ORNAMENT: A LANGUAGE OF ARCHITECTURE

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ABSTRACT

Ornament in architecture has only recently been questioned. Historically, the topic never wavered in uncertainty. From antiquity to the 20th century, ornament was explicitly considered - either in abundance or elimination. The subject has become difficult to grapple with due to its suppression in Modern, minimalist architecture. Ornament has persistently been cast aside since architects have been out of touch with its potential. This thesis documents how ornament once held a level of prominence within architecture and acknowledges its relevance in contemporary practice by offering methods for its implementation. Both historical classifications and contemporary examples of the term 'ornament' are examined to identify its definition today. Design research explores the ways in which ornament can be incorporated into future architecture: as a design approach rather than applied as decoration. This thesis reinstates the use of ornament in architecture by making a case for its aesthetic enrichment of the built environment.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

List of Figures

INTRODUCTION

Adolf Loos was wrong. The evolution of culture does not depend on the removal of ornament — but it does require it to evolve. This thesis acknowledges the architectural struggle with ornament and provides a new way of employing it in contemporary design. The method in doing so begins with redefining ornament. Ornament, once literally applied to building surfaces, will now be considered a design approach. To use ornament in contemporary praxis is to include it in the design process rather than add it to the finished product. Ornament is capable of creating and structuring space — not simply adorning its surfaces. This makes it a valuable tool to add to the arsenal of any architect. Ornament has, for too long, been pushed aside for many reasons. First and foremost, the words of Adolf Loos still resound in architectural discourse; they criticize ornament for impeding a new era of architecture compatible with the modern world. Modernity, with a focus on pragmatics, made no room for ornament. Ornament was seen as superfluous to the practical needs of a building. It was too costly and too wasteful to be used in these efficient, minimal designs. Lastly, while the above sentiments prevailed, architects lost touch with the use of ornament. Many subsequent architects could therefore not fathom using ornament at all; those who did feared using it incorrectly or becoming the subject of substantial criticism. Ornament, with its heavy stigma, faded from architectural discourse. This thesis considers, however, what occurs if architects do not recoil from ornament but embrace it, learn its language, and employ it as a design method. Hence, an argument exists for the bold *creation of architecture through ornament* — in direct opposition to the common *fear of adding ornament to architecture*.

Ornament was once employed with precision and purpose — even if its role was simply to bring 'delight' to a design. A true sense of contemporary ornament can ultimately be discovered through its historical manifestations as well as a study of its current materialization in the built environment. Such examples are examined and illustrated in the following chapters. Conclusions can be drawn from them that serve to indicate the role of ornament in architectural practice and discourse. Contemporary ornament is a multi-faceted entity: it is an organizational tool for space and building elements, an interface between the building and its users, and ultimately — going against the taboo of modern thought — a source of beauty and delight in architecture.

A full understanding of ornament is problematic, as ornament went into hiding scared off by the writings of Adolf Loos and the manifestos of Modern architects. Thus, contemporary ornament is considered with some difficulty with respect to its past connotations. What is clear, however, is that ornament today is no longer identical to its manifestations in past eras. Ornament in architecture has undergone change on a more fundamental level: it is now implemented as a design process rather than placed onto a surface. Contemporary architecture incorporates '*ornamental thinking*' rather than *applying ornament*.

THE CASE FOR ORNAMENT

Suppression and Dissatisfaction

Architecture has suffered from the suppression of ornament that was initiated by Adolf Loos in the context of the machine age. The times surrounding Loos' writing coincided with new industrial processes that had commodified ornament. Loos took advantage of this to advance his arguments. The common practice of stamping ornament onto objects made the subject an easy target in demonstrating the backwards thinking of those who would rather 'live in the past' than in the modern world. Loos urged for simplicity over the abundance of ornament that he considered wasteful of human labour, material and money. This use of ornament as a commodity is the type that Loos criticized and saw as a savage impulse to 'tattoo' objects. Loos also used dramatic language to persuade listeners and readers to put an end to ornament. He referred to those who would use such ornament as criminals and degenerates. Loos advocated for the removal of ornament, insisting that its overuse would lead to its termination by prohibiting the evolution of culture.

While technological advance is part of Loos' argument against ornament, he also recognized the underlying relation between ornament and pleasure. It is within this context that he advocated for the elimination of ornament: he believed that, at the point of its commodification, ornament no longer induced such feelings. Loos did not accept that ornament was beautiful or that it heightened one's enjoyment in life.[1] Elsewhere in

1 Adolf Loos, "1908 Adolf Loos: Ornament and Crime," in *Programs and Manifestoes on 20th-Century Architecture*, ed. Conrad Ulrich (Cambridge, Ma: MIT, 1971).

his seminal text, *Ornament and Crime*, Loos addressed his distrust for ornament that lies in the phantasmal, rather than the reality of things. He acknowledged that un-modern people (those who employed ornament) were living in the past. His sentiment is justified with regards to the type of ornament being produced at the time: a smorgasbord of various traditions from around the world (conveniently brought together in the volumes of Owen Jones and Auguste Racinet and in other pattern books). Loos' vision of architecture, however, was particularly nearsighted — he mentioned that "the greatness of our age is its incapability in producing new ornament."[2]

Such thinking may have been true, for a time, but has proven itself false as contemporary versions of ornament serve to illustrate. One could argue that Loos' narrow-mindedness was itself an impediment to the evolution of culture. He intentionally set aside imagination to focus solely on the tradition of building.[3] Yet imagination is crucial to improvement and progress; new ideas must form in the mind before they can be implemented. Loos' removal of ornament for the sake of tradition, coupled with the suppression of imagination, seems to counter his own argument of progress. It has become evident that such a laissez-faire attitude — even in the guise of Darwinian evolution — can be detrimental to global life and health. The elimination of ornament is an example of a seemingly positive act that actually had negative effects. In imagining future architecture, this thesis posits an alternative approach to ornament, one that does not necessitate its total removal and, in fact, argues for its beneficial inclusion in a new, evolved form.

The architecture that stemmed from theories on the removal of ornament became homogeneous and bland. Whitewashed walls and large expanses of glazing became the norm - an aesthetic often identified with the International Style. Moreover, the unadorned walls of these buildings reflect the only mention of architecture found within Loos' *Ornament and Crime*: "Soon the streets of the city will glisten like white walls."[4] Villa Savoye by Le Corbusier falls within this category (even though it was built outside of Paris). In this context, beauty is considered to be in the machine-like character of buildings. The concerns of the time were made apparent through the

Figure 1: Villa Savoye epitomizes the architecture of the International Style.

2 Ibid., 20.
3 Christopher Long, "The Origin and Context of Adolf Loos' "Ornament and Crime"," *Journal of the Society of Architectural Historians* 68, no. 2 (2009). 206.
4 Loos, "1908 Adolf Loos: Ornament and Crime." 20.

Figure 2: The living room interior of the Müller house complete with lavish marble.

architecture: reason, function and efficiency. Speed, the need for a rapid re-building of postwar cities, was also a fundamental factor in the production of modern architecture.

Although ornament still crept in through the natural patterns of materials (Loos himself could not resist including richly veined marble in the Müller House, Villa Karma and others), there was otherwise little articulation of material as intentional ornamental expressions. As Antoine Picon puts it, as modernity took hold, ornament did not fully disappear but became tertiary.[5] Projects of the 1920s that identify with the primary thoughts disseminated by Loos makes one ponder as to whether these works of Architecture achieving their full potential. The reduction of ornament in favor of the utilitarian reduces certain qualities of the architecture to the level of mere building. As John Ruskin, architectural historian and critic, eloquently describes:

> It may not be always easy to draw the line so sharply and simply, because there are few buildings which have not some [pretense] or colour of being architectural; neither can there be any architecture which is not based on building, nor any good architecture which is not based on good building; but it is perfectly easy and very necessary to keep the ideas distinct, and to understand fully that Architecture concerns itself only with those characters of an edifice which are above and beyond its common use.[6]

That is to say that there must be something more to elevate a building to the status of Architecture. A building could be any shed: a simple structure to provide shelter. Buildings function simply and can be easily reproduced. This indicates that it is perhaps the more unique elements that differentiate buildings from architecture. Ornament is certainly one of the factors that transforms a typical building into an uncommon edifice. This also indicates a necessary shift away from traditional ornament that, due to repetitive use, no longer differentiates building from architecture. An environment with ornament provides unconventional qualities that are immediately observed by its inhabitants. While Modern architecture (or simply building) is effective in its efficiency, it lacks effectiveness in its affects — a term that is critical to Farshid Moussavi's definition of ornament.

5 Antoine Picon, *Ornament: The Politics of Architecture and Subjectivity* (Chichester: Wiley-Academy, 2013). 23.
6 John Ruskin, *The Seven Lamps of Architecture* (New York: Dover Publications, 1989). 8.

Affects are human emotions that can be prompted or brought about by an environment. They are personal responses to architecture. Modern architecture, using a more absolutist approach to buildings (think of Le Corbusier's explicit 5 Points), does not seek individual encounters with architecture but rather a consistent environment for all. While ornament was criticized for its use of style (along the lines of the traditional Greek or Roman orders), Loos promoted architecture that, in turn, has become a style of its own following a set script of what architecture should be. Further to this are projects such as Daniel Libeskind's that rely on repeated formal gestures regardless of specific context. Breaking out of the use of repeated ornaments, as well as the same set of rules used by an architect time and time again, the debate over 'style' can be laid to rest while ornament is uniquely used in response to each architectural project.

A movement in reaction to the bare surfaces and increasingly homogeneous quality of Modernism inevitably emerged. A growing number of architects were unsatisfied with the orthodox modernism of the International Style. In broader terms, the authoritative stance of such architecture proved to be limited and, as demonstrated in projects such as Pruitt Igoe, incapable of 'solving' architecture with its absolutist objectives. Would the outcome of the project have been any different if ornament was present in the architecture? The inhabitants may have found a deeper connection with the built environment if it were designed in such a way.

While some suggest the return of ornament was commenced with 1960s supergraphics,[7] Postmodern architecture as a whole made clear efforts to re-establish the role of ornament. This was an unfortunate period in the evolution of ornament, but was, however, short-lived. Actually, one might not label it as an evolution whatsoever. The ornament of Postmodern architecture was a garish renewal of past archetypes with no overarching strategy for their employment other than to embrace individual creativity: in other words, "anything goes." Such efforts were incapable of reintroducing the same narrative or meaning that the original, historical ornaments once held. Robert Levit, in his essay "Contemporary Ornament: Return of the Symbolic Repressed," states clearly that ornament is not timeless. The significance attached to certain ornaments passes into history and thus they are repeated in emptiness — without a base for their proper

Figures 3 & 4: Libeskind repeats his formal strategy in Denver (top) and Singapore (bottom).

Figure 5: The cookie-cutter architecture of Pruitt Igoe, Minoru Yamasaki, 1954.

7 Robert Jensen and Patricia Conway, *Ornamentalism: The New Decorativeness in Architecture and Design* (New York: C.N. Potter, 1982). 16.

Figure 6: A former car showroom. An early project by Kengo Kuma completed in 1991.
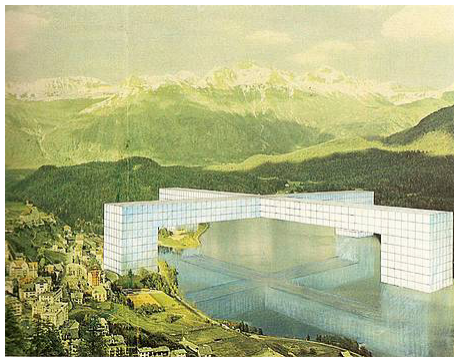
Figure 7: One image of the Continuous Monument by Superstudio, 1969.

understanding.[8] Re-using ornaments from the past represents anachronisms within architectural design. Just like Architecture, ornament is culturally bound.

In addition to its repetitive nature, Postmodern ornamentation lacked certain subtleness — there was too much, it was too large and too loud. Postmodern ornament was one of total excess. As Annette Tietenberg claims: "The columns were too big, the décor too gaudy."[9] A perfect example of this is evident in Kengo Kuma's early project for a car showroom featuring a gigantic Ionic column. Postmodern efforts made it evident that ornament could not be recycled but had to converge with current social values.

Rather than designing with ornament, others countered Modernist efforts by critiquing its absolutist objectives. The Continuous Monument, a project by Superstudio, aims to impress upon viewers the oppressiveness of endless conformity to one total architecture. The scenes in a series of images depict perfectly rectilinear volumes cutting across natural landscapes and entire cities. This displays architecture with little consideration for context and even less for ornament and its power of variety.

Despite some of its less successful implementations of ornament, positive aspects did arise from the Postmodern opposition to Modernism. In his foreword to the book *Ornamentalism: The New Decorativeness in Architecture and Design,* published in 1982, Paul Goldberger indicates the fervor of the moment: "there is a sense right now, far more than there was in the years of the International Style's reign, that the sensual aspects of buildings are important, and that buildings are emotional presences as well as intellectual ones."[10] Tietenberg attributes a similar stance to the atmosphere of the psychedelic 1970s, when the recognition of 'humans' over 'rational beings' emerged — in turn challenging more restrictive models of architecture.[11] The emotional aspects of architecture resurface in a position of importance in relation to rational considerations.

8 Robert Levit, "Contemporary Ornament: Return of the Symbolic Repressed," *Harvard Design Magazine* 28 (2008). 77.
9 Petra Schmidt, Annette Tietenburg, and Ralf Wollheim, *Patterns in Design, Art and Architecture* (Basel: Birkhauser, 2005). 8.
10 Jensen and Conway, *Ornamentalism: The New Decorativeness in Architecture and Design.* Xiii.
11 Schmidt, Tietenburg, and Wollheim, *Patterns in Design, Art and Architecture.* 8.

Goldberger admits the difficult task of architects to overcome the "harsh limits of orthodox modernism"[12] but suggests that this can be accomplished by reintroducing delight for its own sake. The products of Postmodern thinking may have been unsuccessful but these experiments were learning grounds for future ornament. It simply took a while for architects to have the courage to attempt to reintroduce ornament in their designs.

12 Jensen and Conway, *Ornamentalism: The New Decorativeness in Architecture and Design*. Xiii.

Figure 8: The minimal interior of a prison cell.

