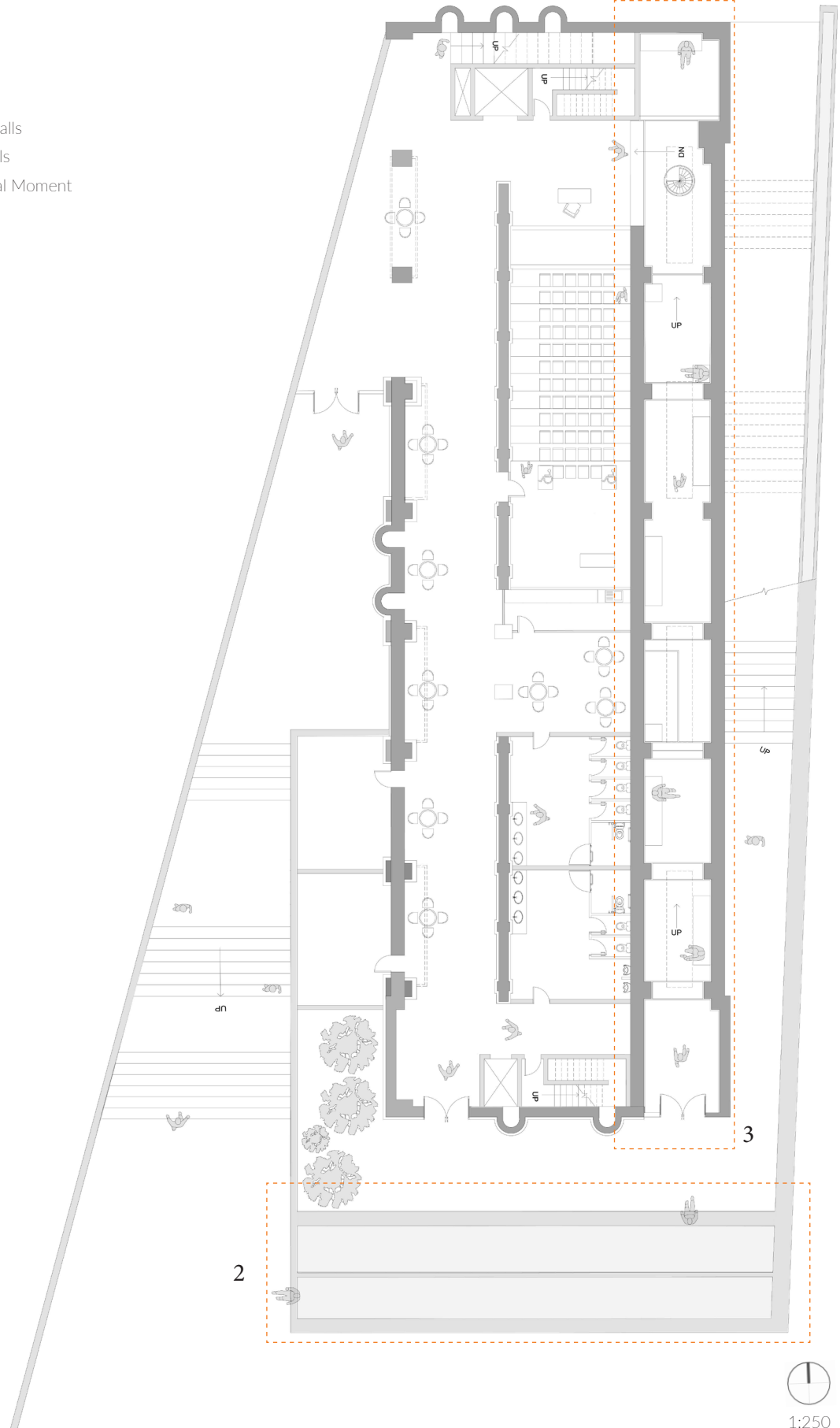


Fig. 63
Lower Level plan

Moment 6:

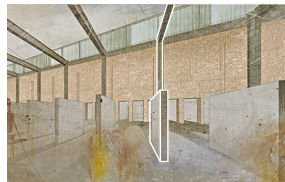
The archival plans for the station note four symmetrical locations for well holes (Appendix A). The holes are referenced throughout each floor plate. By utilizing the locations of these wells, the design created a series of light wells that shed light throughout the entire East façade of the building. The new wells allow natural light to enter the underground areas. Each component is symmetrically aligned with the façade's structure and its windows, generating rhythm between the newly created light and the existing wall. This moment in particular extends light well into an exterior, excavated courtyard space, which leads the visitor alongside a diagonal retaining wall. The alignment of this wall corresponds with the site's historic plot lines. The steps lead the visitor to the ground plane alongside the sunken courtyard. Approaching the top of the stairs they are met with a series of electrical transformers. The transformers symbolize present functionality and continuously changing technology. The transformer station was built as the first substation to bring electricity into the city of Toronto.



Fig. 64
Exhibition hall



Fig. 65
Exhibition Hall translation



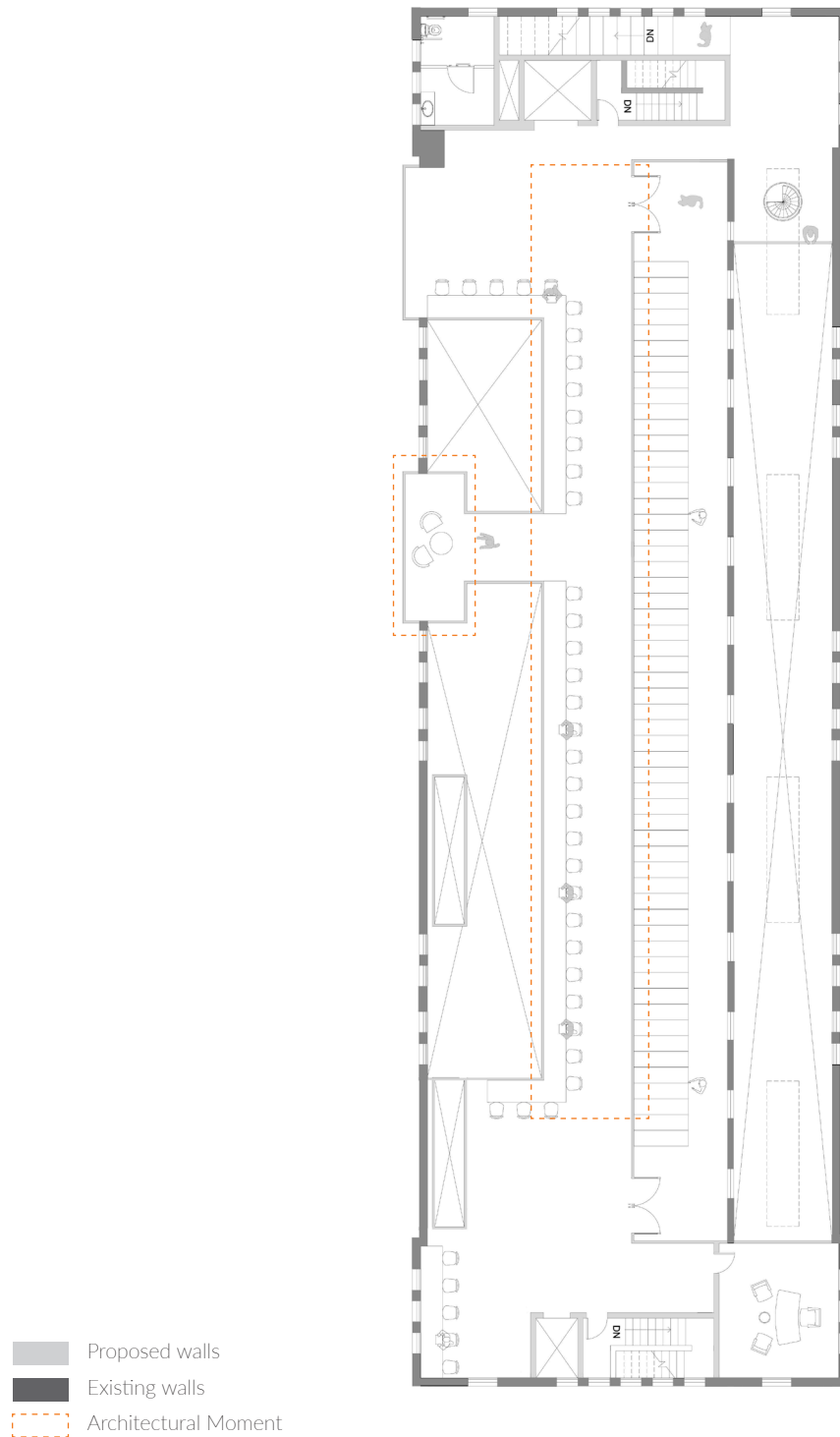


Fig. 66
Second Level
floor plan

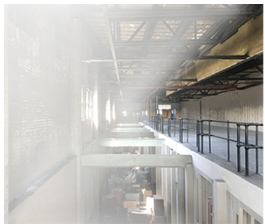
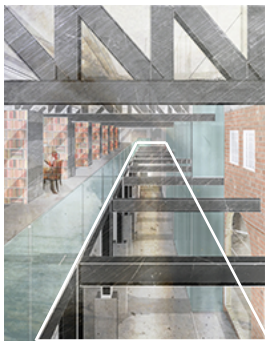
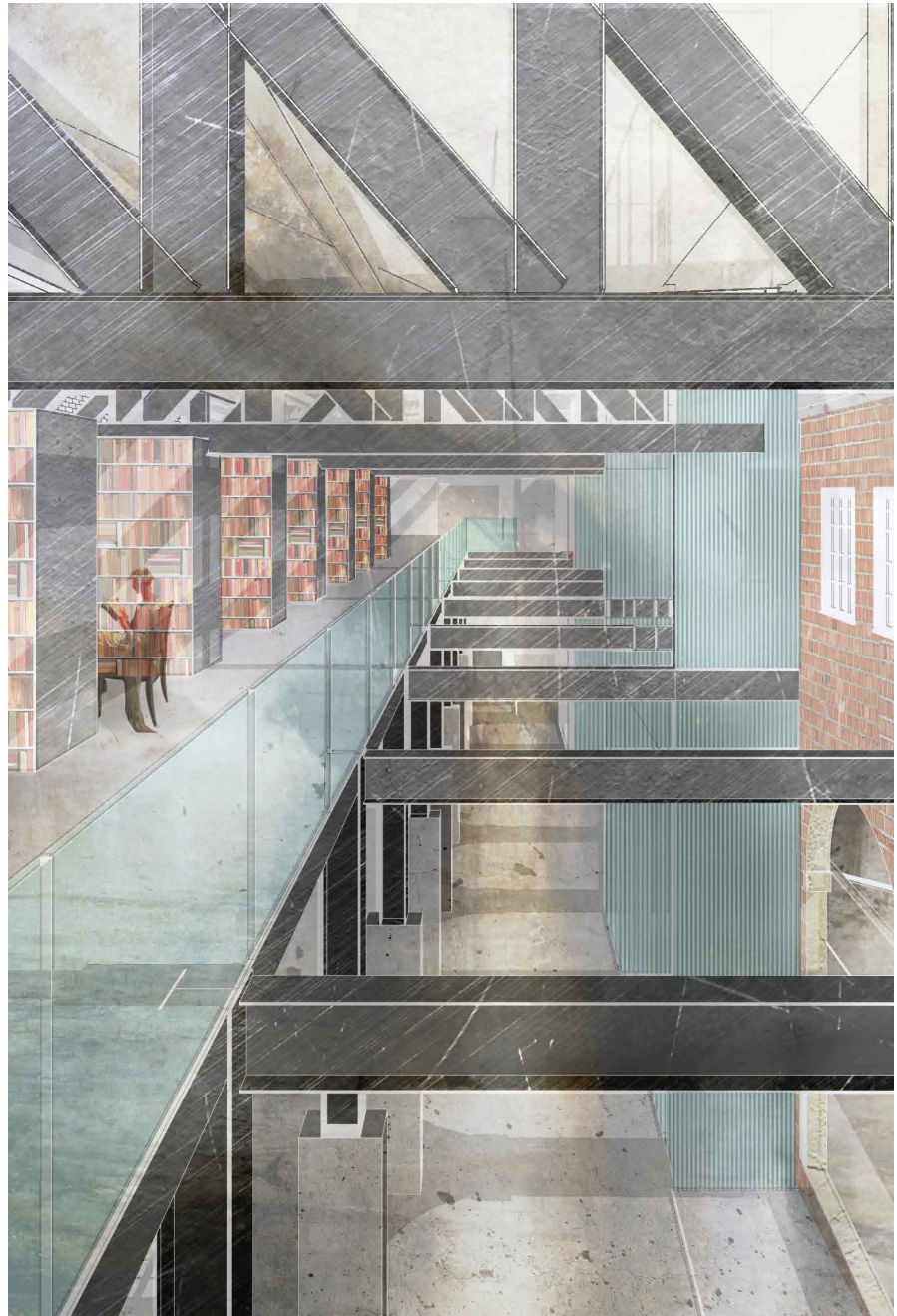


Fig. 67
Light well translation

Fig. 68
Archive and light well
(Opposite Page)

Fig. 69
Exterior Window

Fig. 70
Interior window space



As technology changed the stations building was no longer needed to distribute electricity. Technology will continue to change and today's outdoor transformer towers might one day be seen as a machine of the past, themselves a sculptural mnemonic element of history. To compose this moment inspiration was taken from Turner's painting *Peace-Burial at Sea*, 1842. The painting depicts a darkly lit burial at sea, where light seeps through cracks into the interior of the ship directing the eye along the path of light. In the design for the transformer station, the second ascension up from the lower level produces a similar effect. Light seeps into the dark path, situated between the brick walls of the building and the hydro machinery as the visitor ascends up from darkness into the light of the exterior.