The Call for Ornament

Goldberger's insights open the discussion of architectural expression to territory that has been cornered off since the early 20th century and is only slowly beginning to re-emerge. The notion of emotion conveyed through and enticed by architecture recognizes the presence of those who interact with it. In the introduction to the *Ornamentalism: The New Decorativeness in Architecture and Design*, Robert Jensen and Patricia Conway convey the importance of ornament through a number of aspects including: its ability to give meaning to drab reality, to identify the building program, to orient oneself, and to break things down to a human scale.[1] The authors quote Henry Hope Reed, an architectural historian and critic, who, in 1952, stated that "it is only with ornament that the eye can rest; it is only with ornament that the eye can measure."[2] Similarly, Owen Jones writes, in his large encyclopedia of ornament compiled almost one hundred years prior, that ornament seeks a quality of repose. This consists of a mental feeling whereby "the eye, the intellect, and the affections, are satisfied from the absence of any want."[3] The contrary can be said for flat, blank, white walls — the eye would be unsatisfied, finding nothing to rest on. In fact, this is the condition of the prison cell — the ultimate dwelling of minimal décor — and thus it seems inevitable that criminals, confined to these spaces, scribble on the walls or their bodies.[4] The eye grows restless.

1 Jensen and Conway, *Ornamentalism: The New Decorativeness in Architecture and Design*. 3.
2 Ibid. 4.
3 Owen Jones, *The Grammar of Ornament* (New York: Van Nostrand Reinhold, 1972). 5.
4 Loos, "1908 Adolf Loos: Ornament and Crime.", 19-20. Loos refers to the graffiti of criminals and degenerates on lavatory walls.

As such, ornament acts as an important link between humans and their built environment. Ornament takes architecture out of its isolation from society at large. While buildings may function properly according to their program and 'responsibilities' of service, ornament adds another level of engagement with the human mind, one of intrigue, delight and awe. In Kent Bloomer's words, "ornament is a natural and universal system of human communication that can present a valuable segment of human thought."[5] To elaborate on his position, ornament may not be *universally understood* but is at least *accessible* to many through various layers of interpretation. Lars Spuybroek dubs this connection between humans and the built environment "a fundamental sympathy"[6] and proposes that this is only made possible with ornament. Furthermore, the 'default' ornaments of material patterns, for example, do not fulfill this sympathetic relationship with architecture, as the relation ends at the material itself and is not extended into the entire design. Modern architecture, with its lack of ornament, left little opportunity for inciting such interest in the built world. As John Chase writes, "late modernism has celebrated the capacity for producing blankness by creating buildings that are not articulated, either by ornament or by the materials from which they are made."[7] Without such building elements, architecture is isolated from the cultural context.

There has been a recent shift in the priorities of the architectural profession in order to extend beyond Modern rationalism. This to a degree that "the pursuit of excess is an equally important aspect of today's architectural culture – no less responsible, but perhaps simply less concerned with efficiency than with effectiveness."[8] Contemporary design is becoming more attuned to its effects on those who use it — how one feels, how an atmosphere is created, how one reacts and engages with architecture — over simple matters of space planning and other pragmatic concerns. Such effects and affects are brought on by "the phenomenon of ornament [which] has virtues, indeed psychological functions, that are so specific as to be irreplaceable in the composition of culture."[9]

Figure 9: An architecture of ornament creates more engaging spaces for people.

5 Kent Bloomer, *The Nature of Ornament: Rhythm and Metamorphosis in Architecture* (New York: W.W. Norton, 2000). 12.
6 Lars Spuybroek, "The Matter of Ornament," in *The Politics of the Impure* (Rotterdam: V2 Pub, 2010). 261.
7 John Chase, "The Role of Consumerism in American Architecture," *Journal of Architectural Education* 44, no. 4 (1991). 218.
8 Ben Pell, *The Articulate Surface: Ornament and Technology in Contemporary Architecture* (Basel: Birkhauser, 2010). 16.
9 Bloomer, *The Nature of Ornament: Rhythm and Metamorphosis in Architecture*. 12.

Ornament is one consideration in shaping the human connection to architecture: a sensory experience that extends beyond the physical body moving in space.

With ornament as a significant means of connecting architecture to human thought and emotion, the public establishes a fondness for such designs and these, in turn, are more likely to be valued. As such, ornamented architecture loses its value much slower than the "monotonous modern building."[10] In addition, in stark contrast to the monotony of Modernity, ornament recognizes a need for variety. While maintaining a level of consistent language to an architectural project, ornament does away with total homogeneity. Such variation creates a more stimulating environment. The variety added by ornament is also reflective of the diverse cultural landscape that prevails as the globe becomes more multicultural and inclusive due to a rise in travel, immigration and communication technologies. Ornament is capable of illustrating such diversity whereas the orthodox Modern agenda subdues it with global homogeneity. Yet, as Loos argued, if culture is evolving, so must ornament. In contrast to the recycled ornaments of Postmodernism, Farshid Moussavi, in *The Function of Ornament,* states that "the dynamic nature of culture requires that buildings each time define their own ground."[11] Ornament, as part of this cultural phenomenon, is redefined in contemporary culture as a design process rather than applied decoration.

Paul Anderson and David Solomon, the authors of *The Architecture of Patterns,* comment on ornament's position in relation to both Modernism and Postmodernism: "In typically paradoxical fashion, a new understanding of architectural patterns maintains the emphasis on performance and aesthetic coherence found in modernism, while incorporating the indexicality, hybridity, and ambiguity of post-modernism."[12] This thesis does not reject the efforts and innovations of modern or postmodern design but seeks to allow ornament to emerge within its framework.

10 Ju-Hyun Kim, "Face-Off Facade," *306090* Decoration (2006). 169.
11 Farshid Moussavi and Michael Kubo, *The Function of Ornament* (Barcelona: Actar, 2006). 8.
12 Paul Anderson and David L Solomon, *The Architecture of Patterns* (New York: W.W. Norton, 2010). 67.

Figure 10: Gottfried Semper, 1803-1879.

Figure 11: From string to surface through weaving patterns.

TRACKING ORNAMENT

Types of Ornament

> We are without a form language suitable to the needs of today. Architecture and ornament constitute such a language. Structural necessity may be depended upon to evolve fit and expressive architectural forms, but the same thing is not true for ornament. This necessary element might be supplied by an individual genius, it might be derived from the conventionalization of natural forms, or lastly it might be developed from geometry. – Claude Bragdon[1]

While this thesis posits an alternative approach to ornament, its past manifestations still provide insightful design considerations. Ornament can be identified in a number of terms. One common form of ornament is pattern — that is, a series of repetitive elements. It has been questioned as to whether ornament as pattern originates from a material and method of fabrication or whether pattern is an entity in its own right.

In 1851, Gottfried Semper re-imagined the concept of Laugier's primitive hut. As a basic element of architecture, in addition to the hearth, the mound and the frame, Semper adds the enclosure — a woven textile. To Semper, ornament originates in the material out of which it is created. To create a surface with string, for example, requires specific knotwork — the pattern of which is evident in the final product. In Semper's view, it is the chosen material that implores a particular manipulation which, in turn, guides the ornamental design process. Robert Levit supports this by adding that "removed from material or craft, production of ornament is debased to kitsch."[2]

1 Claude Fayette Bragdon, "Projective Ornament," (Rochester, NY: Manas, 1915). 1.
2 Levit, "Contemporary Ornament: Return of the Symbolic Repressed." 77.
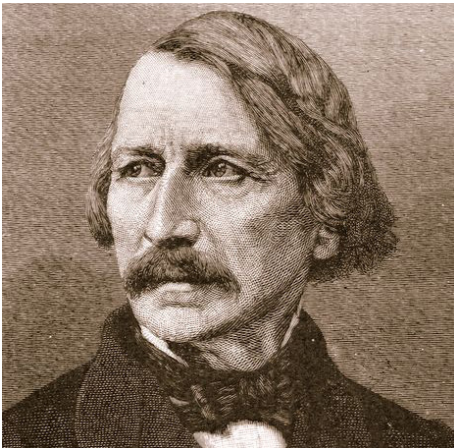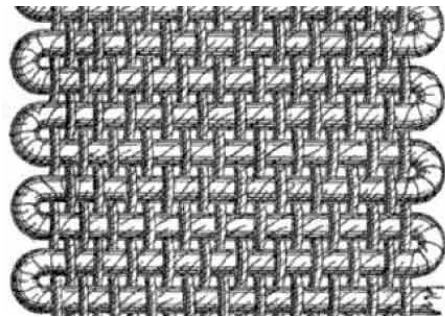
Contrary to this view is Alois Riegl's study of ornament conducted through a more widespread survey of the phenomenon. As such, Riegl tracks certain ornamental motifs from one era and geographical location to another. From this field study he deduces that ornament is not dependent on the material it is to be constructed from but that it originates in a pattern external to this matter. His belief is that ornament simply constitutes a human need for decoration.[3] Thus, Riegl's view of pattern is that is it independent from a material whereas Semper argues that pattern emerges from the working of a particular material. These two views of ornament through pattern suggest an applied ornament, on the one hand, versus a more tectonic approach on the other.

Yet neither case for ornament is more correct than the other. Consider Mies van der Rohe's Barcelona Pavilion. The project includes ornately patterned walls – an inherent property of the marble chosen by the architect. However, the ornament is not a matter of 'working' the stone material (under Semper's theory) as much as it is simply its natural pattern that is celebrated as a feature. The same phenomenon can be found in buildings designed by Adolf Loos — the famed author of *Ornament and Crime*. The fact of the matter is that Modern architects, seemingly opposed to ornament, continued to incorporate ornament into their designs. The use of ornament through the selected materials for their projects still obeys their rationale of scientific and absolute 'truths' in architecture. As much as the claim of 'truth to materials' implied a certain rejection of *added* ornament, ornament could be found nonetheless.

However, these 'off-the-rack' ornaments include ornament at the lowest level. While material choice might highlight pattern to add certain richness to surfaces, nothing has been 'designed' as ornament. The architect has selected ornament but not created it. In this way, the Modernists engage in a hypocritical *application* of ornament. To move beyond such basic ornament is to fully engage with it in a direct manner: to seek and to see design decisions in relation to ornament rather than simply including it by default. We already begin to arrive at the crux of the new evolution of ornament, to be expanded in later chapters.

In contrast to the default ornaments inherent in material patterns, Louis Sullivan's highly ornate terra cotta tiles are completely intentional aspects of his work. Sullivan's designs

Figure 12: Alois Riegl, 1858-1905.

Figure 13: Barcelona Pavilion, Mies Van de Rohe, 1929. The inclusion of ornament by means of material patterns.

3 Juan Jose Lahuerta, *On Loos, Ornament and Crime* (Barcelona: Tenov, 2015). 27.

Figure 14: Louis Sullivan's ornament for the Chicago Stock Exchange, 1894.

Figure 15: Figures adorn a tympanum.

Figure 16: Casa Battló, Antonio Gaudí, 1904. The skeletal facade uses natural ornament.

do not necessarily depend on the material (again, not aligned with Semper's view) yet invoke a much stronger sense of intention by the architect to include ornament. Despite his often-misinterpreted quote of "form follows function" as a vote for simplicity, nothing in his design work is taken for granted and he often added elaborate details to exterior expression. These, in reference to nature, are what followed the building's function.

Sullivan's ornaments also invoke a sense of craftsmanship in the work. It is evident that much care and attention went into these detailed forms of ornament when one could have simply clad the building in less articulated panels of material. Similarly, Carlo Scarpa carefully crafted his architecture with a sense of ornament that shaped and sculpted building materials in new, interesting and unique ways. Such deliberate acts are the craft of ornament: working beyond the raw materials and beyond what is common practice.

The appearance of ornament can also be considered beyond materiality and pattern. These are distilled into three categories: figural, natural, and geometric ornaments.

In terms of figural ornament, examples are most often found from antiquity through to the Middle Ages. Figural ornaments added richness to architecture through their sculptural tactility.[4] They added depth to architectural surfaces. Heroic, godly or other-worldly figures appear time and time again on Greek architecture — whether on a tympanum or in the form of caryatides. The transition to biblical references occurred in the representation of scenes of the bible painted onto walls or integrated into glass windows. These ornaments attempt to communicate narratives. As such, they tend to be extremely literal and representational. They have an explicit role as didactic devices. These types of ornaments are among those most commonly associated with the term.

Natural ornaments are designed to replicate various plant forms or to suggest natural phenomena. There is a varying degree of literal representation and abstraction within this type of ornament. Antoni Gaudí's Casa Batlló has an undulating wall that *suggests* a skeletal structure without literally replicating the exact form of bones.

4 Marcos Cruz, *The Inhabitable Flesh of Architecture* (Burlington: Ashgate, 2013). 78.

This process of abstraction within ornaments is significant. Most ornaments undergo various levels of abstraction before reaching their final design. More often than not ornamental motifs are abstract versions of the real items they seek to evoke. Natural ornaments, while based on plant material, are idealized through symmetry and stylization. The acanthus leaf, used continuously throughout the ages, has been used as a prime example to illustrate the phenomenon.[5] The aspect of stylization is an important factor in the use of external references in the body of architectural work. The term has also been called 'architecturalization' or 'conventionalization.'[6] Kent Bloomer states that,

> …before any of the meaningful shapes or figures that originated outside the space of ornament can be incorporated into the language of ornament, their original and autonomous identities must be prepared, modified, and specially equipped with graphic or sculptural capacity to combine with each other as well as the object. Such preparatory modification results from a process of *conventionalization* […] of literal things, shapes and forms.[7]

John Ruskin promotes this style of natural ornament. He is explicit in the type of ornament he considers to achieve an effect of irregularity: the natural over the geometric. This position is related to the artistry involved in stylized floral motifs of which he views as a greater form of art than the precision of mathematical operations that correspond to geometric ornaments. These, for him, relate to the rational thinking that is slowly growing prominent and pushing out artisanal craftsmanship. Owen Jones, through a lengthy study of ornament, also concludes that natural ornaments can be most universally admired and that Nature is the model on which ornament can progress.[8]

Whereas Ruskin and Jones advocate for natural ornaments, others promote geometric ornament. Claude Bragdon suggests that geometry is present in the entire universe and, as such, is a force to which nature also submits. Abstract geometry, he argues, is more relatable than natural ornaments are, since nature has lost its local character and significance as agriculture and cultivation have expanded across the globe.[9]

Figure 17: Geometric ornament of Frank Lloyd Wright's Millard House, 1923.
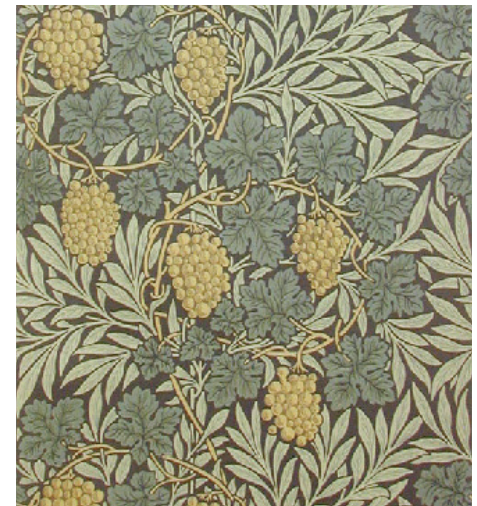
Figure 18: 1897 "Vine" wallpaper by William Morris.

5 Bloomer, *The Nature of Ornament: Rhythym and Metamorphosis in Architecture.* 47.
6 Ibid. 45.
7 Ibid.
8 Jones, *The Grammar of Ornament.* 2.
9 Bragdon, "Projective Ornament." 5.
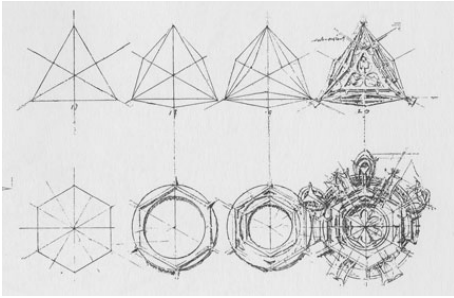
Figure 19: Illustration of Louis Sullivan's ornamental *process*.

Figure 20: The de Young Museum, Herzog & de Meuron, 2005. The image of the tree canopy is translated into the copper screen through indents and perforations.

In light of these preferences for one type of ornament over another, what can be said of ornament created by William Morris? His wallpaper designs display various natural motifs yet are laid out in repeating patterns based on mathematical procedures. This brings forth the notion of the *process* of pattern making versus the final *product*. Similarly, we return to analyze Louis Sullivan's ornaments that combine both geometric and foliated processes. These two examples illustrate that the *appearance* of ornament may be achieved through a separate ornamental *process*. For Morris and Sullivan, geometry forms the basis upon which natural ornaments come to life. Even Jones, while maintaining that Nature is the way forward for ornament, includes "geometrical construction" as a general principle for creating ornament.[10] For Victor Ruprich-Robert, the opposite occurs: geometry (mainly in the form of symmetry) is applied to natural material to architecturalize them into ornaments.[11]

Finally, what begins as a figure, an image, can also be translated into architectural ornament. Herzog & de Meuron apply this process through the manipulation of a photograph into a series of perforations and indents on the copper screen surrounding the de Young Museum in San Francisco. The firm uses a similar process for ornament in many other projects including: the 40 Bond Gate, Eberswalde Library, Cottbus Library and Ciudad del Flamenco.

This thesis does not seek to position one type of ornament as superior to another but simply encourages the use of thoughtful ornament in contemporary architecture. More specifically, much can be learnt from the process of making such ornaments. Expanded to the scale of the building, these processes encourage ornament in the entire design of an architectural project rather than applying ornament to its surfaces at a later stage.

10 Jones, *The Grammar of Ornament*. 5. See Proposition 8.
11 Bloomer, *The Nature of Ornament: Rhythym and Metamorphosis in Architecture*. 55.

Figure 21: The Centre Pompidou in Paris may well represent the most 'functional' form of ornaments.

Figure 22: The ornament of this Brooklyn Public Library signifies the entrance and building program.

The Purpose of Ornament

"…more than ever designers allow the useful objects they create not only a function but also an emotional component and a communicative potential"
- Annette Tietenburg[1]

Must ornament perform an explicit role in the creation of habitable space? The answer to this depends on what one qualifies as its function. Ornaments are typically linked to utility. Included amongst these are the ornaments that visibly 'perform' by dispelling natural elements, bearing structural loads or mediating sunlight. Other 'functions' of ornament may be more descriptive in their characteristics — communicating a building's program or entrance, for example. In other instances ornament may indicate the social rank and power of the building owner. It has been argued that ornament is a valid architectural element solely through these and other, similar purposes. However, it is important to also consider the value of beauty and delight in architecture. Is this provision, through ornament, not also a purpose? Hand in hand with the fear of ornament is architecture's disassociation with the concept of beauty and aesthetics. They seem to have vanished from architectural discourse.

Ornament can never be valued through its functional aspects alone — for what precludes ornament to be designed in one way over another, both of which would satisfy the functional goal? As Robert Levit mentions, "ornament can never be reduced to a question of function."[2] He examines, in particular, Farshid Moussavi's book *The*

1 Schmidt, Tietenburg, and Wollheim, *Patterns in Design, Art and Architecture*. 8.
2 Levit, "Contemporary Ornament: Return of the Symbolic Repressed." 75.

Function of Ornament. In her attempt to legitimize ornament, she draws attention to the role ornaments play on the environment, the 'affects' they create in a space. Examples of affects, in her book, are given vague titles such as 'Differentiated,' 'Deep' and 'Random.' The creation of these qualities, she argues, is the function of ornament today, and she maintains that ornament needs such function to ensure universal legibility. However, in her descriptions of these characteristics, Moussavi seems to be confusing the term affect with effect. Affects go beyond visual appearances such as 'Moiréd' — another one of her labels. To be affected by something has a much deeper meaning to the individual involved. Affects extend into the mind and emotion of a person, not simply their ocular field. While the potential of Moussavi's argument has merit (ornament has an important role in creating effects), she falls short in conveying the broad scope of its purpose. While she considers ornament in multiple layers from a building's screen to its structure, she barely scratches the surface of its role. Moussavi analyzes the depth of ornament in physical terms but does not give full appreciation to the depth of ornamental affects.

Figure 23: The dilating apertures of Jean Nouvel's Institut du Monde Arabe, while also used to mitigate sunlight, are labeled as having a "Geometric" affect in Moussavi's book.

However, it can be understood that today ornament has shed its reliance on 'performative' roles and transformed into a lighter version of itself: an element incorporated into architecture for the sheer pleasure of it. It is important to note that this is made possible by the progression of the architectural profession. The responsibilities of architects have been alleviated with the advent of the discipline of engineering and the consortium of other consultants that may contribute to a given project. In turn, designers can focus on design without the many other inhibitions that a pre-modern architect may have had to consider. This has returned the priorities of architects to their fundamental task with 'functional' concerns capable of being met within the design process — not guiding it. As a matter of fact, this was the inevitable failure of Modern architecture. Placing all matters of function as the highest priority may achieve efficient and 'machine-like' spaces but humans seek more from their environments than such sterility. In many cases, modern buildings are solutions rather than compositions that situate themselves within a greater cultural context. If pragmatism is the only factor applied to architecture, there is no question that this would produce a homogeneous body of work. Setting these aspects of design further down the chain of priorities (even just slightly, as structural stability, for instance, cannot be completely ignored) creates works of architecture, rather than merely functional buildings.
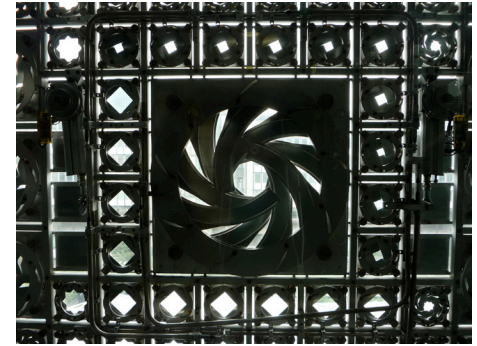
Figures 24 & 25: If the unnecessary elements are what constitute Architecture, Mies van der Rohe's decorative steel beams are unlike the columns sculpted into load bearing walls.

Putting to rest any need to validate ornament reproaches John Ruskin's commentary on architecture as all the '*unnecessary features*' of the built environment. For Ruskin, ornament is one of the conditions upon which mere building is raised to the status of architecture. In an effort to define architecture, Ruskin writes:

> Let us, therefore, at once confine the name to that art which, taking up and admitting, as conditions of its working, the necessities and common uses of the building, impresses on its form certain characters venerable or beautiful, but otherwise unnecessary. Thus, I suppose, no one would call the laws architectural which determine the height of a breastwork or the position of a bastion. But if to the stone facing of that bastion be added an unnecessary feature, as a cable moulding, that is Architecture.[3]

The extra elements are necessary for Architecture to emerge over building. If one thinks of buildings as clothing, it could be said that to drape oneself in a simple fabric garment is sufficient to address concerns of privacy and comfort. Yet choices are also often made with regards to patterned textiles and added details in order to convey personality and self-expression. That is analogous to the movement from building to Architecture. In fact, thanks to its capability of creating affects, engaging human interaction with architecture, and providing delight, ornament can hardly be considered unnecessary. Not only does ornament add to the architectural expression insofar as it is linked to utilitarian requirements but it also incorporates other elements that enrich architectural experiences. Ornament reintroduces the notion of beauty and delight in architecture that has been missing from the discipline's discourse in the last century.

What also seems to have been forgotten is ornament's capacity to provide order. These elements once allowed for orientation in the cosmic world and at a more regional level. Both give a sense of belonging or placement to individuals. Ornament's role moves even closer to the human scale with regards to its size in relation to the larger whole. The scale of ornament makes the enormity of the world, or building, more comprehensible and digestible to the human eye. The patterns of building components (the outlines of brick masonry, for example) allow one to gauge distances between elements more easily than over a large swath of a flat, uniform finish. Ornament establishes relations between people, space and the larger cultural context.

3 Ruskin, *The Seven Lamps of Architecture*. 16.

In terms of 'order' in reference to social rank and status, ornament was once reserved for the most sacred and important spaces. During the Rococo period, ornament became employed more secularly — in houses and villas and palaces. In these instances, ornament is used as an expression of wealth (with rocaille, usually gilded). The purpose of these ornaments was to convey social class. Today, however, ornament has become more promiscuous. No longer is it withheld from certain places, individuals or budgets. To incorporate ornament in architecture simply requires an approach to design that makes an effort to take it into account.
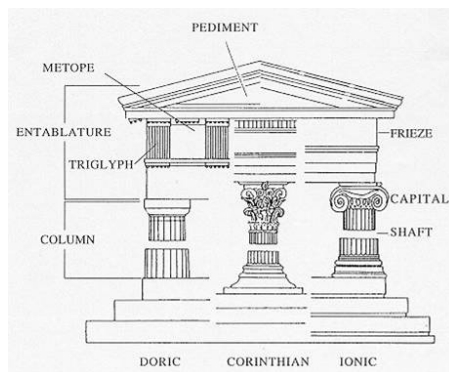
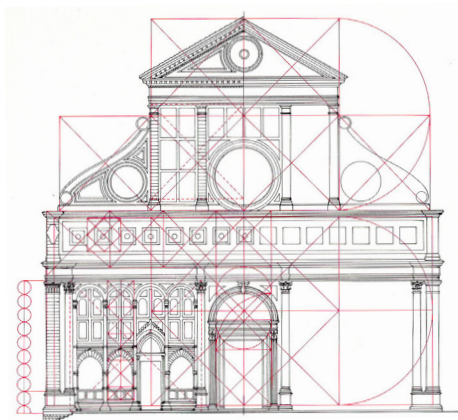Figure 26: Diagram depicting the classical Greek orders.

Figure 27: The proportions of the facade are made apparent through the ornament.

Beauty and Order in Architecture

Vitruvius' contributions to architecture are summarized in his tripartite model of Firmitas, Utilitas and Venustas. This triad of strength, utility and beauty, respectively, is the basis of any architectural project. The latter portion is an argument for architectural *expression*. In Greek philosophy, beauty was associated with representations of the cosmos. This, of course, was the natural order of things, a system of proportion and geometry. The expression of beauty ran hand-in-hand with the other two aspects of construction. Early Greek ornaments found their place amongst (what are now known as) the classical *orders* — the columns, the entablatures and the pediments of great temples and monumental edifices. Ornament of this time aimed to embellish for the purpose of prestige and communicate for the purpose of narration. Ornament was carved into the building material itself often also for the sole purpose of delight. Of greater note is that these elements assisted in the *organization* of the building: an architecture following a clearly defined process of design. Through the repetition of these conventions, architecture became legible to the greater public.

In the Renaissance, Leon Battista Alberti became the main figure in the promotion of architectural beauty. He is cited as having used the terms architecture and ornament interchangeably.[1] The consideration of architecture during this era did not discriminate between the whole of a building and its parts. The focus was to strive for unity amongst all elements — including ornament. Alberti suggests that ornament is the medium that

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1 Jensen and Conway, *Ornamentalism: The New Decorativeness in Architecture and Design.* 4.

exposes beauty — the principle goal of architecture.[2] Again, beauty here is defined as the harmonious proportioning of architectural elements; it is no wonder this period is named as the rebirth of classical style. The positioning of ornament enabled the recognition of these geometries as evidenced in Alberti's design for the Santa Maria Novella.

The orderly proportions of architecture and the location of its ornaments undergo a first change with the advent of the Baroque as elements of theatricality are blended within architectural designs. The introduction of undulating spaces changes the rhythm of the lines and simple curves of preceding architecture. Ornament becomes sculptural and voluminous, emphasizing the theatrical and dramatic qualities prominent during this time. Taking this concept further, Rococo architecture incorporated these features of the Baroque into light, airy and playful ornaments as compared to the more somber Baroque predecessors.

In this sense, the whimsy of the ornament follows John Ruskin's poetic argument for beauty in architecture: "We have no more to do with heavy stones and hard lines; we are going to be happy: to look round in the world and discover… what we like best in it, and to enjoy the same at our leisure: to gather it, examine it, fasten all we can of it into imperishable forms, and put it where we may see it forever. This is to decorate architecture."[3]

The ornaments of the Baroque and Rococo can be considered to affect the space over the construction of the architecture providing certain sensual qualities instead of the clarity of a proportioning system.[4] They provide the pleasure and delight that Ruskin hopes to capture through architecture. Ornament eschewing proportion becomes even more evident as Rococo ornament begins to refute the idea of symmetry apparent in Baroque ornament. This approach to ornament is a dynamic field of artistic freedom. These ornaments are embellishments, brought into the space as décor post-construction. Their 'airiness' is related to the fact that they have no ties to the structure of the space.[5]

Figure 28: Santa Maria Novella, Leon Battista Alberti, 1246-1360.
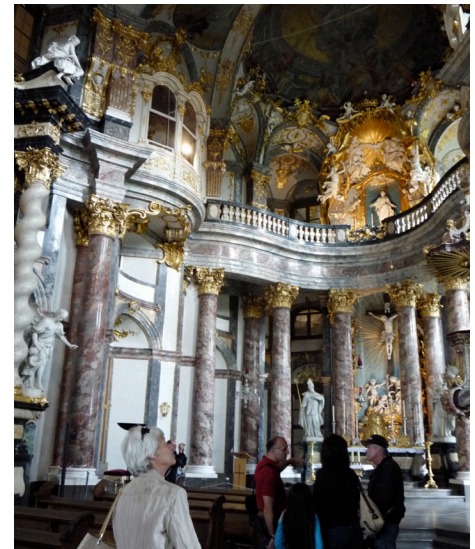

Figure 29: Würzburg Residence, Balthasar Neumann, 1720-1744. The chapel is a prime example of the curving walls of Baroque architecture.