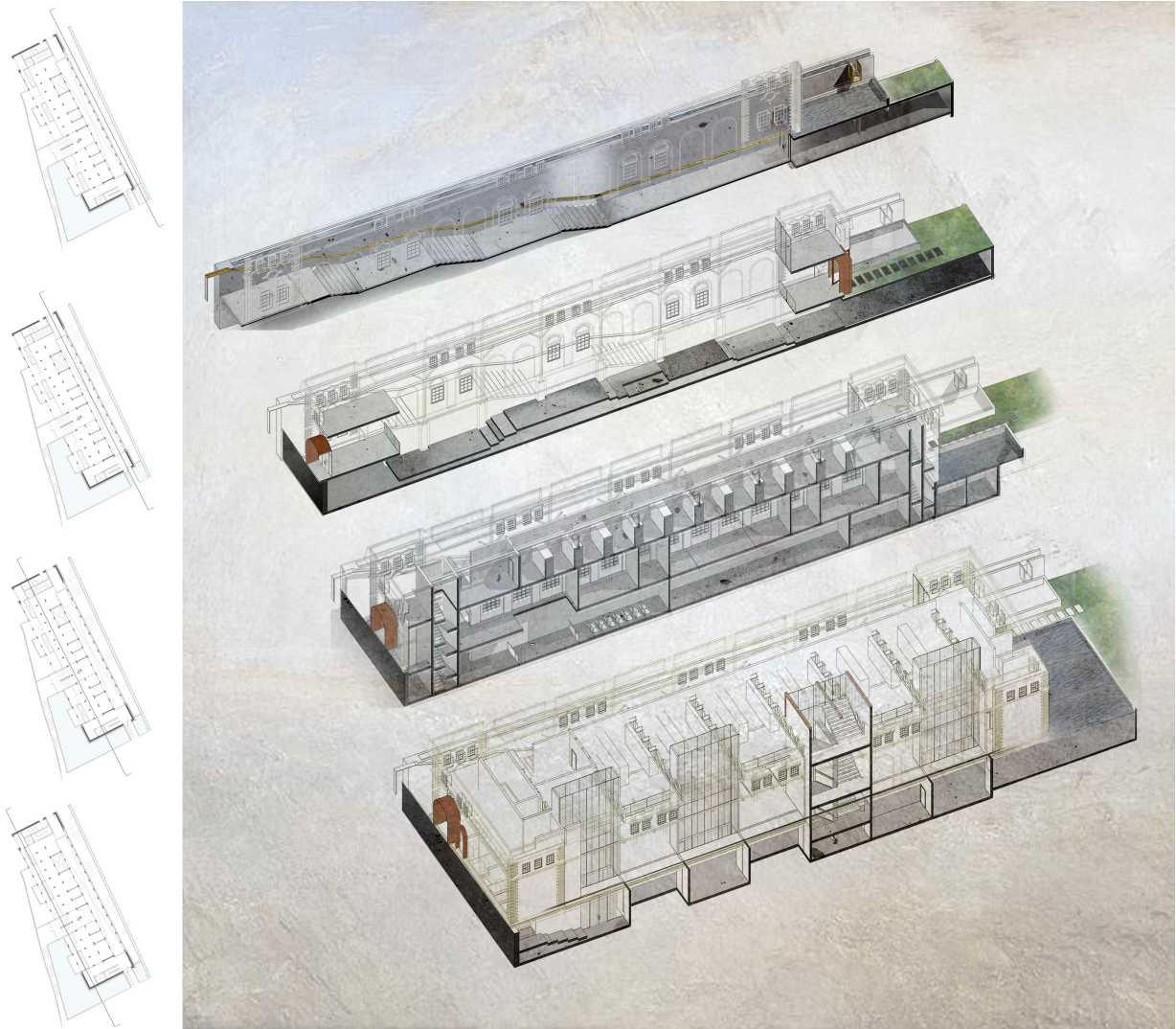


Fig. 71
Moments in section

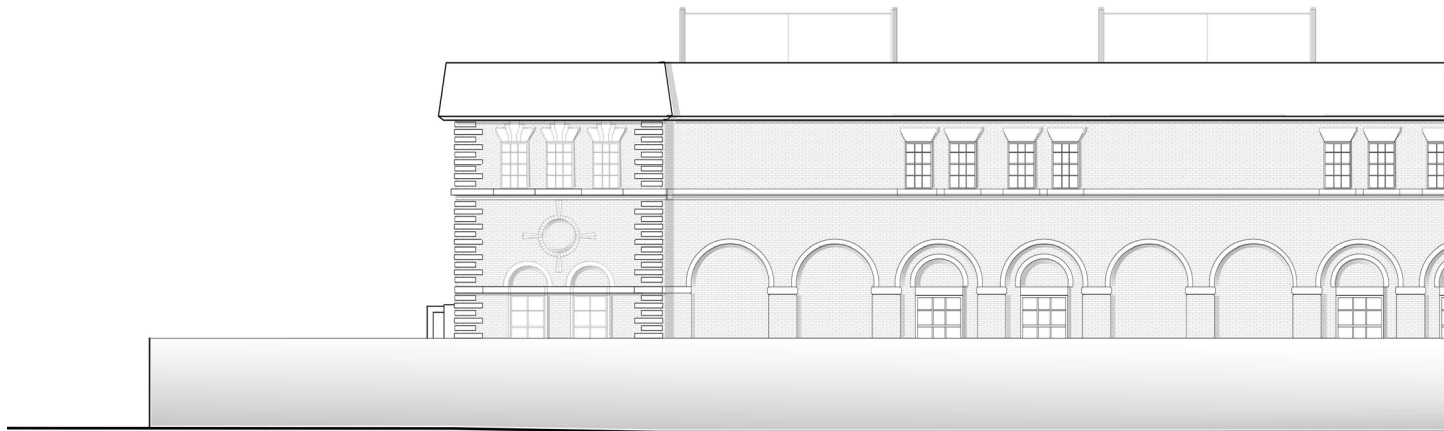
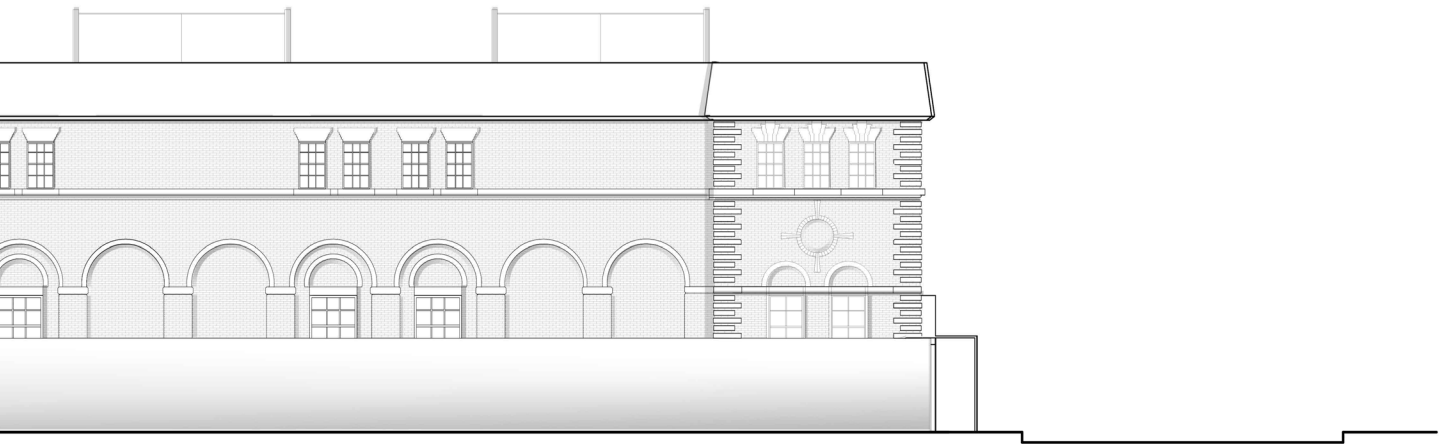


Fig. 72
East Elevation



Fig. 73
West Elevation



1:250



1:250

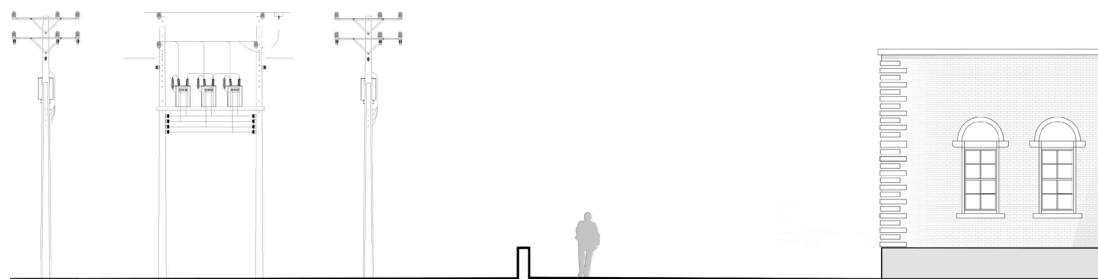


Fig. 74
South Elevation

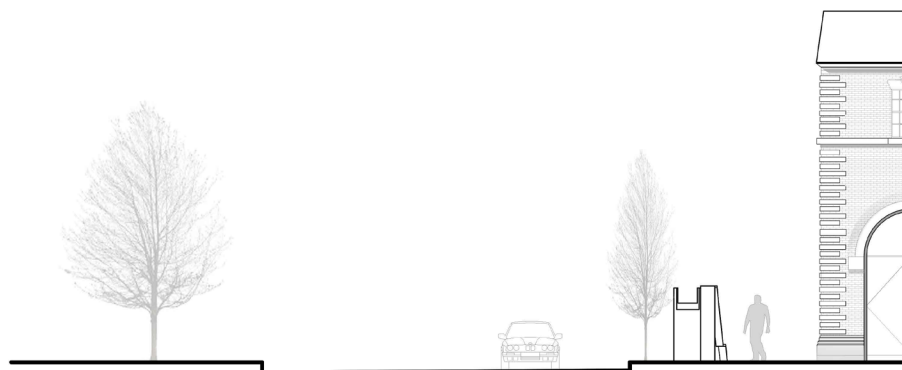
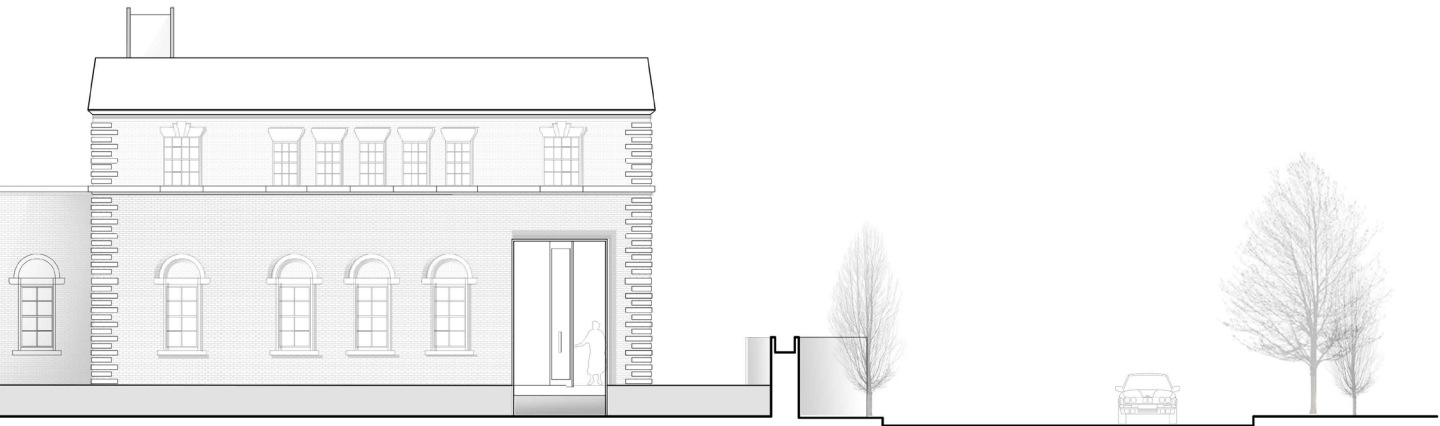