2 Bloomer, *The Nature of Ornament: Rhythym and Metamorphosis in Architecture.* 20.
3 John Ruskin, *The Stones of Venice* (New York: De Capo, 2003). 205.
4 Bloomer, *The Nature of Ornament: Rhythym and Metamorphosis in Architecture.* 22.
5 Ibid.

Figure 30: Hall of Mirrors, Amelienburg, François Cuvilliés, 1739. Rococo ornament abounds.

Figure 31: Ravensbourne College, Foreign Office Architects, 2010.

The thinness of the ornament may in fact serve to counter the mass of the load-bearing walls behind them. The visual appearance of rocaille also blurs the boundaries between what is wall or ceiling, providing a continuity of space. Beauty for its own sake trumps a rule-based system of ornament. As such, these breaches of convention push ornament into new territories.

The pervasiveness of the pattern on Foreign Office Architects' Ravensbourne College dissolves the proportions of the building — an effect expanded from the aforementioned Rococo ornaments and in opposition to Alberti's façade design. Here, all elements are treated equally in a *field* of ornament. Beauty, in this case, is tied to the complex pattern rather than the identifiable ornaments placed in an explicit composition of elements. However, as Petra Schmidt states, "Patterns create order."[6] For example, the pattern on FOA's Ravensbourne College façade implies an order used to place window openings. Similar to William Morris' blending of natural and geometric ornament, projects can be identified that combine an emphasis on both the appearance of ornament as well as patterning and the rules associated with its use. It is not necessary to give up ornament in order to focus on rational parameters.

The idea of delight exists in all projects — from the ancient Greek to Alberti, the Baroque, Rococo and FOA — but each has a different approach. Employing ornament and pattern for the sake of beauty and delight breaks away from architecture that can be otherwise nondescript. Ornament can be implemented in many ways, from the conventional to the contemporary, yet still be associated with beauty. As for order, ornament based on patterns and proportions assists in the development of an architectural project. The placement of building elements are integrated *with* the ornament to ensure a harmonious body of work. While Alberti limited this to the façade of the Santa Maria Novella, ornament now pervades in all aspects of design. Ornament works simultaneously to provide beauty and order in architecture.

6 Barbara Glasner, Petra Schmidt, and Ursula Schöndeling, *Patterns 2: Design, Art and Architecture* (Basel: Birkhauser, 2008). 6.

Figure 32: Flying buttresses of the Metz Cathedral, 1290.

Figure 33: Stained glass window and tracery of the Metz Cathedral, 1384.

Technologic Change and Its Effect on Ornament

Ornament not only changes in type but also transforms with changes in technology. Building types equally contribute to forms of ornament and construction techniques play a role in how ornaments materialize. Technology has sometimes aided in the development of ornament but it has also, at times, fostered a tenuous relationship between the two.

The majestic cathedrals erected across Europe in the Middle Ages represent a boom in construction and also in the inclusion of ornament. With architectural ambitions running high, ornament followed suit. Overall, stone sculptures and wood carvings abounded in indication of the sacredness and great effort that ought to be put into in constructing a place of worship — a space more sacred than the edifices of everyday life. The soaring vaulted ceilings with edges of stone ribbing emphasized their height and structure. Paradoxically, ornaments placed in peripheries (edges with ribs, corners as bosses and points as finials) became focal points. While figural and natural motifs abounded, additional patterns emerged following the structural forces of the vaulted ceilings. Other lines, of tracery, celebrated the lightness of the walls due to the innovation of flying buttresses. This advancement in construction allowed for ornament to gain more ground and be incorporated into window openings and, of course, the window glazing itself.

While Gothic architecture pushed the boundaries of conventional design and ornament in tandem with new construction types and techniques, subsequent periods of architecture returned to the classics and sought to revive previous architectural styles.

There were few innovations in ornament leading up to the 20th century. The ornament of this period, in particular, did not fair so well with the speed of innovation of the time. Increasing in popularity, foreign travel put into question the ubiquitous nature of conventions among ornament. World Fairs and Exhibitions brought together and catalogued different architectural ornaments from around the globe. Owen Jones' compendium of ornament consists of twenty chapters of various styles from 'savage tribes' to Roman and Celtic ornaments. Not only were new vocabularies of ornament arriving but new materials and building types also emerged. It soon became unknown as to which ornamental style ought to be employed in architecture and if any conventions still existed in doing so. The production and location of ornament was also questioned. As Kent Bloomer puts it: "The problem was largely one of establishing new systems of visual design, that is, visual "grammars," capable of moving beyond old styles to serve a more complex theater of architectural production."[1] Attempts were made at establishing new 'systems' such as the Art Deco[2] and Art Nouveau movements, but these were quickly dismissed by Loos and criticized as artistic endeavors over architectural practice.

Almost in disregard for the uncertainty of which ornaments to use, the industrial revolution made the production of ornament all the more accessible. These technologies took advantage of the unstable nature of ornament at the time and proliferated it to all items that could be 'stamped' with an ornamental template. Having to compete with machines, even the artisans working by hand resorted to templates in order to speed up their work.

It no longer seemed necessary to adhere to any conventional use of ornament. Ornament of all sorts became sought on every thing and in every place. As such, ornament no longer held value. Historically, ornament was applied strategically in order to symbolize wealth and power, to communicate narratives or to identify cultures. During the industrial revolution, mass-produced ornament became associated with other cheap commodities. The collection of ornamental styles in *The Grammar of Ornament* by Owen Jones is an example of the eclectic character that pervaded at the time and seemingly devalued the original meaning or intent of ornaments found across the globe. In London, England,

Figure 34: Greyhound bus terminal, W.S. Arrasmith, 1948. A new building type.

Figure 35: Page detail from *Polychromatic Ornament* by Auguste Racinet. A volume similar to Owen Jones' *Grammar of Ornament*.

Figure 36: Arab Hall of the Leighton House in London, England, 1877.

1 Bloomer, *The Nature of Ornament: Rhythym and Metamorphosis in Architecture*. 49.
2 The ornament of Art Deco was more successful due to its use of straight lines and edges that were compatible with machine processes.

for example, one could recreate an 'Arab Hall' — an inauthentic use of the ornamental style. In the 19th century, a bourgeois fetish with commodities proliferated the use of 'borrowed' ornaments from other times and other places.[3] While Jones' volume of ornament was intended to provide inspiration for new forms of ornament, the pages quickly became templates that could be copied.[4] Writing in 1908, the same year it is claimed that Loos' *Ornament and Crime* was published,[5] Hermann Muthesius, member of the German Werkbund stated that "Precisely because. . . the machine has allowed us to make ornament on a mass basis, we have seen a proliferation of shoddy ornament throughout the applied arts, which has resulted in the sinking of artistic standards to deplorable depths…The ornamental motifs thrust into the marketplace by the millions have led to a devaluation."[6] Such depreciation of ornament made Adolf Loos' arguments to eliminate it all the more persuasive. As such, it came to be that objects without ornament indicated higher taste and were more valuable.

As ornament became increasingly mechanized, John Ruskin advocated for a return to Gothic type ornament — one in which the handwork of the architect or artist would be present. William Morris shared this view of craft, illustrated clearly in his novel *News from Nowhere*. As such, the irregularities of handwork would be present over the flawless qualities produced by machine. While his effort to revive ornament in this way holds romantic appeal, the industrial revolution — by offering alternate forms of production — held a greater dominance and practicality over handicraft (not to mention the number of craftsmen that was slowly diminishing). The technology was progressing and the idea of progress in general became a new model that architects fell in line with. Building components gradually became standardized, reducing the need for any architect to consider material or assembly techniques. Catalogues of factory-made, pre-assembled elements of architecture provided a narrow palette from which an architect could simply select items and integrate them into a design. As Ernst Bloch laments, the machine is deemed responsible for the loss of imagination.[7] Whereas Louis Sullivan

3 Picon, *Ornament: The Politics of Architecture and Subjectivity*. 86.
4 Spuybroek, "The Matter of Ornament." 249.
5 Depending on the source, the year is quoted between 1908 and 1910. It is claimed that the main ideas of *Ornament and Crime* first originated as a verbal presentation in 1909 and was only later written in full.
6 Long, "The Origin and Context of Adolf Loos' "Ornament and Crime"." 211.
7 Ernst Bloch, *The Spirit of Utopia* (Stanford: Stanford University Press, 2000). 11.

and Carlo Scarpa skillfully crafted ornament into their work, architects no longer put any personal thought into the assemblies of raw materials. Predefined architectural building systems seemed to have nullified such work.

In addition to new building types, techniques and styles of ornament, the emergence of new materials (namely ironwork, steel and reinforced concrete) questioned how to incorporate ornament once structural members became hidden.[8] This was a catalyst to the increasing use of ornamental veils that are part of a building's design yet somewhat distanced from it — simple decorations to a shed. It can be argued, however, that new building systems have provided architects creative freedom. As mentioned, the Gothic advances in eliminating heavy, solid, load-bearing walls allowed for the proliferation of tracery across apertures in the façade. Taking this even further are today's structural systems that completely free the façade from any loads. Thus, fascination with articulate screens has become the territory of ornament. In a way, burying structural members within the building can be viewed as the opposite approach to the highly visible Gothic buttresses, yet these systems are alike in freeing ornament from any loads associated with the actual building. Unfortunately, what has mainly resulted from this new system is the ubiquitous curtain wall that tends to hang from such structures — also a direct result of the standardization of building components. There is room to play, but the architect must be willing to participate.

However, what constitutes such 'play' in relation to technology can be misleading. With the digitization of architectural design, surfaces can be infinitely thin and immaterial.[9] With building materials and construction assemblies removed from the digital design process, ornament is designed as a condition separate from architecture. Only recently have material properties started to be integrated within the computational tools available to architects. However, the resulting projects (such as the various pavilions by the Institute for Computational Design lead by Achim Menges or Doris Kim Sung's experiments with bimetals) are attuned to the performance of materials over their ornamental qualities. Nevertheless, as Ben Pell observes,

Figure 37: A large expanse of curtain-wall.
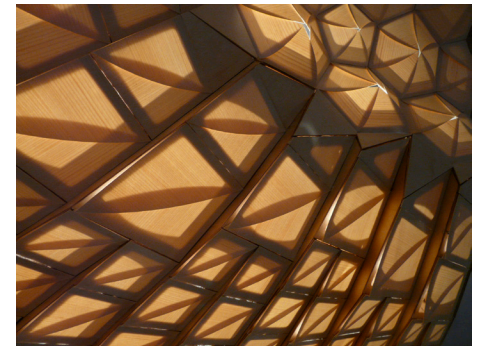
Figure 38: Detail of Hygroscope by Achim Menges, 2012. The wood veneer reacts to the level of humidity.

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8 Bloomer, *The Nature of Ornament: Rhythm and Metamorphosis in Architecture*. 144.
9 Pell, *The Articulate Surface: Ornament and Technology in Contemporary Architecture*. 11.

Figure 39: Interior of Bar Raval, Partisans, 2015.

The inevitable maturization of the digital project has helped to construct a more profoundly articulated surface, permitting a variety of considerations to enter into the conceptual formwork: from the figures and embellishments of ornament, to the symbols and narratives of decoration, to the performative effects of material assemblies. A century after Adolf Loos' infamous critique of ornament, we can perhaps characterize contemporary architecture with slightly modified preoccupations as those at the turn of the 19th century; a fascination with technology…and a return to questions of the nature and role of architectural excess as a central rather than peripheral condition of contemporary practice.[10]

Currently, the digital technologies at an architect's disposal have given rise to mass-customization through which materials can be manipulated any which way. The same can be said for a building's form — technologies are now put to use in creating curvaceous ceilings, undulating facades and extreme cantilevers, to name a few examples. Ornament has had to adjust to this changing landscape, transitioning from regularly placed adornments to integrated building components. A prime example is the ornately curvaceous wood of Bar Raval. It was digitally designed and manufactured by machine — traces of which are still evident in the toolpaths engraved in the material. Bloch would be surprised at the capacity for new forms of ornament in *collaboration* with the machine. This is the craft of today. Humans are still involved with the design of ornament, it is simply the tools of the trade that have been expanded with digital modeling and fabrication. Hand sketching, drafting and modeling are still available in an architect's design process. However, these technological advances bring with them complex geometries that could not otherwise be manufactured with traditional tools. When using current computational methods, craft is not lost. There has simply been a shift in the skill of craft: one that now involves modeling through computer software and a foresight of the tools and codes (of machine or robot) that will be producing the end product. With the technology available today, the potential for ornament is vast. Still, it is often left out of the conversation for it has been suppressed from architecture for quite some time.

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10 Ibid. 16.

Surface and Structure

> A poem is a poem, a building is a building, architecture is architecture, music is…it's all structure. I use it as language. Architects are organically responsible today to have their language run parallel with their structure…I cannot do a building without building a new repertoire of characters of stories of language and it's all parallel. It's not just building per se. It's building worlds.
> – John Hejduk[1]
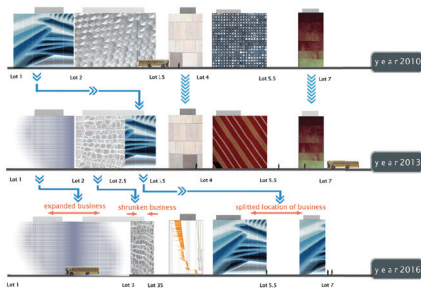
Figure 40: Diagram prepared by Ju-Hyun Kim demonstrating ornamented façades as interchangeable building advertisements.