Fig. 75
North Elevation



1:250



1:250

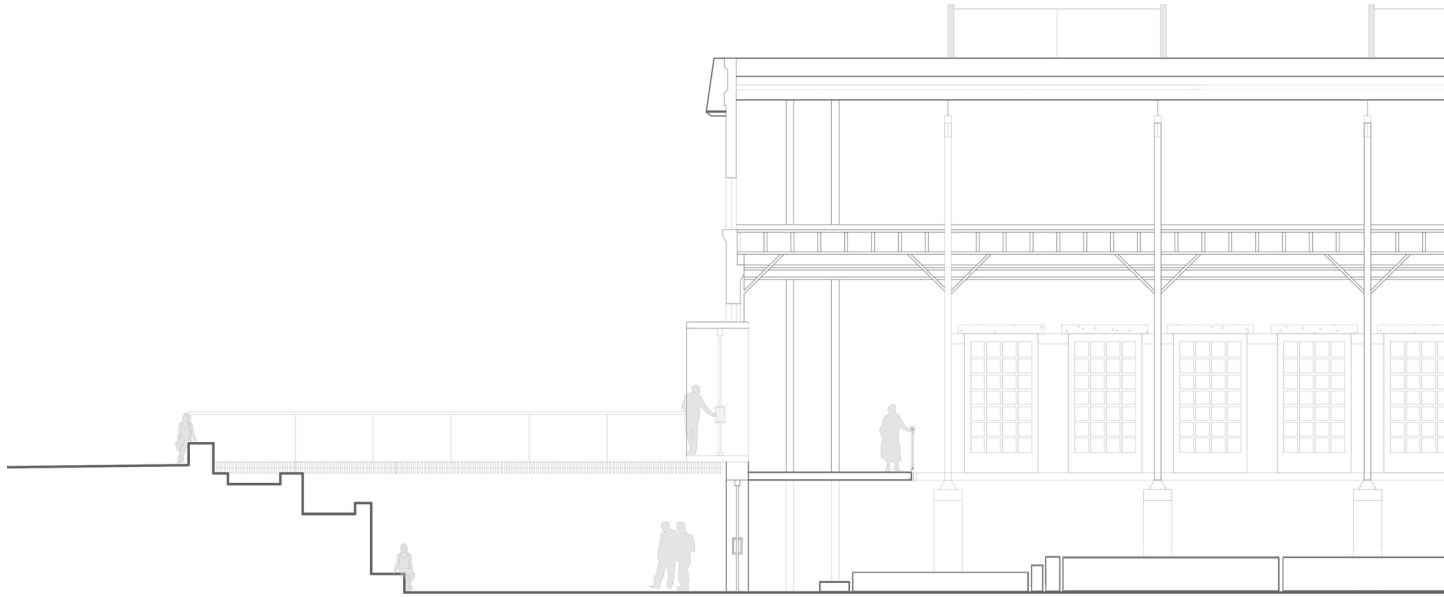


Fig. 76
Longitudinal Section

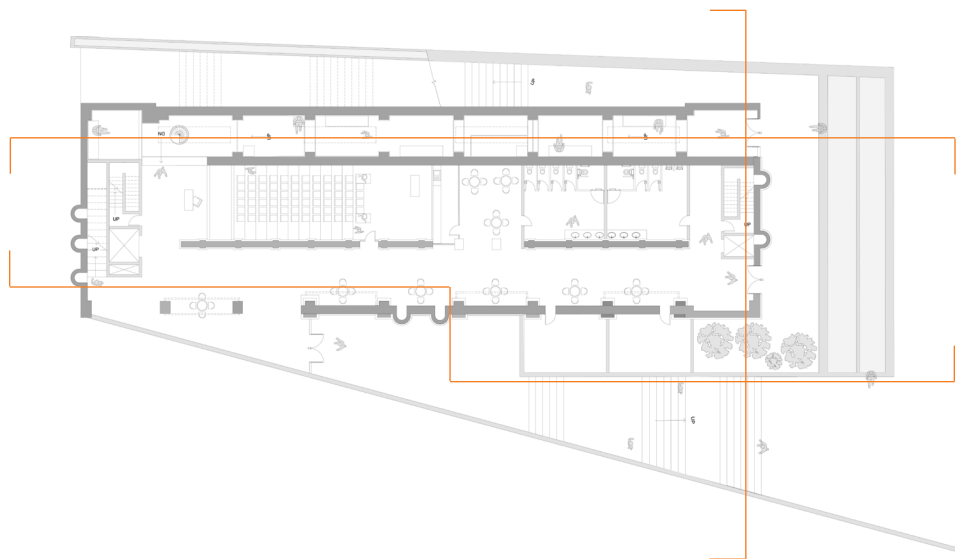
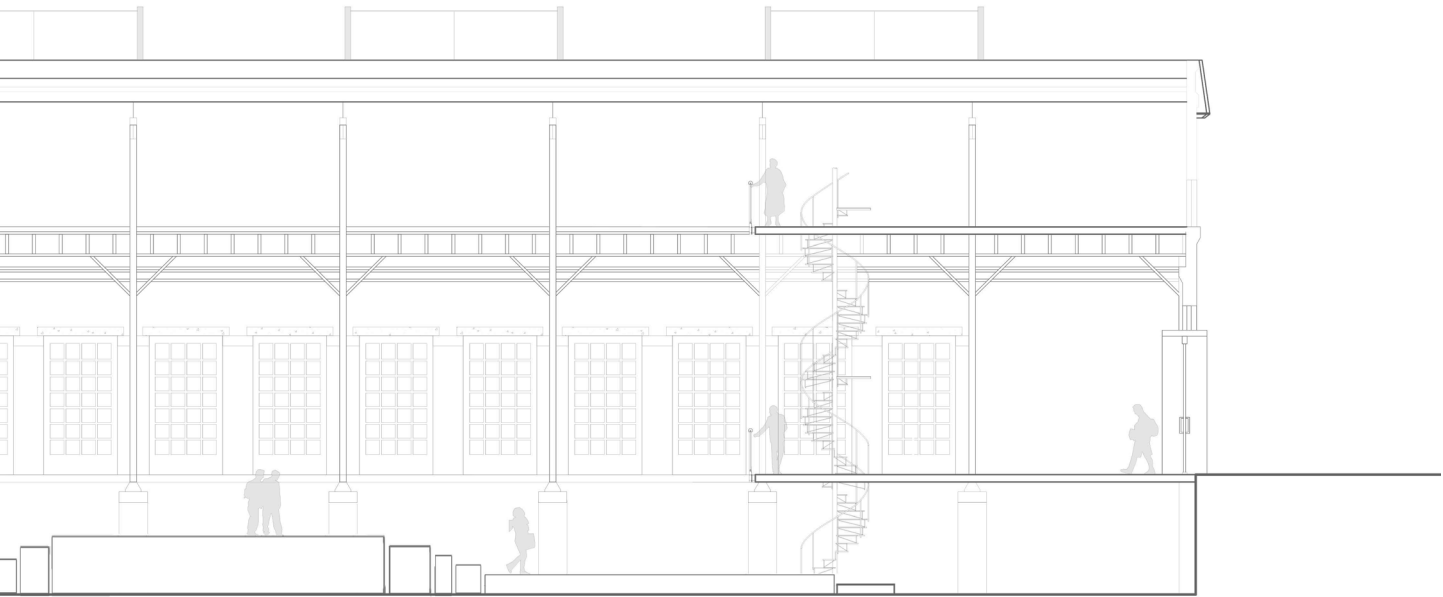


Fig. 77
Section cut diagram



1:250

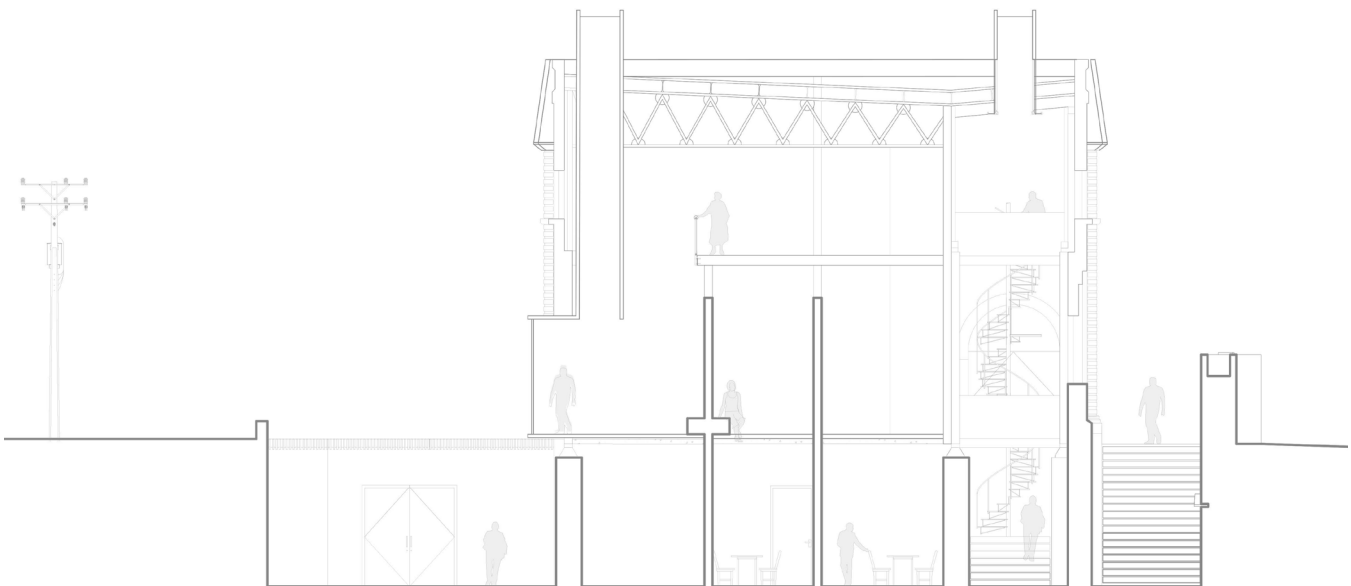


Fig. 78
Latitudinal Section

1:250



Fig. 79
Sectional Model

Fig. 80
Sectional Model Perspective



Fig. 81
Interior Sectional Model

Fig. 82
Sectional Model 2

Fig. 83
Interior Sectional Model 2

conclusion

This thesis has intended to provide a process by which the intangible qualities of place can be extracted and manifested in tangible architectural presence. Artistic qualities were referenced as mechanisms and influences which can be utilized to accentuate and amplify this experience. A key component of this transference originates in the memory that is evoked when realizing a physical structure. This is due to the confluence of sensory cues such as light and form which marry with the historical context and significance of the place to create a lasting mnemonic moment held and triggered as memory. In the process, the longer history is embodied in the place, the deeper the formulated memory that is retained and evoked.

Given the inescapable experience which innately occurs when mind meets place, it becomes incumbent on the architect to recognize and respect the presence of this moment which echoes mentally and visually with the beholder. In the process, structural cues of historical significance can be accessed and incorporated into present day functionality allowing the structure to provide current relevance while enhancing its sense of place and identity. Using the Bridgman Transformer Station as the subject vessel for evocation and creation of mind and space, memory is initially evoked through the narrative experience of the building's past purpose and its sense of belonging to the natural surroundings. An evocation is captured in a design that considers the effect of historic characteristics and forces of embodied memory.

The resulting object is one that constructs a mnemonic moment. At all levels of design, from overall the built form to the composition of detail, each layer composes a stratified experience of memory, forming layer of memory, like a palimpsest. Each material used and addition made is visible chronologically, and communicates with every other element, forming a new narrative. Ultimately, the collective symbolic value of the sensory and physical cues with the purpose of place can enhance the beholder's interaction with the structure so that its function transcends its immediate role to create an experience which will continue to add to the mnemonic memory and significance of the building through time.