Where to locate ornament? From cave paintings, the bas-relief of Greek pediments, and Renaissance façades to Gothic ribbed columns, sculptural Art-Nouveau and contemporary structural systems, ornament has experienced a thickening in its architectural scope. This thickening brings ornament from surfaces to space: to structure in the sense of bearing loads as well as in the sense of organizing spaces. It is important to consider this phenomenon as contrary to Farshid Moussavi's analysis of the architectural profession. Her argument in *The Function of Ornament* is that the load of the architect has been lightened with an increased separation from exterior expression and interior space. Moussavi suggests that the task of the architect has become relegated to façade design.[2] In a similar fashion, Ju-Hyun Kim explores the design of the architectural skin in its relation to the current capitalist economy.[3] Kim

1 John Hejduk and David Shapiro, "John Hejduk or the Architect Who Drew Angels," *Architecture and Urbanism* 471, no. 12 (2009). 75.
2 Moussavi and Kubo, *The Function of Ornament*. 3.
3 Kim, "Face-Off Facade." 162.

argues that the ornamental façade is to become an important marketing tool for future architecture. He notes that, with a standardized cladding system, design with texture, pattern and colour are the new tools of the architect. While intended to reinstate the role of architecture in a commerce-driven society, these building envelopes — catered to advertisement — become the sole interface between architecture and the public realm. This thesis posits, instead, that ornament provides an opportunity for bridging the gap between the exterior and interior by spreading from surface treatments to the structure of space. It also suppresses the economic motive in favor of social and cultural benefits.

To unpack the alternate connotation of the term 'structure' is not to speak of only the loadbearing elements of construction but also the rhythm in the organization of spaces and all of the other elements assembled in a work of architecture. Traditionally, ornament had consistently been paired with structural systems. One could recall a supportive bracket with elaborate sculpting. Structure in terms of *organization* is the use of a pattern to delineate space, a most basic example of which would be an orthogonal grid. This particular pattern is relatively straightforward but others can create more complex arrangements. Markus Zehentbauer expresses a similar position: "[patterns] not only decorate buildings and give them structure but have become the basis for constructing and organizing new objects."[4] Patterns can also indicate the placement of certain building components, such as the windows of Ravensbourne College cited previously. Thus, even surfaces that exist based on patterns are intrinsically tied to 'structure' in its sense of organization. Grids and other established sets of rules govern ornament through patterning.

Owen Jones' *Grammar of Ornament* was the first publication to illustrate such structured, ornamental fields over the typical association of ornament as objects (figural sculptures or carvings).[5] Jones' illustrations, however, still seem to display ornamental patterns as independent items. William Morris counters this by suggesting that further growth, or spread, should be apparent in all patterns.[6] Patterns have no true boundaries; they do not end at the edge of a surface or space. As such, they may pervade all aspects of architecture creating continuity between interior and exterior, surface and structure,

Figure 41: The rhythm of the space is delineated by ornamental bands across the ceiling.

Figure 42: In contemporary architecture, ornament is viewed as a field or pattern rather than an independent object such as this cartouche.

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4 Glasner, Schmidt, and Schöndeling, *Patterns 2: Design, Art and Architecture.* 8.
5 Spuybroek, "The Matter of Ornament." 249.
6 Ibid. 259.

Figure 43: Entrance to the Strasbourg gothic cathedral.

Figure 44: Structure and surface are interconnected in Shigeru Ban's design for the Pompidou Metz, 2010.

level changes, landscape and built form. This difference between ornament that is viewed as a fixed object versus that which is capable of spreading out approaches the argument for contemporary ornament implemented as a guiding design tool rather than applied decoration.

In relation to spatial structure, ornaments have also been relegated to the margins in order to convey a sense of change from one place to another. Kent Bloomer has traced the term ornament to its origins as 'an arrangement' and that its location on outer edges "proposes a mutation or efflorescence."[7] As such, not only might ornament structure space but it might also suggests a transition from one to the next. Consider, for example, the entrance doors to Gothic cathedrals, which were encircled with ornament in order to emphasize the point of entry from secular to sacred space. Louis Sullivan's entrance to the Carson Pirie Scott department store can be viewed in a similar light, albeit without the spiritual meaning.

Such architectural purpose and positioning allows ornament to surpass any association to the 'decorated shed.' To avoid Moussavi's defeatist attitude, the task of contemporary ornament is to continue the trajectory of its pervasion from surface to structure in order to reclaim the entire architectural scope of a building project. As Hejduk alludes to, ornament works in tandem with structure and, in the end, with architecture. He also seems attuned to the difference between architecture and building. The 'worlds' of which he speaks invoke complete atmospheres: environments that incite affects.

To return to the primitive hut, as reimagined by Gottfried Semper, Ben Pell explains: "… structure came to represent the functional criteria of shelter, framing and protecting a private interior, while the cladding surface – as the interface between individual and community – spoke to the world outside through techniques of symbolic expression which exceeded the core utility of architecture."[8] In this thesis, both cladding *and* structure contribute to an ornamental design approach.

7 Bloomer, *The Nature of Ornament: Rhythm and Metamorphosis in Architecture*. 89.
8 Pell, *The Articulate Surface: Ornament and Technology in Contemporary Architecture*. 9.

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Figure 45: Case studies are mapped through varrious parameters.

Studying the Field of Ornament

"…classification is not easy, and perhaps not important"
– Alfred Dwight Foster Hamlin[1]

It is ironic that Hamlin stated the above but that he also provided a basis of five principles by which to classify ornament.[2]

While the conventional uses of ornament in antiquity and the local permutations catalogued by Owen Jones provide straightforward 'guides' to the ornament of the day, what can be said of its current manifestations in architecture? Furthermore, how can it be identified while not explicitly labeled as ornament by the architects? Robert Levit suggests that ornament in recent projects is simply a tacit instinct on the behalf of these designers.[3] What are the impulses that call for ornament?

Through a survey of contemporary architecture, observations can be drawn as to what ornamentation consists of in today's built environment. By reviewing precedents of ornament, traditional forms can be contrasted against contemporary examples. Do these illustrate a transformation from symbol to affect, as Farshid Moussavi suggests? Is the question of function truly relevant? Is the appearance of ornament perhaps now geometric over natural?

1 A.D.F Hamlin, "A History of Ornament," (New York: Century Co, 1916). 8.
2 Ibid. 4.
3 Levit, "Contemporary Ornament: Return of the Symbolic Repressed." 71.

In surveying the field of ornament, it becomes apparent that no definite conclusions can be made. In each separate case study, the use of ornament arises in different ways and for different purposes. Ornament is born through choices made that correspond to multiple factors — such as its desired appearance, the process in which it is created, the function it may serve, the building's program and its overall pervasiveness.

One observation does stand out. Modern ornament, exemplified in projects by Mies van der Rohe and Adolf Loos, points to a critical transition in the character of the subject. It is at this point that ornament fully sheds its representational role. The use of material patterns as ornament are neither figural nor do they create imagery that can be understood by the eye as anything other than a natural property of the raw material. Architecture of this time encompasses mostly abstract ornaments — moments of colour or texture rather than imagery. One may not even consider these as explicit ornaments. However, without dismissing them, the transition from representational to abstract ornaments is indicative of the changing landscape of ornament in relation to the values of society. Perhaps in line with Bragdon's theory of geometric ornament, even Frank Lloyd Wright's ornaments strip natural motifs down to geometric arrangements. Literal figures become more ambiguous as to what they are meant to represent. As Moussavi puts it: "At the best of times, ornament becomes an 'empty sign' capable of generating an unlimited number of resonances."[4] Just as society has changed, so has ornament. In an age as pluralistic as the present, ornament has retreated from depicting figures and illustrating biblical or mythical tales. No longer does it explicitly evoke floral motifs. Current ornament should be able to be interpreted in many ways by the varied audience of today's global society. In a world more open, inclusive and diverse as ever ornament is now accessible to all. Ornament, as architectural elements capable of engaging with building users, speaks to a widely varied audience and to contemporary concerns.

Over the course of history, ornament had come to represent a number of social and economic indices. Wealth, power, rank and status have all been expressed by its presence or lack thereof. In recent times, however, the use of ornament has been commercialized — not as a commodity, similar to the type that Loos denounced, but in corporate settings as branding mechanisms. One could argue that the power of

Figure 46: This cladding for the World Expo 2005 Spanish Pavilion by FOA aims to reflect the colours of Spain and takes cues from both Christian and Islamic traditions. The hexagonal tiles vary in shape, colour and arrangement.

Figure 47: Louis Vuitton Tokyo, Aoki Jun and Associates, 2013. Ornament has become used primarily as a branding tool.

4 Moussavi and Kubo, *The Function of Ornament*. 6.

ornament, today, is its marketability.[5] Kim's *Face-Off Façade* is an exploration of the potential of ornament in that regard. This thesis posits an alternative route for ornament in architecture: ornament that celebrates a more communal sense of humanity rather than a capitalist competition. Thus, one might ask: what is it on Earth that unites us all? What can architecture express that would allow everyone to engage with it?

What remains common to the global world is our connection to nature and the more abstract concepts of mathematical operations. In architecture especially, both these concepts can be found in the sustainability and digital movements. Thus ornament — in an attempt to relate to a presently diverse set of perspectives — will more often than not take form within either a natural or geometric context or some combination of the two as exemplified in Louis Sullivan's work.

The following illustrations organize case studies of ornament according to these categories: the dimension of the ornament, its scale, its design process, its appearance, its pervasiveness, its materiality and its function. The precedents are also classified according to building program and scale.

Most notable in this taxonomy is ornament used as an interface. It is an entity that building occupants can relate to and feel engaged with. Yet this comes after-the-fact; it is considered post-construction. The examples studied here are built works. Using *ornament in the creation of architecture* must be considered over the *analysis of ornament within architecture as artifact*.

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5 Kim, "Face-Off Facade." 162.

Figure 48:
Approximate timeline of Case Studies.