Notes

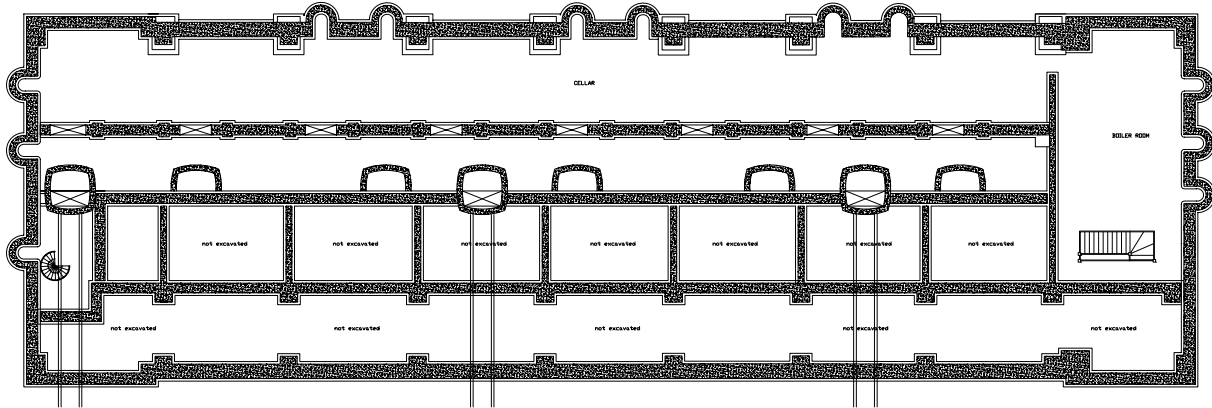
- 57 **Schultz, Ann- Catrin, *Carlo Scarpa Layers* (Stuttgart : Edition Axel Menges , 2007), 12.**
- 58 **Greene, Herb, *Mind and Image an Essay on Art and Architecture* (Lexington: The University Press of Kentucky, 1978), 60.**

appendices

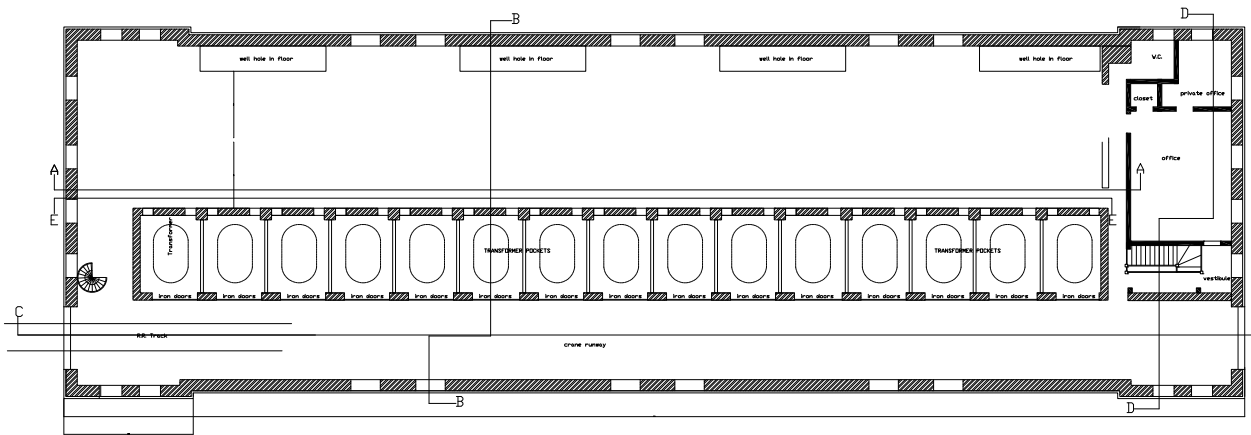
The appendices of this thesis contain drawings and studies that did not find a place within the main body of this work's text. The previous work did however contribute to the exploration and understanding of memory within architecture. Prior to making any design considerations a full study on the background of the Bridgman Transformer Station was undertaken through a process of archival and photographic documentation. A series of perspective drawings aided in clarifying the overall narrative of each moment which originated from the first discovery of Romantic Art paintings. The drawings originally focused purely on the emotional qualities relating to one's perception of memory and were the initial process which helped focus the following work.

appendix a

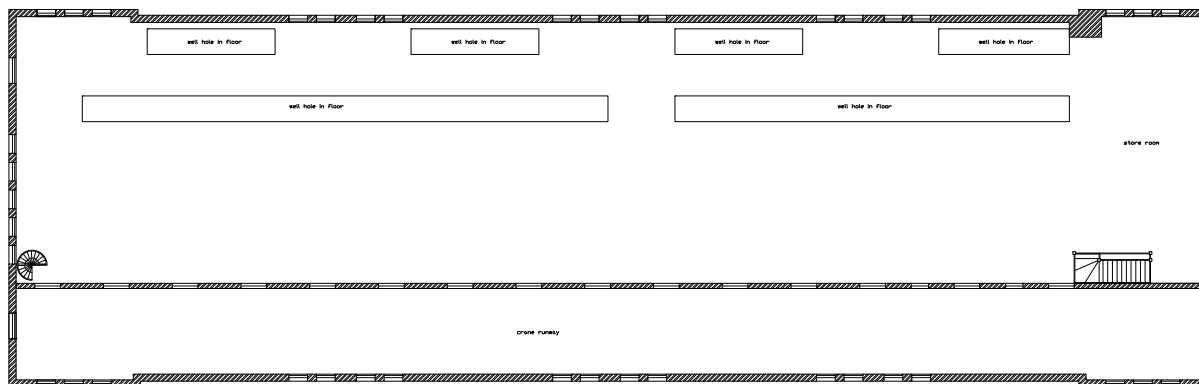
historical documentation and imagery existing conditions



a



b



c



Fig. 84
(a,b,c,d,e)

Archival Drawings from the office of E.J. Lennox for the Bridgman Transformer Station, 1904. Retrieved from the Archives of Ontario microfilm collection. Drawings were recreated for academic use.

a. Basement Plan

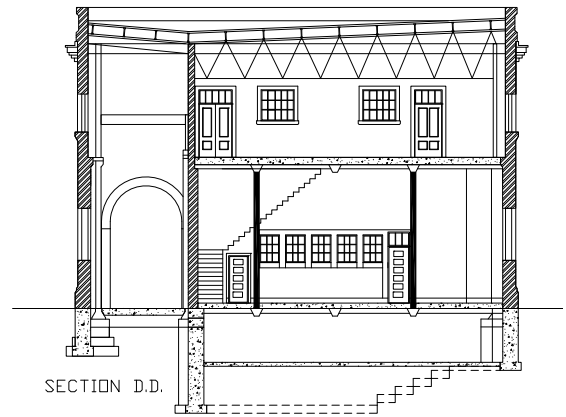
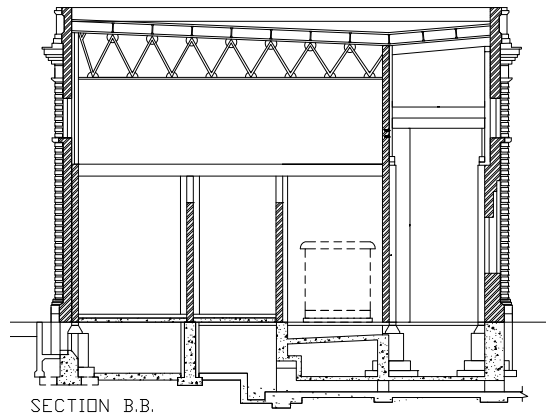
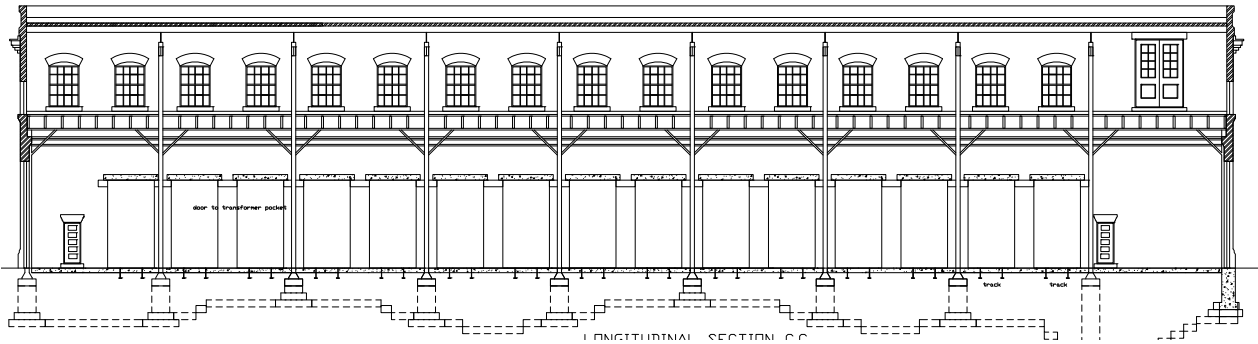
b. Ground Floor Plan

c. First Floor Plan

d. Elevations

(Opposite Page)

e. Sections



addition - 1913

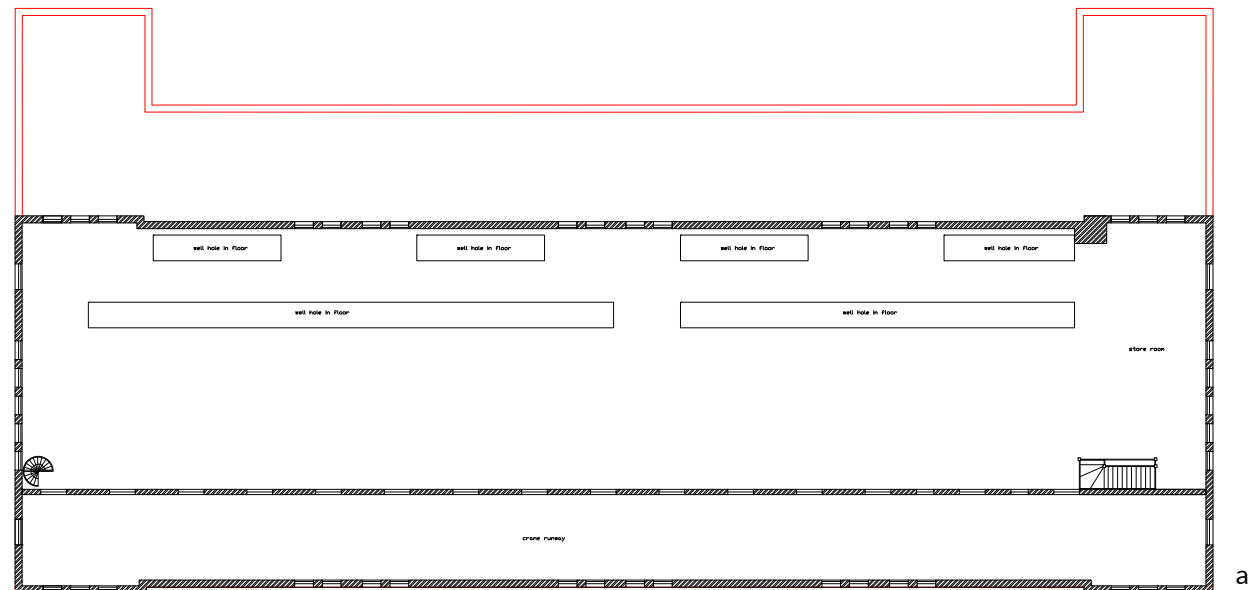


Fig. 85
(a,b,c,d,e)

Archival Drawings from the office of E.J. Lennox for the Bridgman Transformer Station, 1904. Retrieved from the Archives of Ontario microfilm collection. Drawings were recreated for academic use. Drawings recreated for the addition were not recorded for archival purposes.

(Opposite Page)

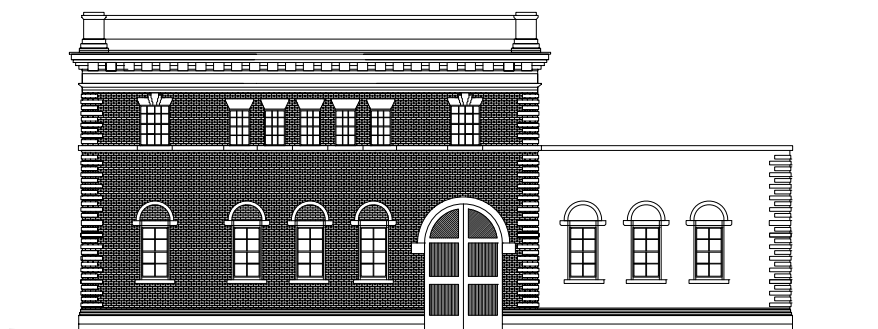
a. Ground Floor Plan

b. South Elevation

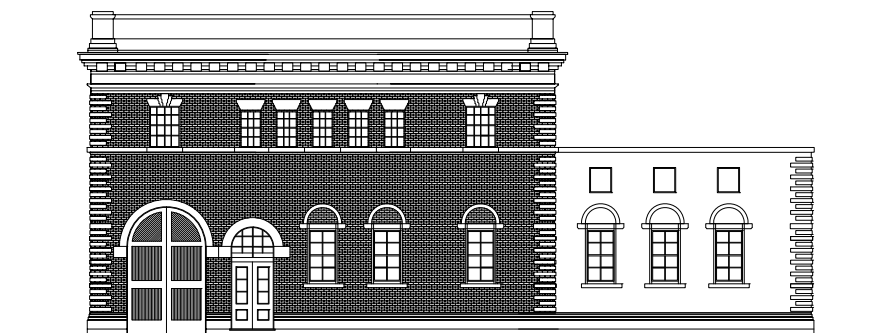
c. North Elevation

d. West Elevation

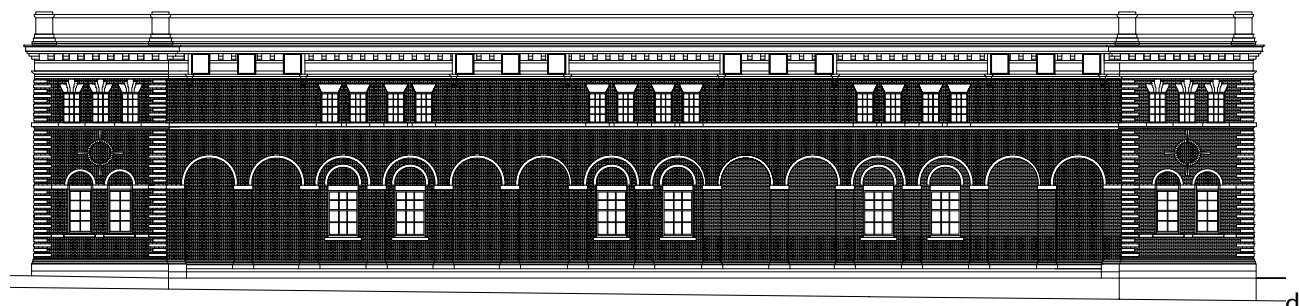
e. East Elevation



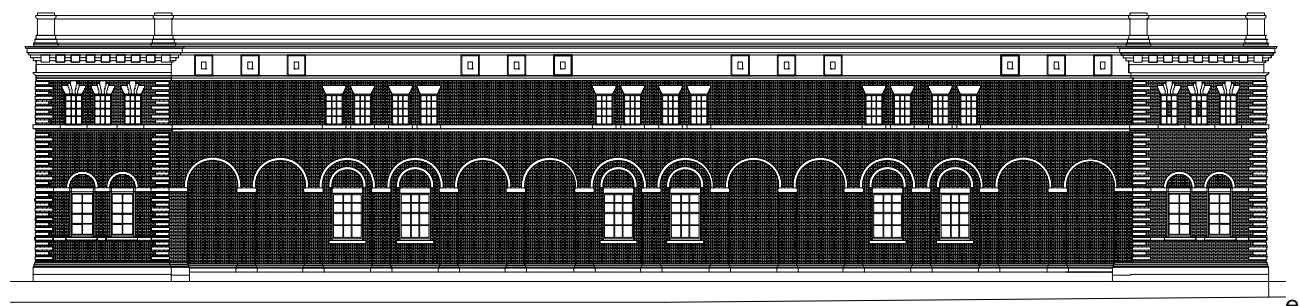
b



c



d



e

Fig. 86
(a,b,c,d,e,f,g,h,i,j,k,l)