dimensions of ornament

flat/surface

Figure 49

form/space

scale of ornament

small

Figure 50

large

process of ornament

geometric

Figure 51

organic

figural

appearance of ornament

geometric
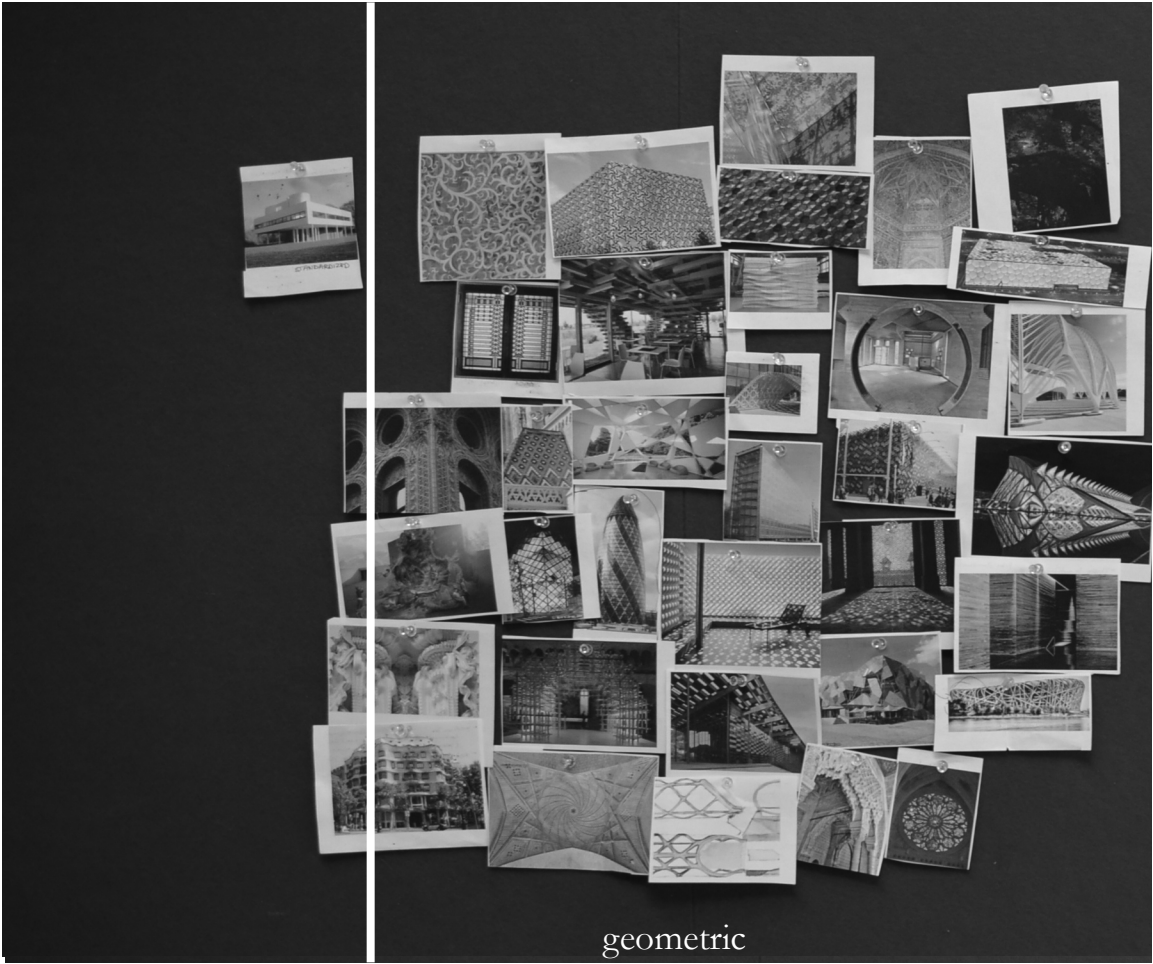
Figure 52

organic

figural

pervasiveness of ornament

Figure 53

all-over

intermittent

material of ornament

metal   glass   concrete

Figure 54

stone

tile

wood

53

function of ornament

message

structure
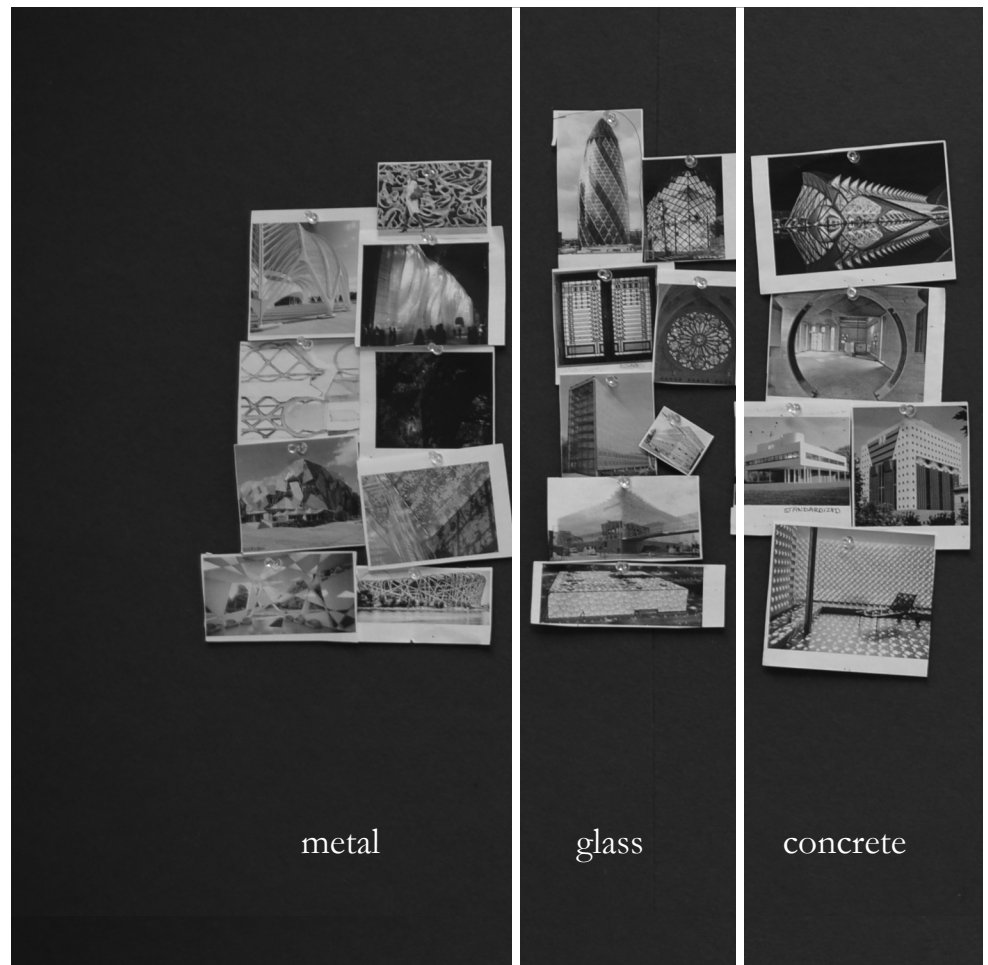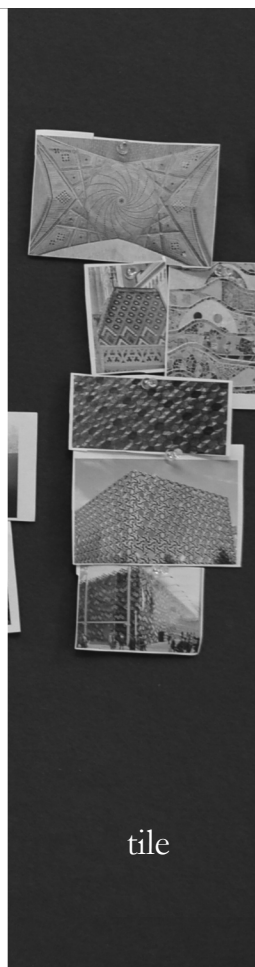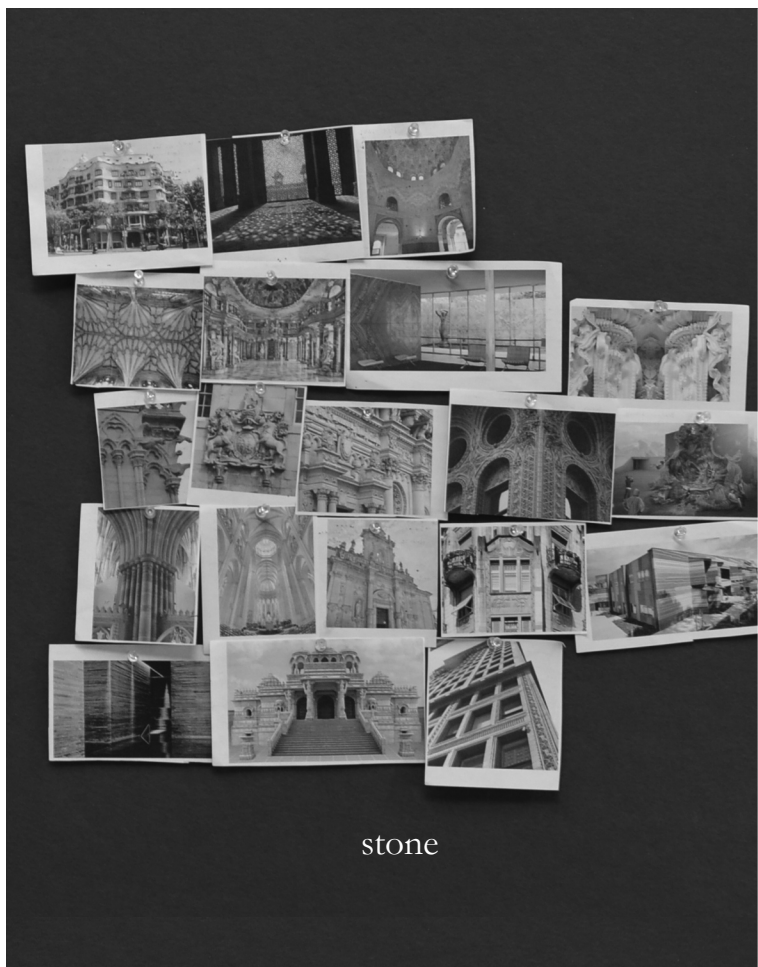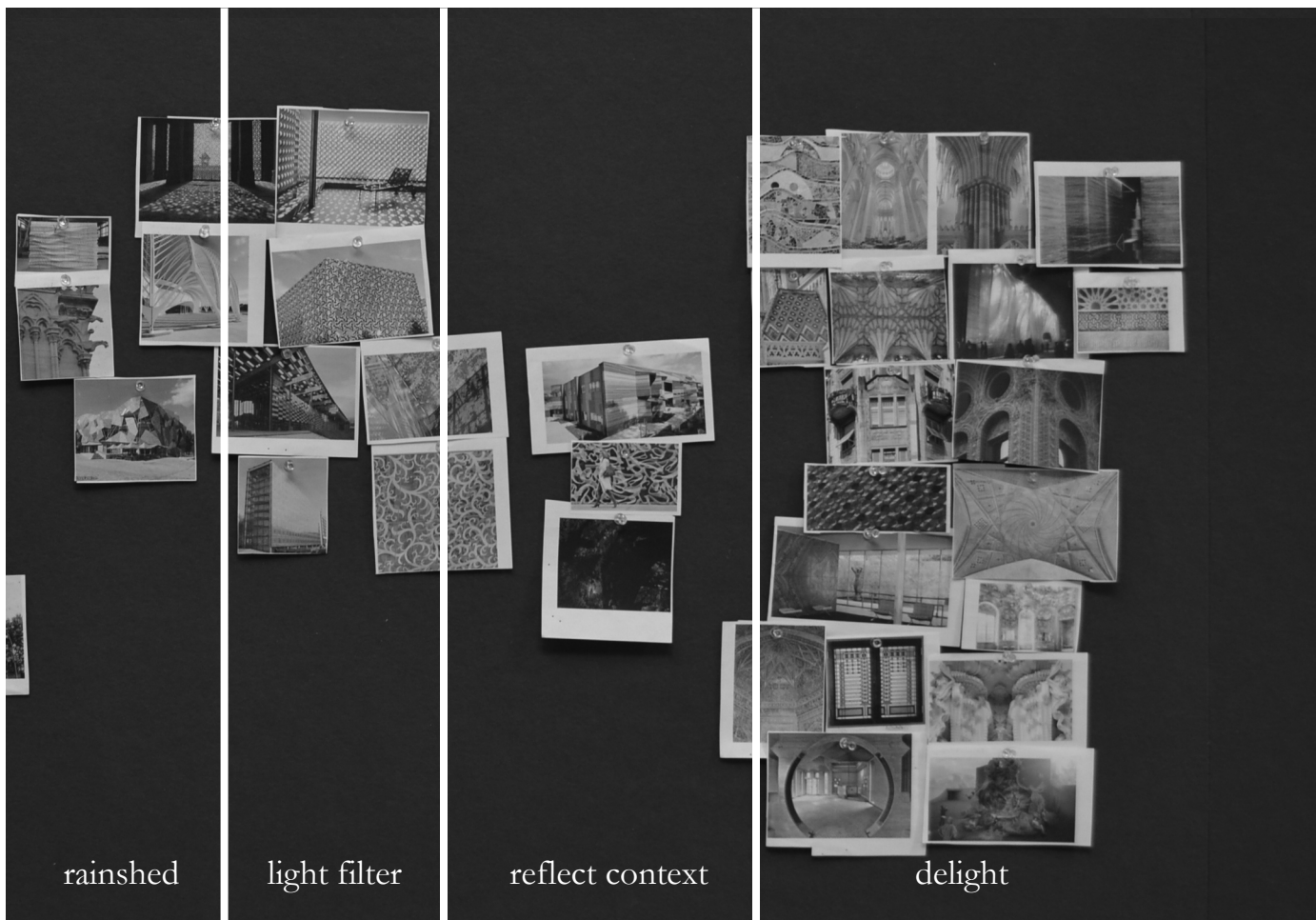
Figure 55

rainshed

light filter

reflect context

delight

building program

pavilion   cultural   education   residential

library
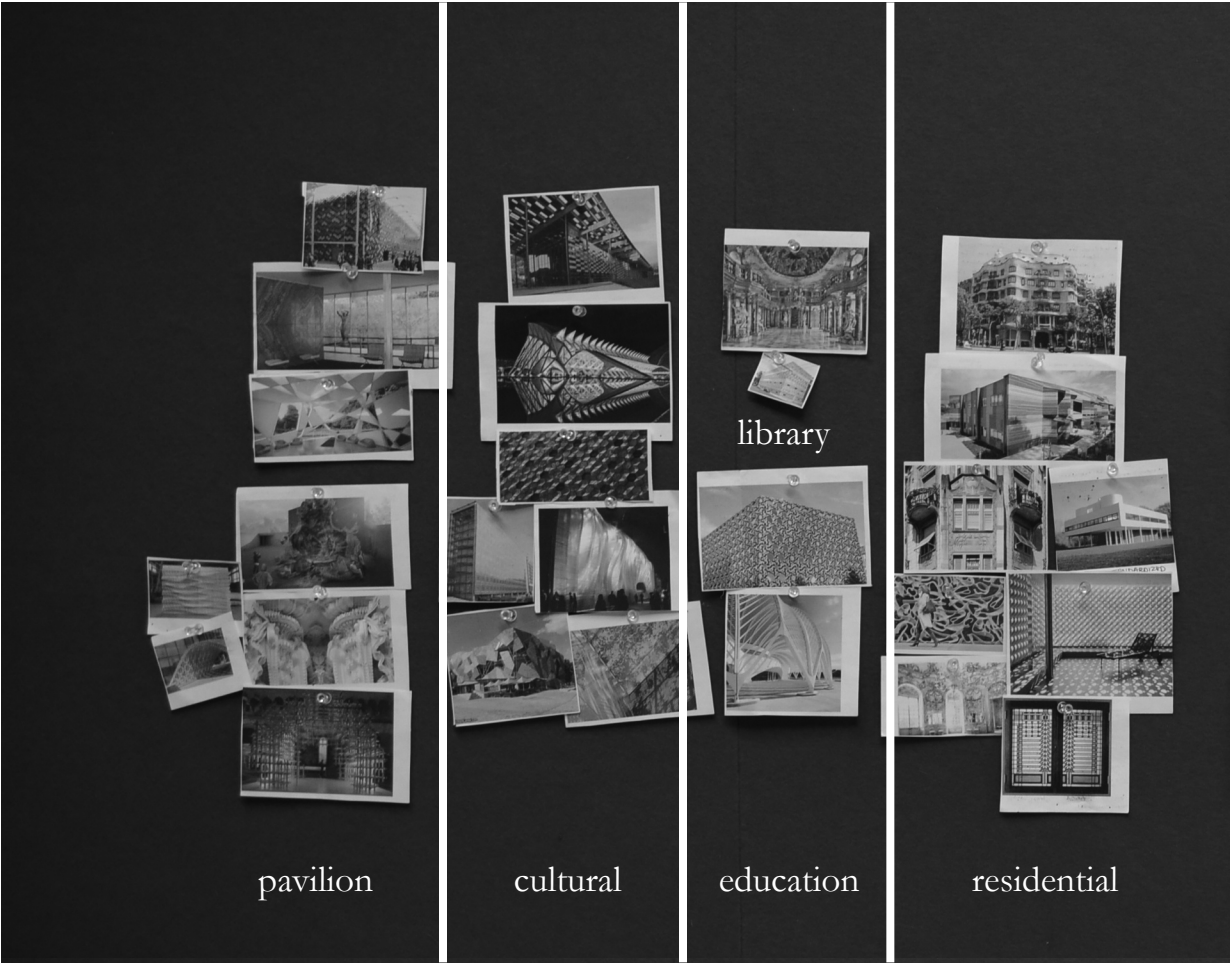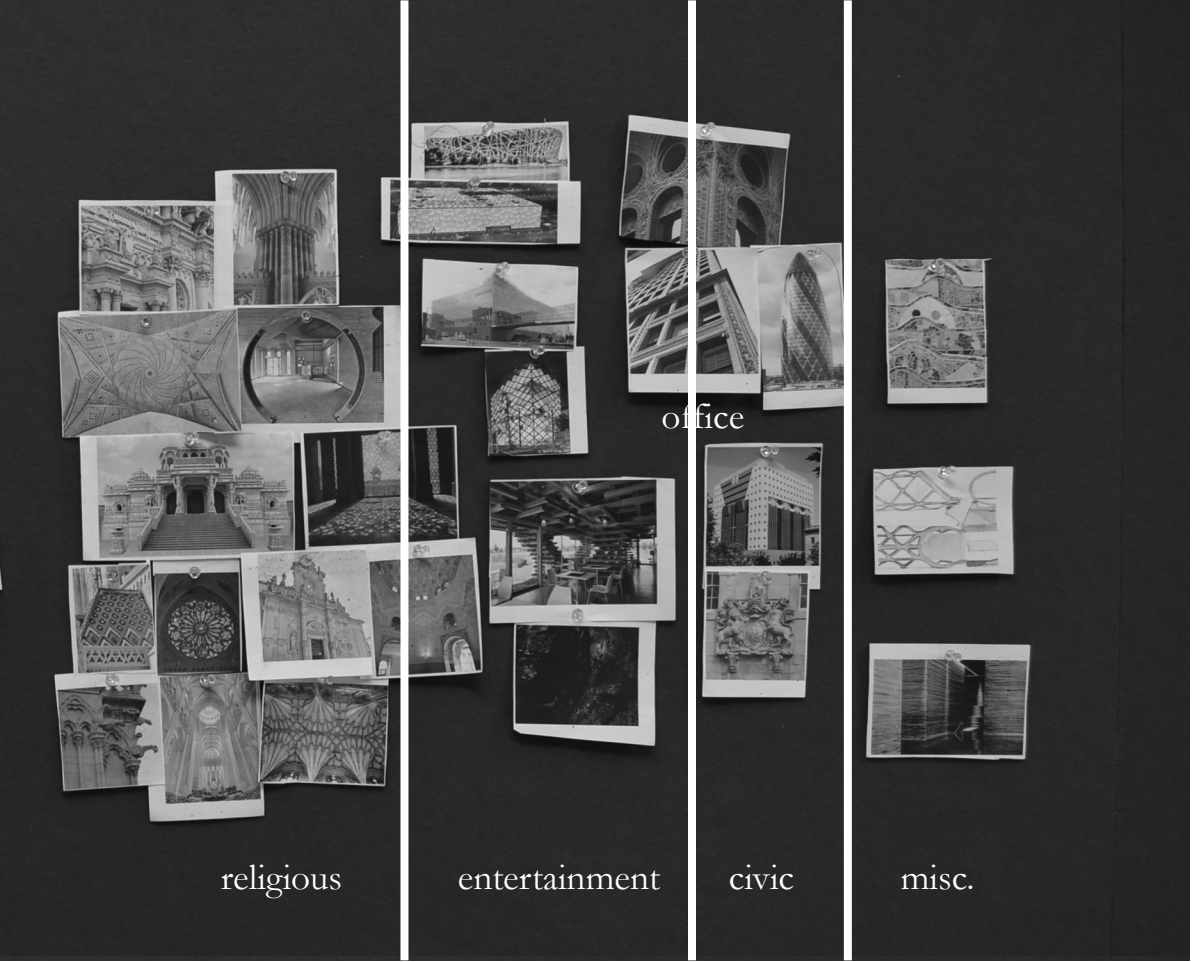
Figure 56

religious
entertainment
office
civic
misc.

building scale

Figure 57

small

large

a   a1   a2   a3   a4

b   b1   b2   b3   b4

c   c1   c2   c3   c4

d   d1   d2   d3   d4

ac   ac1   ac2

bd   bd1   bd2   c, c4, bd1
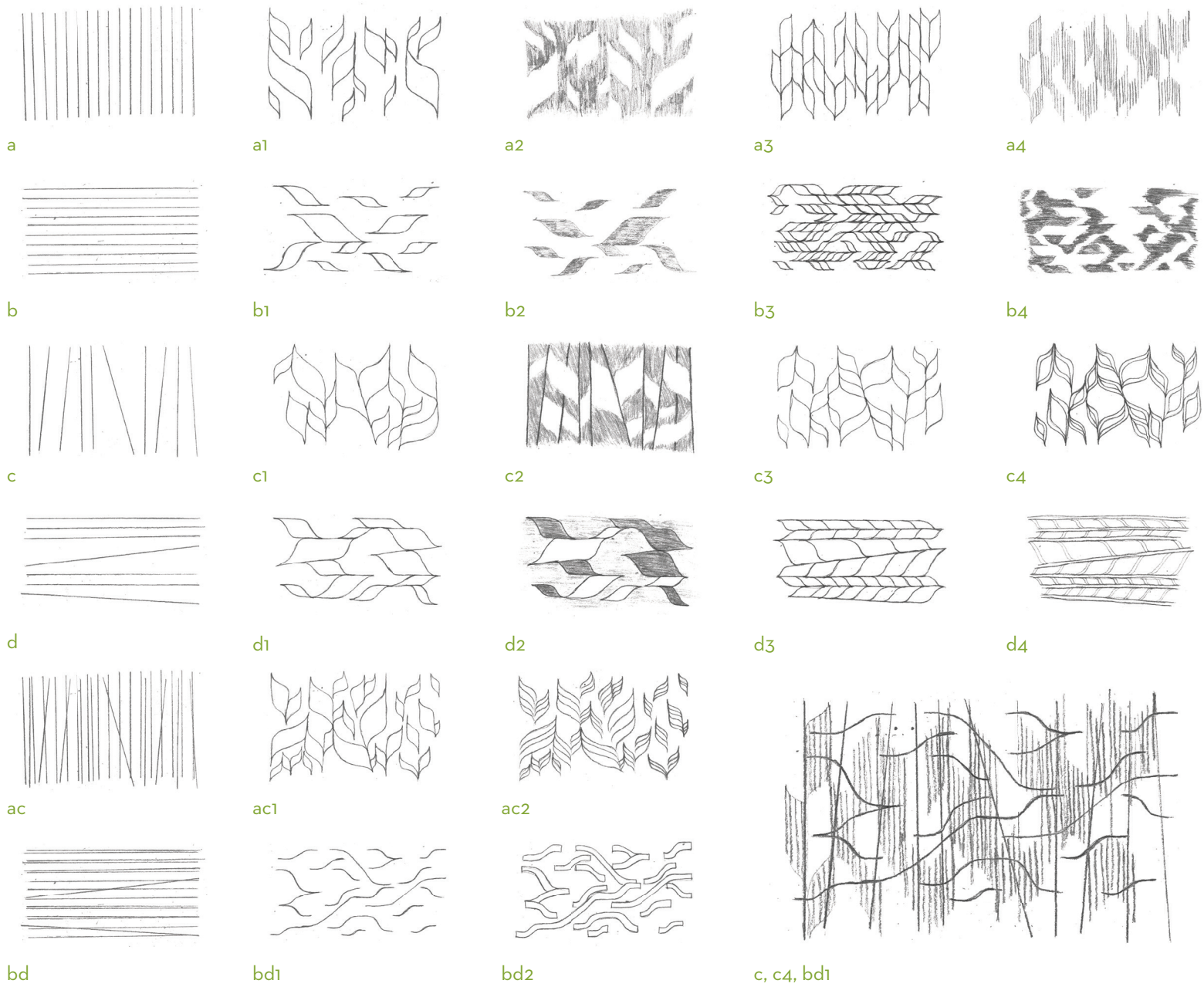
Figure 58:
Pattern Variations and Combination

THE EVOLUTION OF ORNAMENT

Contemporary Ornament: A Mental Application

> In contemplating the surviving relics of any period in which the soul of a people achieved aesthetic utterance through the arts of space, it is clear that in their architecture and in their ornament they had a form of language as distinctive and adequate as any spoken language. Today we have no such language. This is equivalent to saying that we have not attained to aesthetic utterance through the arts of space. That we shall attain to it, that we shall develop a new form language, it is impossible to doubt; but not until after we realize our need, and set about supplying it. - Claude Bragdon[1]

Looking back to the earliest chapter of this thesis, the suppression of ornament can be denounced yet also appreciated. The suppression of ornament (ornament as it existed at the time) was necessary to end the blind repetition of ornamental archetypes that stagnated the evolution of culture — as Loos put it. To quote him directly: "Since ornament is no longer organically linked with our culture, it is also no longer the expression of our culture. The ornament that is manufactured today has no connexion with us, has absolutely no human connexions, no connexion with the world order. It is not capable of developing."[2] The unfortunate result of his declaration to eliminate ornament was that there was no alternative suggested to replace it. The debate over ornament had extreme oppositions: ornament in abundance or none at all. This thesis posits an alternative: the evolution of ornament rather than its demise.

The analysis of many recent projects determines an obvious desire for ornament. The subject has metamorphosed organically over time, through numerous returns to classical orders in Post-Modernism to current fascinations with patterned screens. Yet, because of its unfamiliar territory in architectural practice — due, in part, to its previous

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1 Bragdon, "Projective Ornament." 1.
2 Loos, "1908 Adolf Loos: Ornament and Crime." 22.

suppression — a new definition of ornament has yet to be put forth. A reconsideration of the term ornament is the first step in its evolution, by providing a possible manner in which it can reemerge in contemporary design. Redefining ornament requires a rethinking of architecture. Whereas both are commonly thought of in tangible terms (*the* ornament, *a* building), it is the process towards these nouns that actually constitute ornament and architecture. Ornament and architecture are actions. Both are a way of creating. Both draw from larger ideas and concepts and distill these into realizable projects. Ornament is to be considered as something imagined, with the potential of being realized.

This dichotomy of the real and the imagined is one particular to architecture, a practice that lies between both worlds. This notion is best represented in the words of Marco Frascari as he describes architecture as a process of "construing and constructing"[3] — the former representing the creative process with the latter referring to the action of building. Ornament used in this thesis lies primarily in the realm of 'construing' both in the act of design and in reality. Once a project has been erected, ornament remains as the mental connection between the ideas embodied in the work and those felt by its users. Spaces with ornament can be 'mentally inhabited' — they allow for a projection of thought into real space.[4] While apparently static and bounding, architectural surfaces, through ornament, extend space beyond their physical limits and into the mind. Similar to the use of figural sculpture as ornament, contemporary ornament is able to thicken and manipulate surfaces in order to provide added texture and depth. Depth, here, is considered both physically and mentally as an extension of its communicative role.

Ornament is a tool that can extend the role of design in architecture. This becomes critical in a society that is increasingly oblivious to the built environment. In an age where life exists on screen, physical space (while necessary for physical beings) becomes mere backdrop. The use of ornament is one method to draw attention to architecture. In turn, this newfound contemplation of ornament reveals the normative disengagement with the built environment in favour of the virtual. More importantly, an engagement with ornament in architecture stimulates the mind more profoundly than today's digital diversions.

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3 Marco Frascari, "The Tell-the-Tale Detail," in *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995* (New York: Princeton Architectural, 1984). 503.
4 Cruz, *The Inhabitable Flesh of Architecture*. 97.
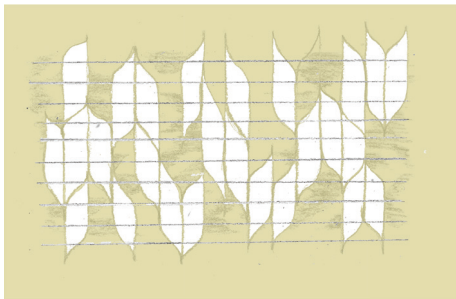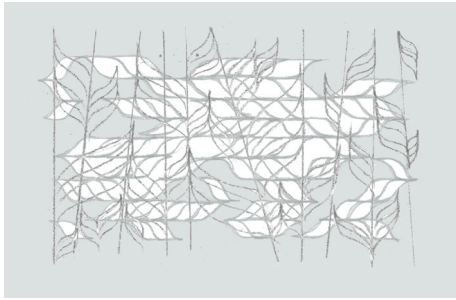
As past examples suggest, ornament has been considered an accessory to architecture, as something applied to buildings post-design. On the contrary, contemporary ornament takes on a conceptual role in architecture. That is, it incorporates ornament as a design approach. By taking cues from ornamental thinking — in so far as a set of organizing principles governing the design with conceptual ideas taken from the outside world — ornament in architecture is imbued in the essence of design rather than added to its final product. In the contemporary context, ornament is not an object. Ornament is a method of engaging with architectural design for both the architect and the inhabitant. By accepting this notion as an alternative design approach, ornament makes its return to the practice of architecture. This new, process-driven form of ornament involves the use of organizational devices, set up for each individual design project, in order to *create space and order*. Ornament is not simply *added to* space. Lars Spuybroek understands the importance of first rethinking the term ornament in order to reinforce the interdependency of *form* and ornament — of spaces over surfaces.[5] Furthermore, as Farshid Moussavi has argued, ornament sets up an "internal order"[6] or "internal consistency"[7] to design projects. In this way, the architectural concepts can legibly unfold through the experience of the space.

Robert Levit suggests that ornament accumulates to create form rather than fit it.[8] This observation is pertinent as an entry point to incorporating ornament into contemporary architecture. The task is not to separately create ornament for a particular building but to design the entire project through ornamental thinking.

In short, ornament in contemporary architecture is a process. It can be used as a generative tool in the creation of architecture.

This new notion of ornament, however, does not reject its past forms. In fact, it relies on them as case studies and inspiration to inform methods of current implementation. The taxonomy in 'Studying the Field of Ornament' is, in a way, similar to the volumes of Owen Jones and Auguste Racinet yet does not serve to present ornament as styles that can be copied. Instead, it identifies categories from which *new* ornament may emerge. It is not a template but a guide.

Figure 59:
Pattern Combinations

5 Spuybroek, "The Matter of Ornament." 234.
6 Moussavi and Kubo, *The Function of Ornament*. 5.
7 Ibid. 6.
8 Levit, "Contemporary Ornament: Return of the Symbolic Repressed." 81.

Figure 60:
Map of the Eglinton LRT line with the
Leaside station identified in green.

Figure 61: Transit advertising works...because there is nothing else interesting to look at.

Design Research: Thinking in Terms of Ornament

As design research, this thesis investigates the use of ornament along the new Light Rail Transit system currently being developed in Toronto, Ontario. The transit line runs along Eglinton Avenue, one of the city's major east-west corridors. The design focuses on Leaside Station situated at the intersection of Eglinton Avenue and Bayview Avenue. The larger context surrounding the Leaside neighbourhood is heavily forested and has significant topographical changes in comparison to the downtown core of Toronto. As such, the landscape plays an important factor in design considerations. While this thesis does not push the agenda of one type of ornament over another (Figural, Natural or Geometric), the ornament present in the following work owes its natural characteristics to the site and context.