Drawings taken on site of
the Bridgman Transformer
Station in its current
state

- a. second level structure
- b. second level
- c. steel transformer pocket doors
- d. transformer pockets
- e. existing sliding doors
- f. exterior brick detail
- g. second level change room
- h. exterior window bay
- i. crane runway track
- j. northern portion of site
- k. second level change room
- l. arched doorway detail



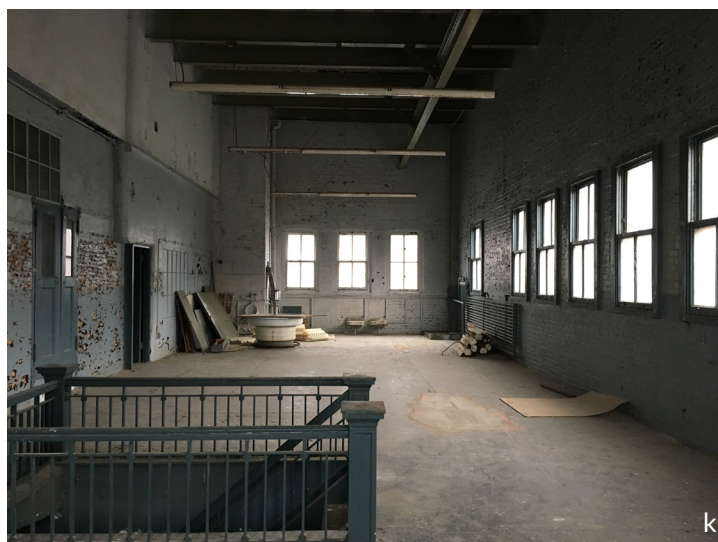
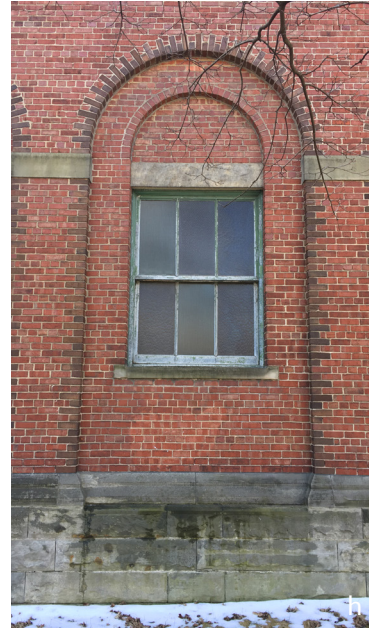




Fig. 87
(a,b,c,d,e,f)

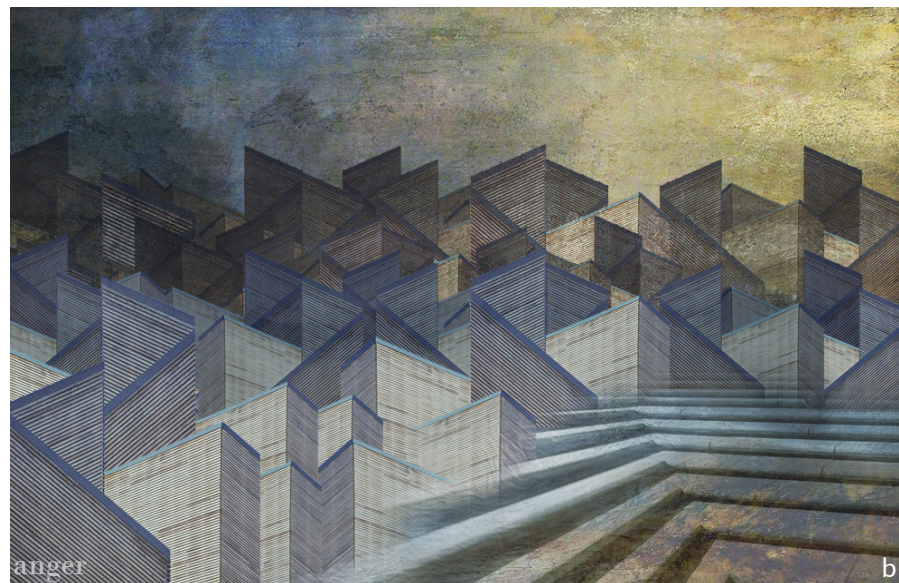
Fire insurance plans derived from Goad's Atlas of the city of Toronto featuring Davenport Road and the Bridgman Transformer Station

- a. 1793
- b. 1795
- c. 1851
- d. 1890
- e. 1910
- f. 1924

appendix b

early drawings and models

The following illustrations consider the emotional qualities of space and represent emotion thorough artistic expression and embodied form. Each image represents an emotion as described by Robert Plutchik in which the relationship between emotion and space begins to be explored. These drawings question what emotions look like in architectural space, as a subject matter the paintings of the Romantic artist J.M.W. Turner were used as a base. His paintings were studied as they captured a sense of emotion, atmospheric qualities, light and perspective. These qualities remained in consideration when creating a new representation of the image.





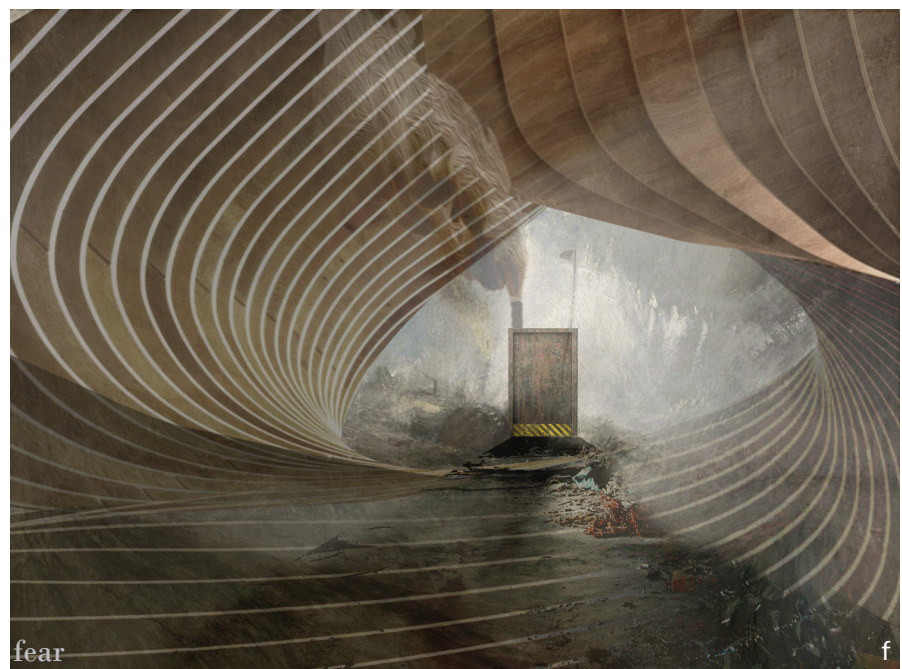


Fig. 88
(a,b,c,d,e,f)
Translation of Art to Form

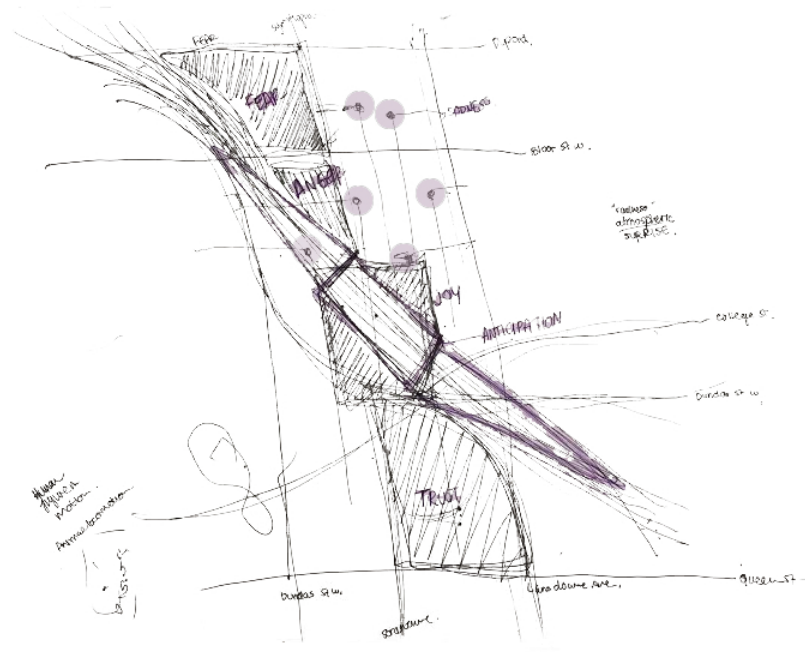


Fig. 89
Mapping Emotion

In order to gain an understanding of emotion, memory and inner thought in relation built form from a non-personal perspective I sought to understand those of others in Toronto. By gaining an understanding of inner emotion from a contemporary perspective rather than solely based on historic memory, a new intervention and embodiment can be applied within architectural space. As seen, Romantic art was a projection of inner thoughts and emotion in reaction to industrialization the same emotive responses could be projected through architectural space in reaction to today's changing landscape. In conversation with a friend I questioned whether particular places in Toronto evoked a particular memory and what emotion was associated with that memory. In questioning it was concluded that each memory and emotion could be traced to a particular place or landmark. Each memory pertained to the individual's childhood memory. By mapping each emotion in relation to the memory and place a narrative sequence began to form. This process however proved to be unsuccessful as memory was subjective and remained an individual narrative sequence. It was learned that a narrative sequence could be experienced differently based on an individual's personal memories and experiences.



Fig. 90
Emotion in conversation

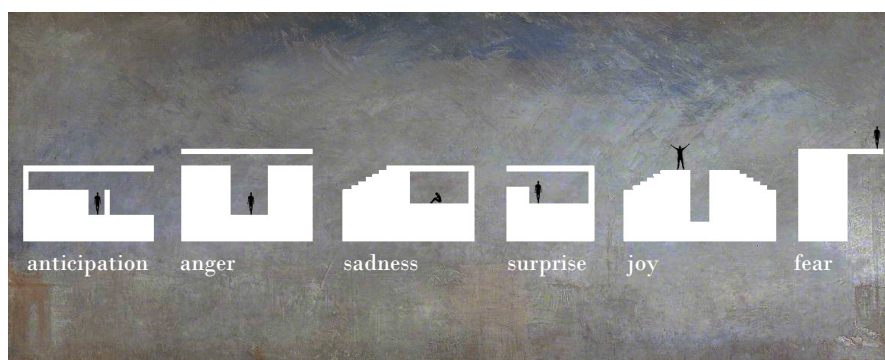


Fig. 91
Emotion in space

After mapping each emotion into sequence I began to explore what emotion might look like in space in relation to the human body. Bodily movements can affect our recollection of memories for instance a feeling of fear might cause us to retreat or hide. The above image begins to explore the relationship between movement and memory recall. Based on emotion in conversation each described memory influenced what each space may look like. For example the feeling of joy connected to the memory of climbing bridges was associated to ascending a stair in relation to the emotion of joy.

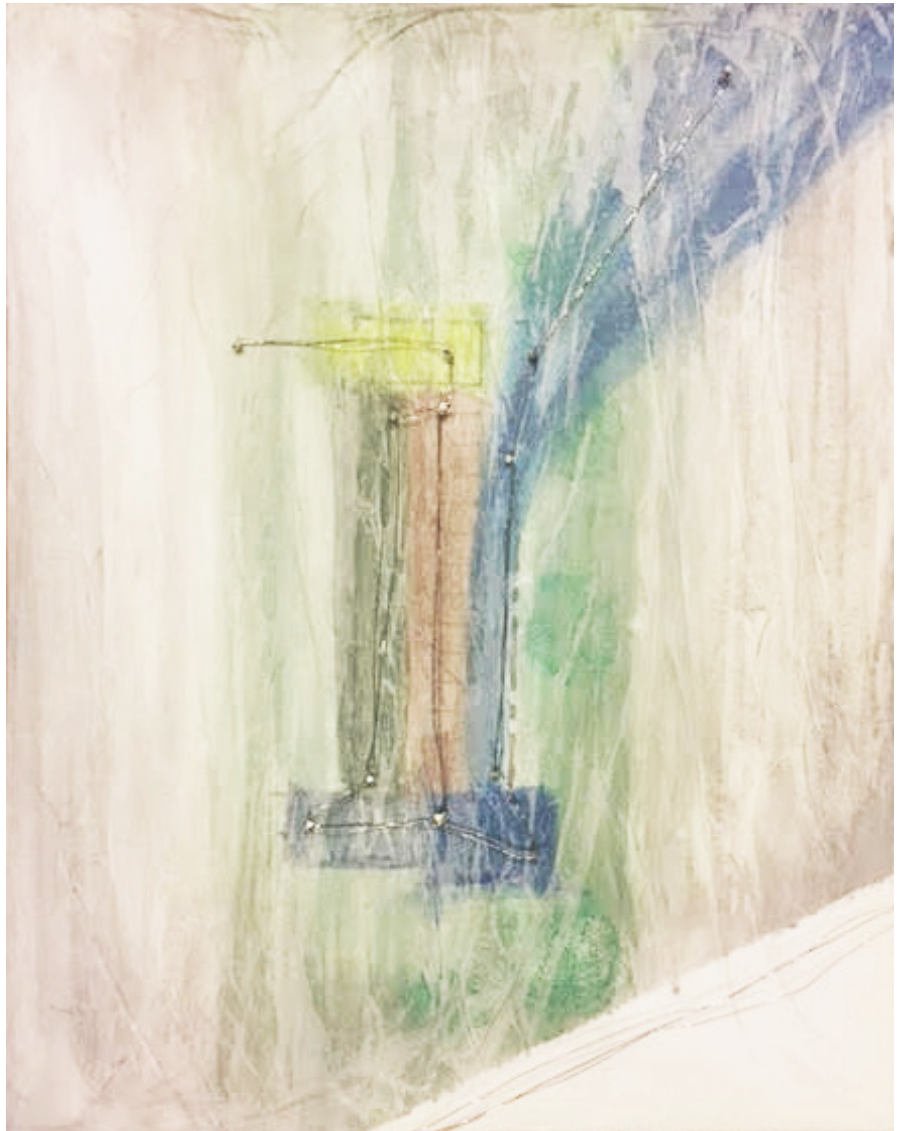


Fig. 92
Conceptual emotive spatial sequencing
Giovanna Monaco
2016

With a based underlay of the Bridgman Transformer Station floor plan a programmatic sequence could be established pertaining to a prescribed narrative sequence. Each colour relates to an emotion while the wire is representative of a narrative path. Narrative sequence will be further explored in relation to embodied memory.



Fig. 93
Describing emotion in space

After a site visit to the Bridgman Transformer station I began to explore how emotion might look when applied to space. The following images are collages of the original building with elements of emotion overlaid.

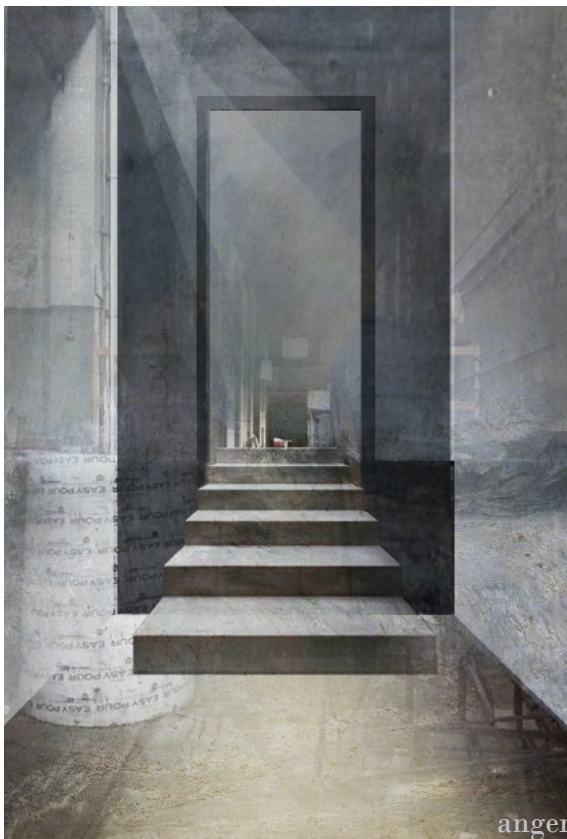


Fig. 94
Describing emotion through light

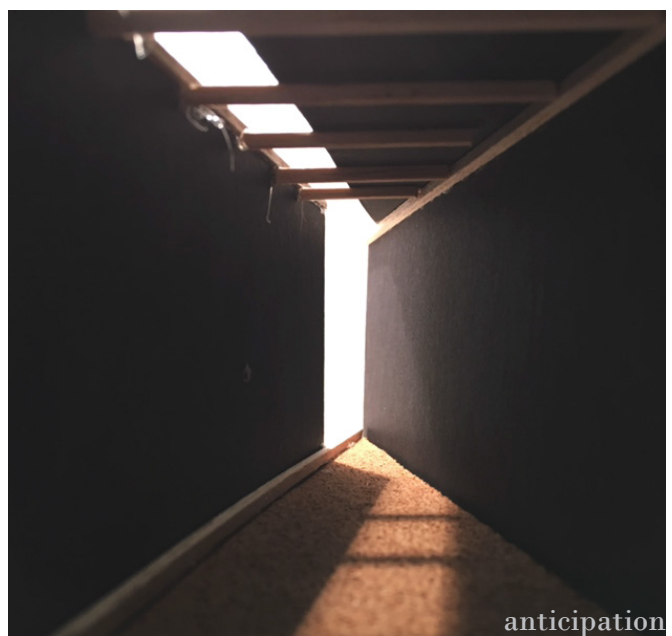
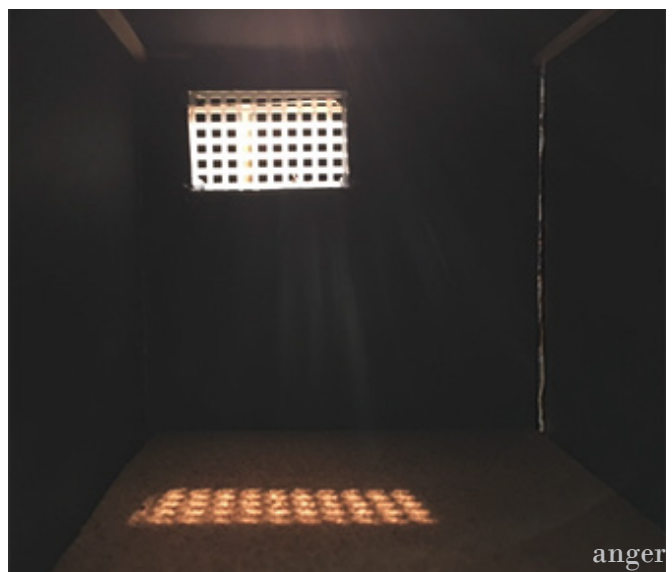
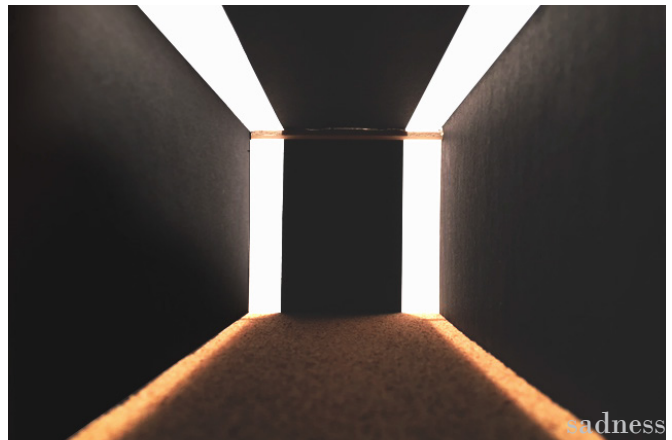




Fig. 95
Describing emotion through form

Fig. 96
Mapping emotion through space

appendix c

schematic design; curated memories 1



Fig. 97
Site plan



Fig. 98
Entrance lower level



Fig. 99
Descent along East facade



Fig. 100
Layers between old and new

appendix d

schematic design: curated memories 2







Fig. 103
Ground Level Plan

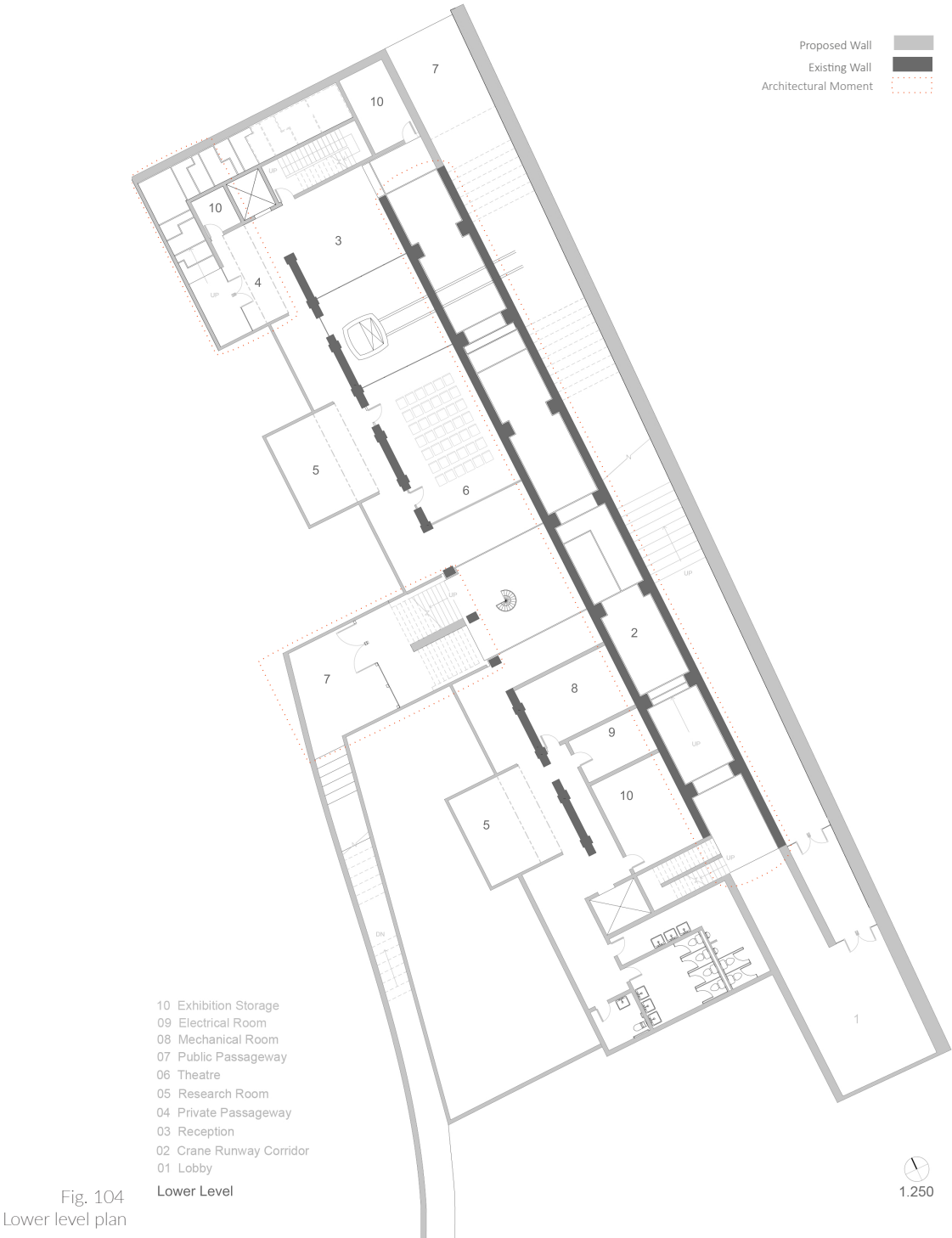


Fig. 104
Lower level plan

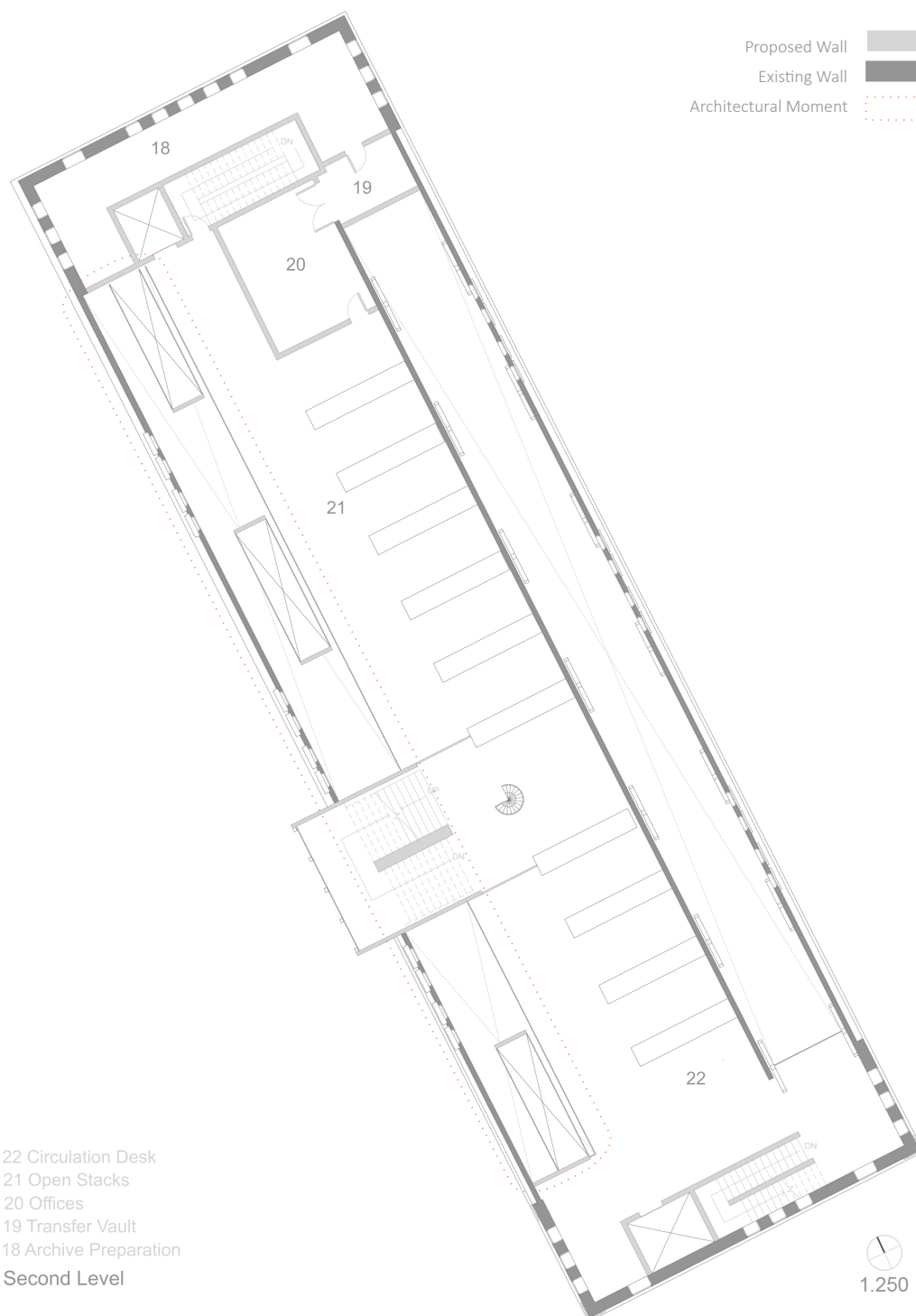


Fig.105
Second Level
Floor plan

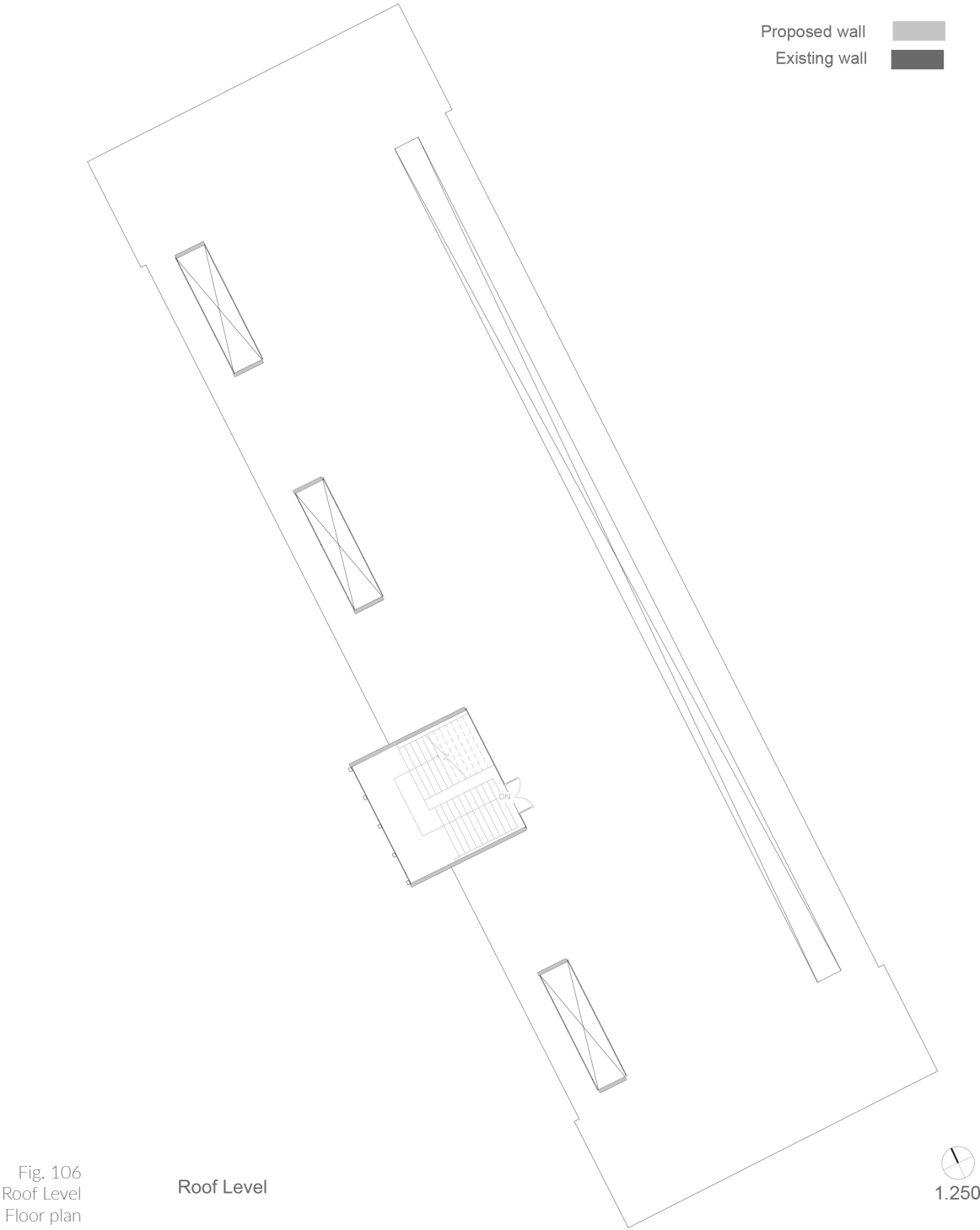


Fig. 106
Roof Level
Floor plan

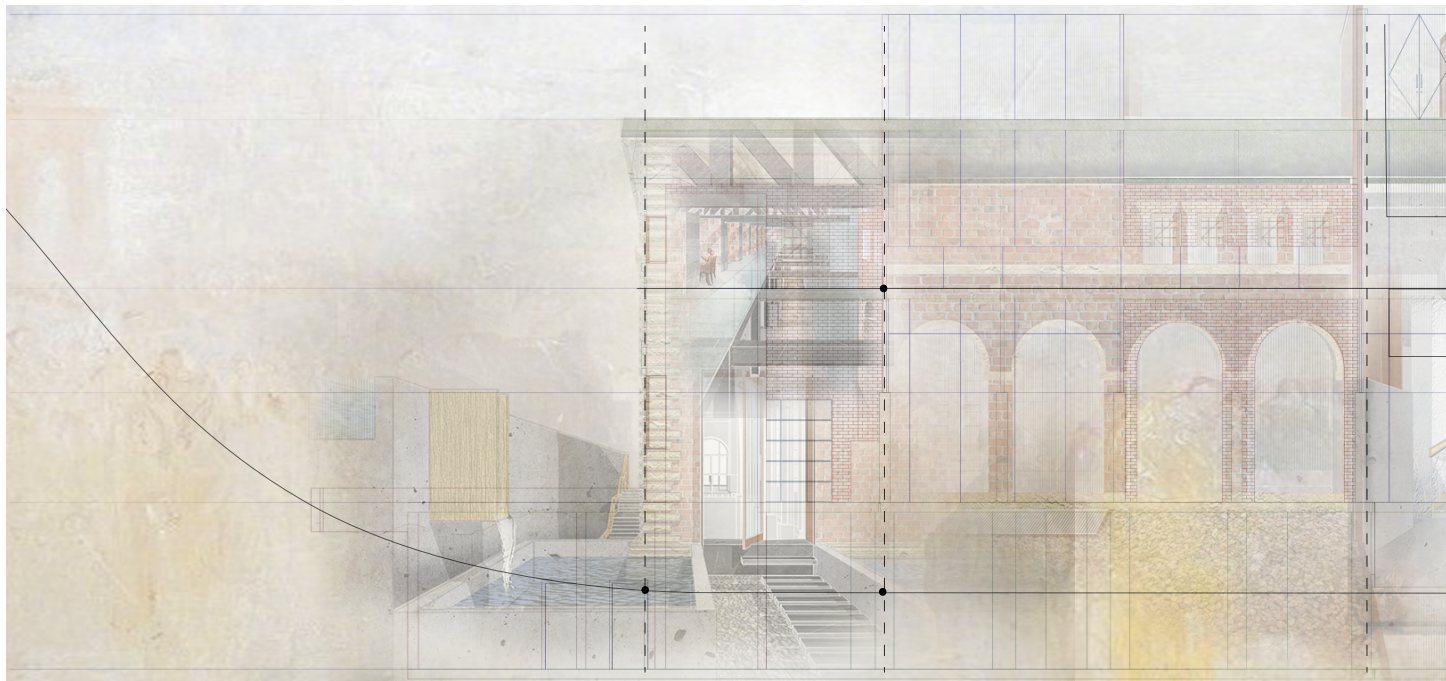


Fig. 107
Moments in experience 1

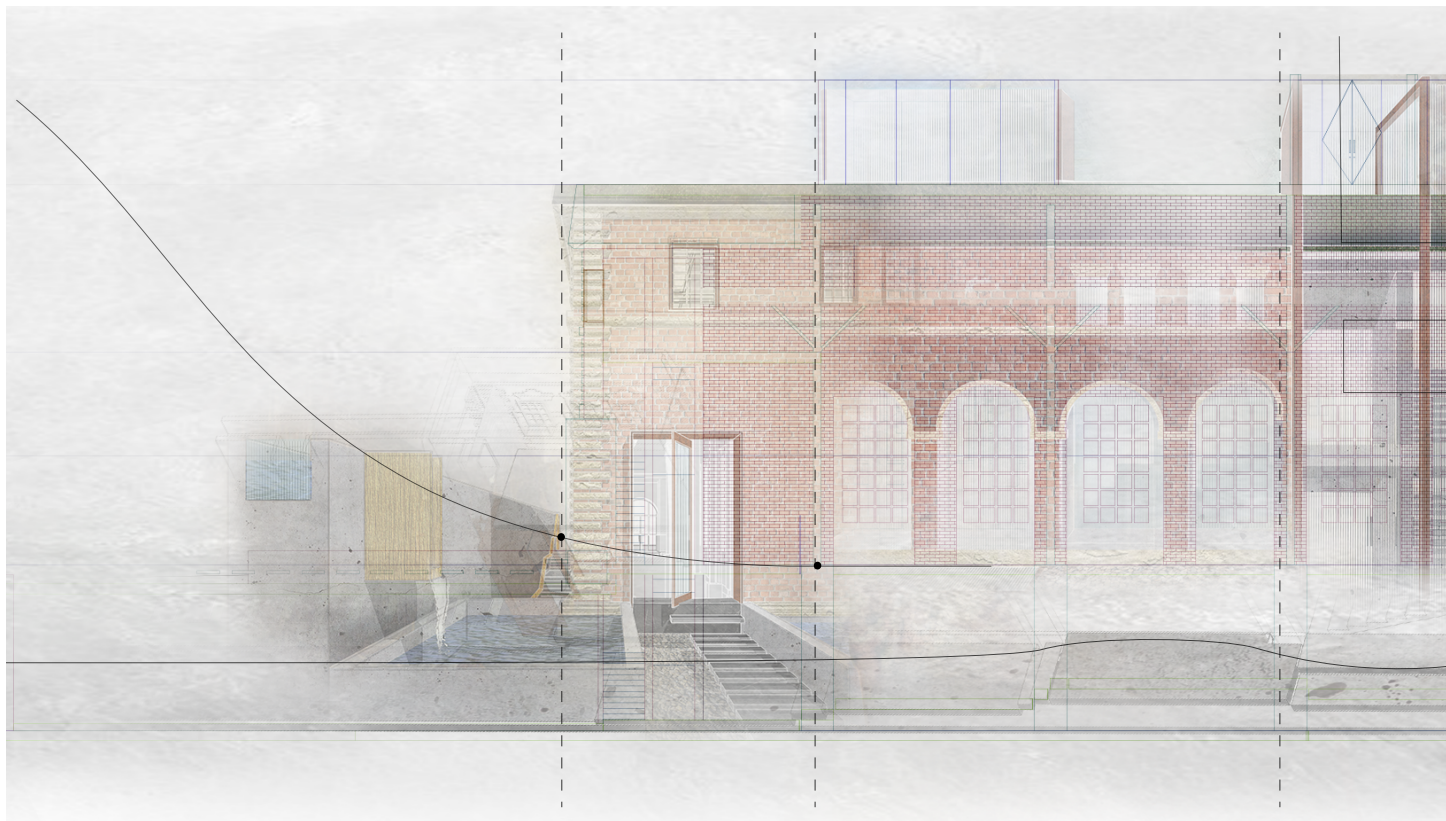
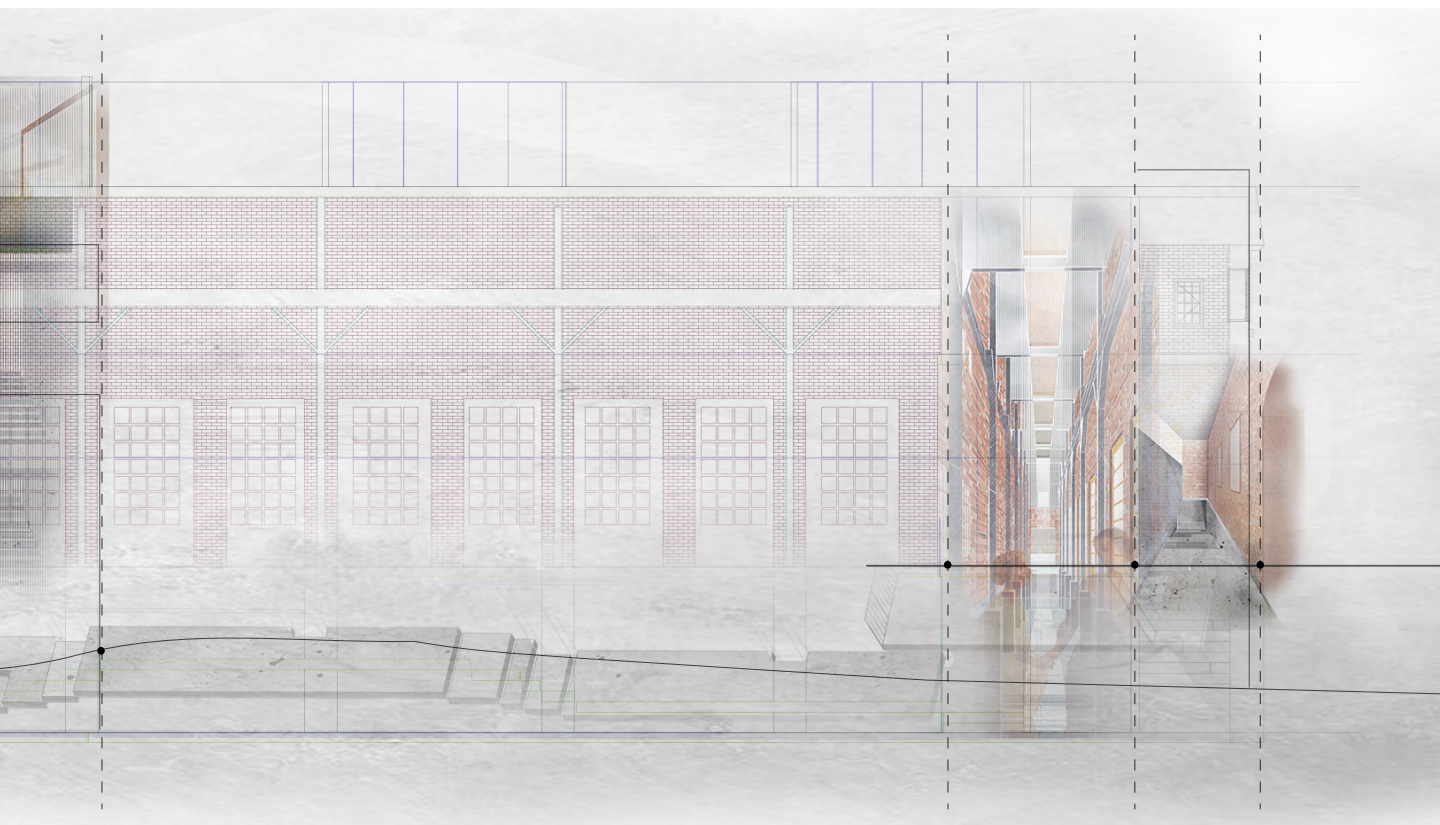
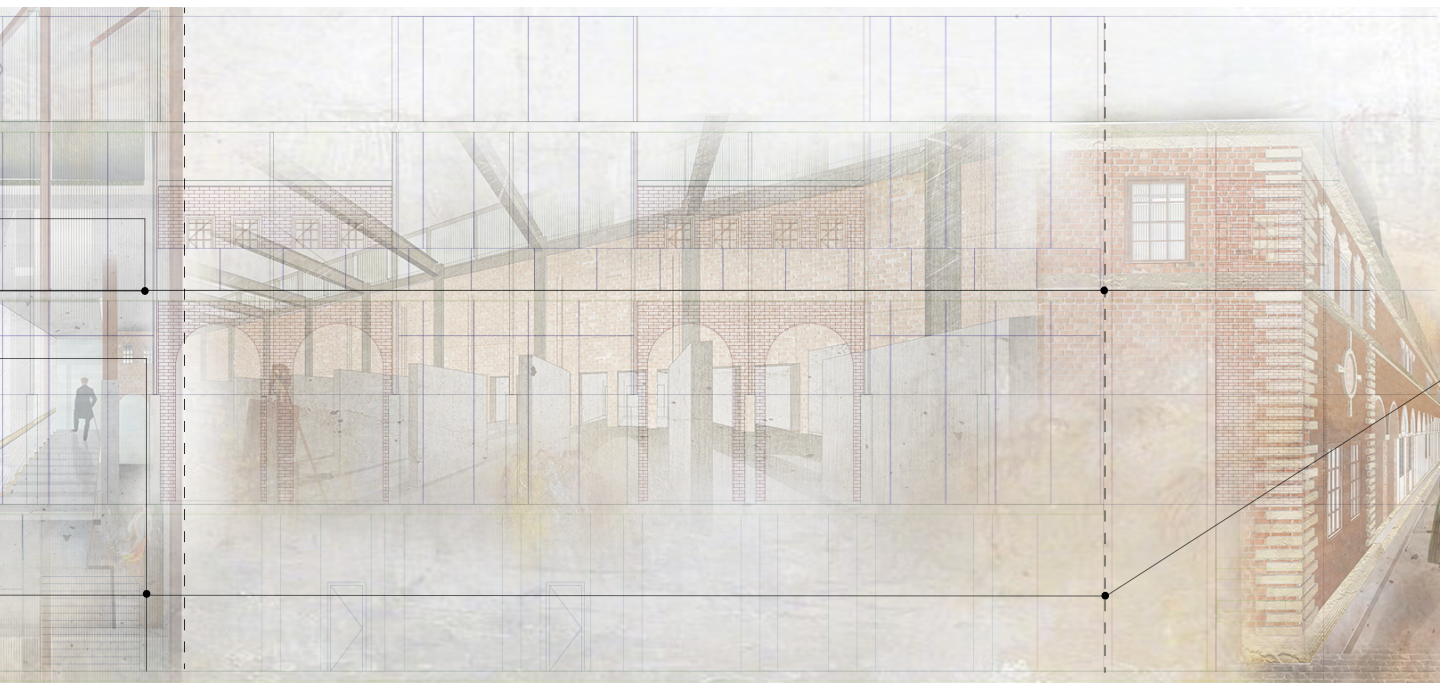


Fig. 108
Moments in experience 2



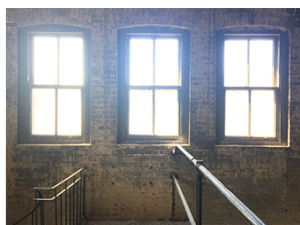
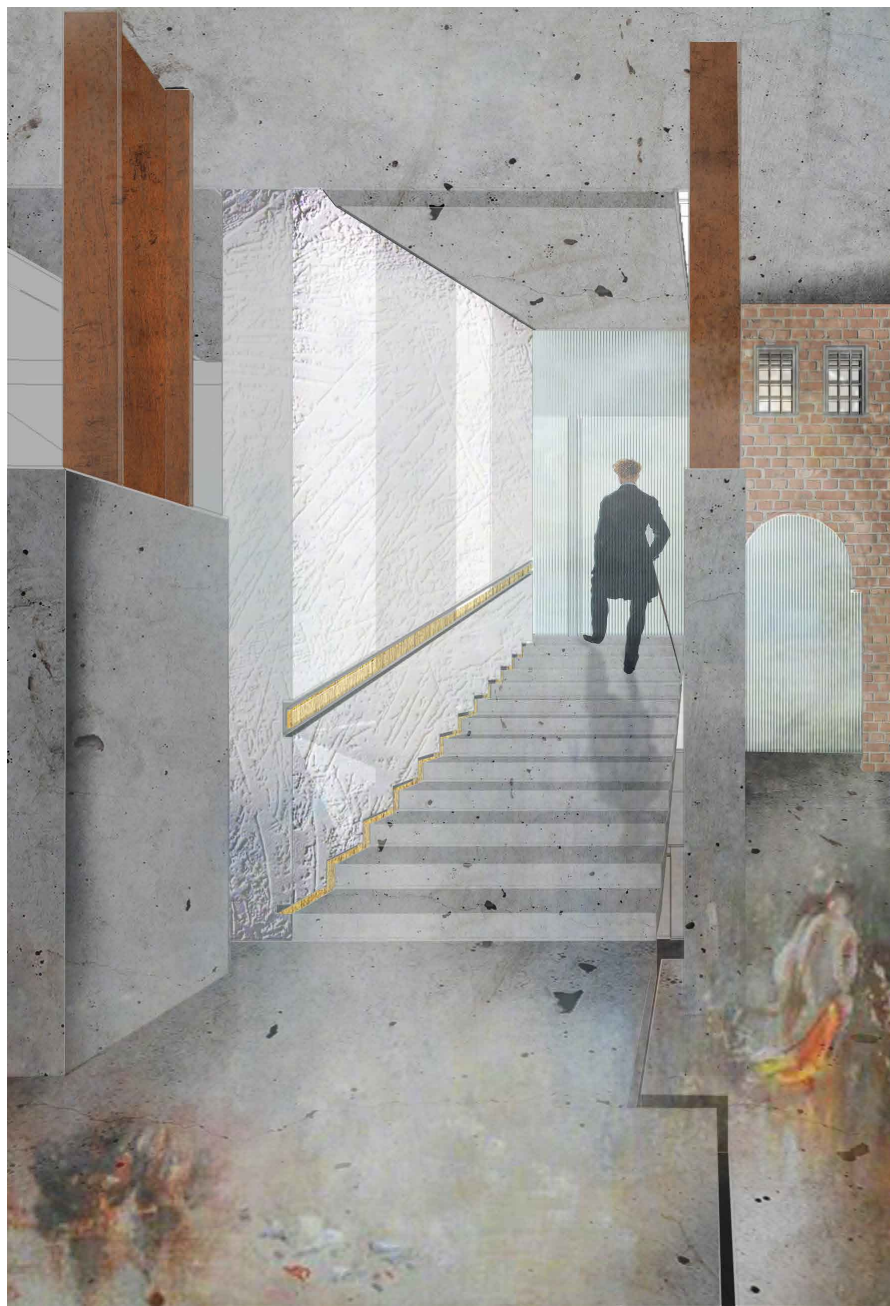


Fig. 109
Light well staircase translation

Fig. 110
Light well staircase



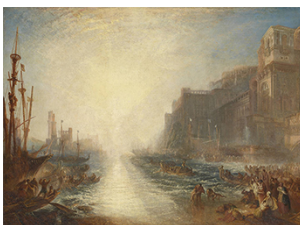


Fig. 111
West facade translation

Fig. 112
West facade



As referenced in appendix a, the archival plans note four symmetrical locations for well holes, the holes are referenced throughout each floor plate. By utilizing the locations of these wells, a series of light wells were created in order to shed light throughout the entire East façade of the building. The new wells are usable spaces on the basement level for programmed reading rooms, allowing natural light to be shed underground. Each component is symmetrically aligned with the facades windows and structure forming a rhythm between the newly created light and the existing wall. This moment in particular however extends the light well into an exterior excavated courtyard space, which leads the visitor alongside a diagonal retaining wall. The alignment of this wall corresponds with the sites historic plot lines. The steps lead the visitor to the ground plane alongside the pond. Once approaching the top of the stairs they are met with a series of electrical transformers. The transformers symbolize present functionality and continuously changing technology. The transformer station was built as the first substation to bring electricity into the city of Toronto, as technology changed the stations building was no longer needed to distribute electricity from. It can be assumed that technology will continue to change and the outdoor transformer towers can one day be seen as a machine of the past, a sculptural mnemonic element of history.



Fig. 113
Water feature translation

Fig. 114
Water feature

Your eyes lead you along the crane structure positioned along the roof. At the end of this journey marks a second public entry way. What was originally also a large arched garage door was later squared off to adapt to modern usage. The current doorway is framed with similar weathered steel. This egress is designed to emulate the original industrial image which is present within the building. Once stepping outside, the exterior wall retaining water spills into a large pond surrounding the south façade of the station, giving it the illusion of being submerged in water. The water symbolizes the former Lake Iroquois and also contrasts the present day nature of the electrical hydro site.

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