The choice to use a transit station as a vehicle to demonstrate future ornament in architecture is twofold. Firstly, this building type is fairly relatable and easily understood by anyone who has used public transportation. The program of a transit station is simple enough to limit the need or urge to reinvent it. This allows the project to engage with the main ideas of, and arguments for, ornament. The scope of the project centres on the spaces of the public realm. This mainly includes the entrances, concourse and train platform. In short, the design focuses on the areas that a typical user would engage.
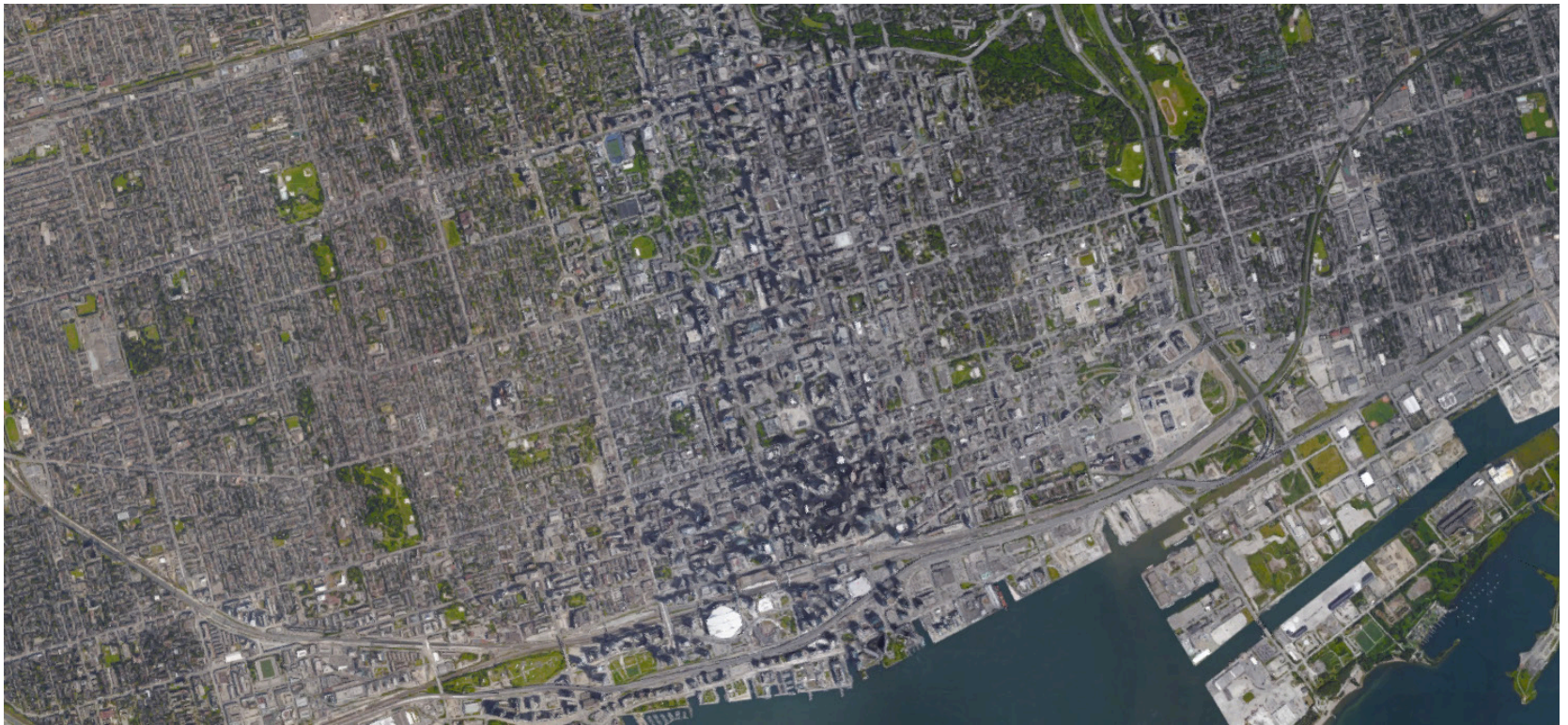
Downtown Toronto

Figure 62:
Greenspace Comparison

Bayview and Eglinton intersection

10-minute walking radius

Leaside area

Leaside Neighbourhood

The project demonstrates how ornament can be incorporated to enrich an environment as mundane as a transit station. Albeit in reference to applied ornament, Kent Bloomer states similarly that "utility authorizes and fuels ornament, which, in turn, awakens mundane objects from the necessity of their everyday work."[1] Since ornament no longer carries an association with sacredness, status or power, it is capable of being employed in any structure that is part of everyday life.

The large number of people who occupy transit stations represents a multitude of demographics. This further reinforces the need for ornament that is accessible to all. Also in relation to the building users, an opportunity exists for ornament to highlight some of the current, less flattering behaviours of society. A social commentary can be made with regards to the masses that are typically connected to their personal devices rather than the environment in which they live and conduct their daily activities. The presence of ornament may cause the users to slow down and appreciate the physical space that surrounds them. In his article titled "Crossing the Threshold into Transit-ory Nothingness," Tom Leung suggests that transit stations are significant places that become spaces of reflection.[2] This internal expansion of space into the mind is further heightened by ornament transforming a typically dull environment into one that is much more stimulating.

The redefined notion of ornament as process emerged as the design research evolved, and thus ornament was considered in different modes through the course of the following design attempts.

Figures 63-65: Ornament of existing Toronto transit stations exists primarily in wall tiles.

1 Bloomer, *The Nature of Ornament: Rhythym and Metamorphosis in Architecture.* 33.
2 Tom Leung, "Crossing the Threshold into Transit-Ory Nothingness," *OAA Perspectives* 2015. 19.

in / down

out / up

Figure 66:
Exploration of existing Toronto transit stations.
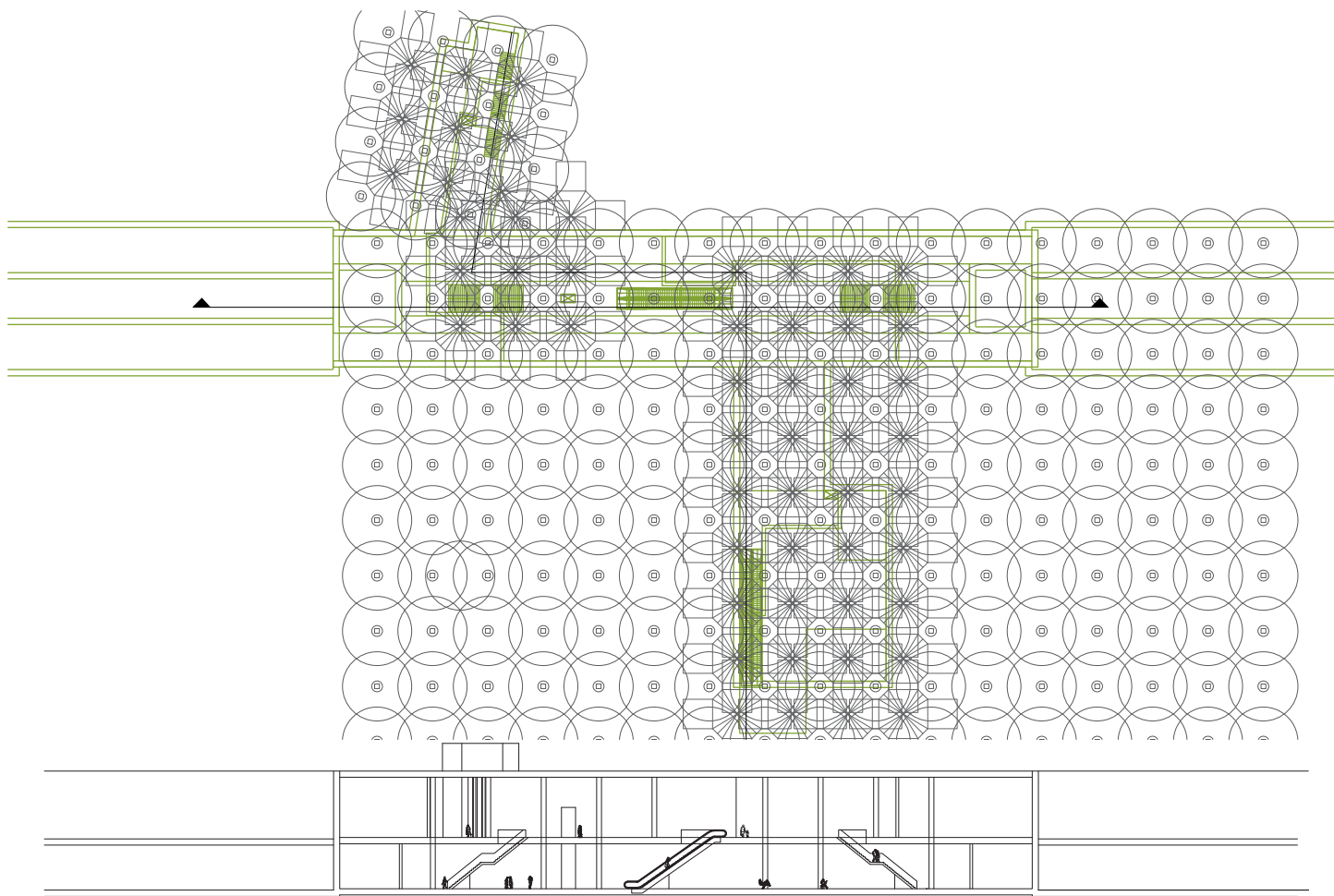
Figure 67:
Spread of pattern across entire project floor plan
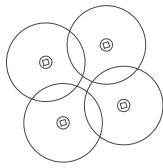
grid of 'trees'
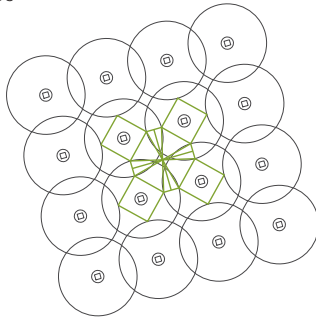
secondary pattern
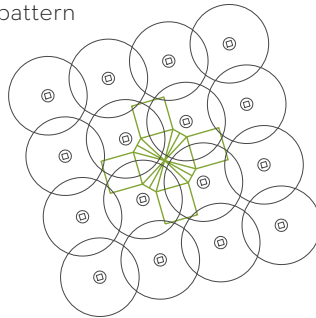
rotate 45°
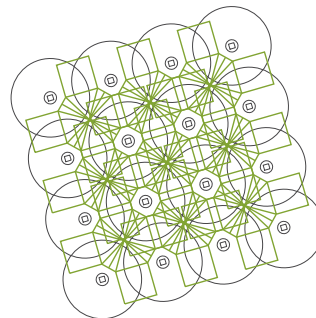
patterns overlayed

Field of Ornament

The first attempt at tackling this project was to blanket ornament onto the entire plan so as to force its presence in all elements. The thought was to create a guide to the design through a pattern (based on a structural column grid) that attempts to relate to an idea (the forest, in this case) that is particular to the project. It was hoped that spreading one pervasive and consistent pattern would help unify the design. A first pattern was established for the floor and a second was overlaid as a pattern for the ceiling. This method, however, proved to be somewhat limiting as a catalyst for further design efforts. The pattern was, for one, somewhat arbitrary and its scale too small to begin meshing the details with the greater idea of site and transit. The idea of 'blanketing' the project in pattern is heavy-handed and also conjures a notion of applied ornament. The architectural design of the station was taken for granted and these patterns were simply layered on top. Furthermore, this iteration was overly optimistic in its attempt to solve all the building issues with one or two patterns.

Figure 68:
Development of patterns

leaves and branching

abstracted

combined
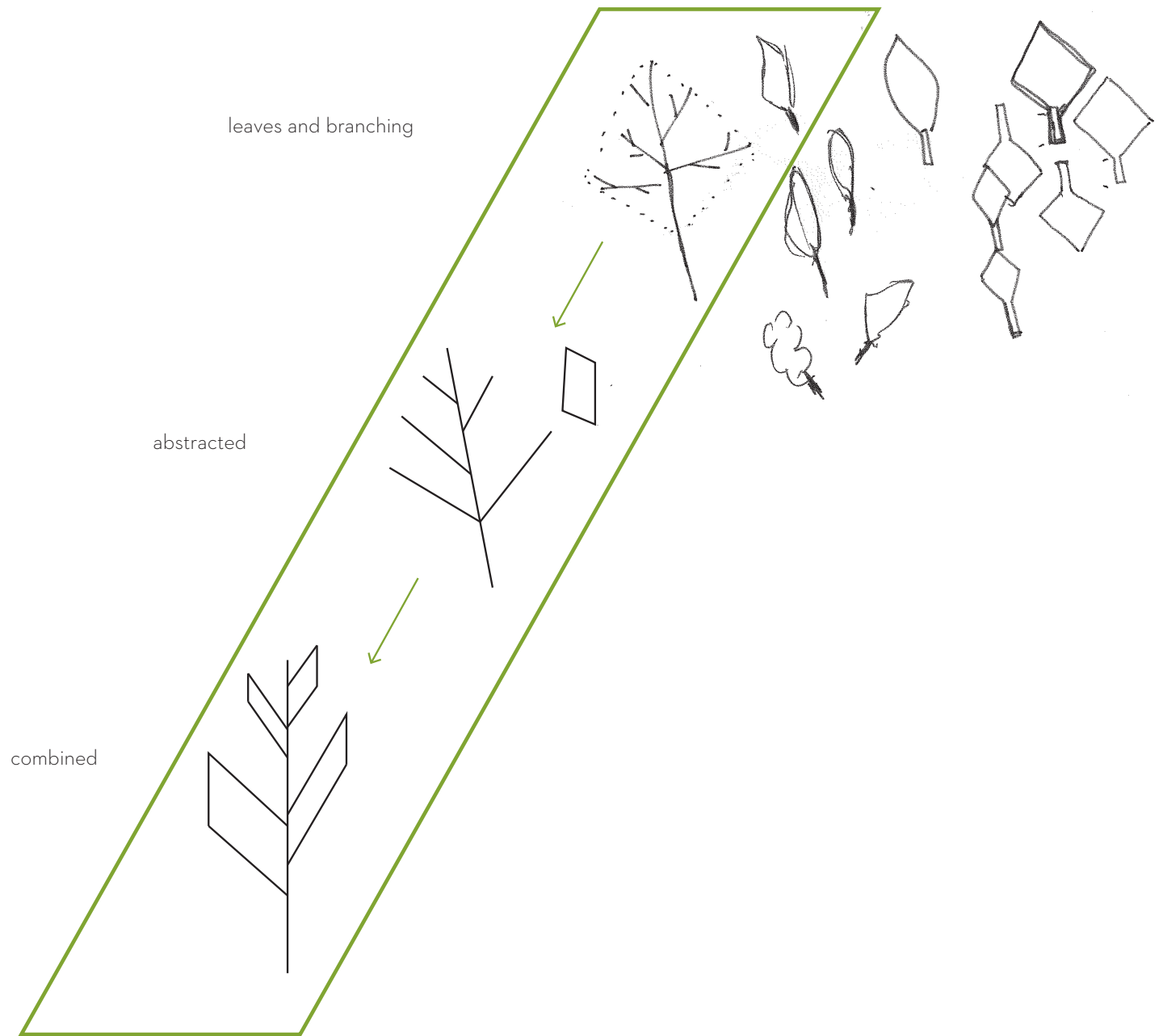
Figure 69:
Development of motif
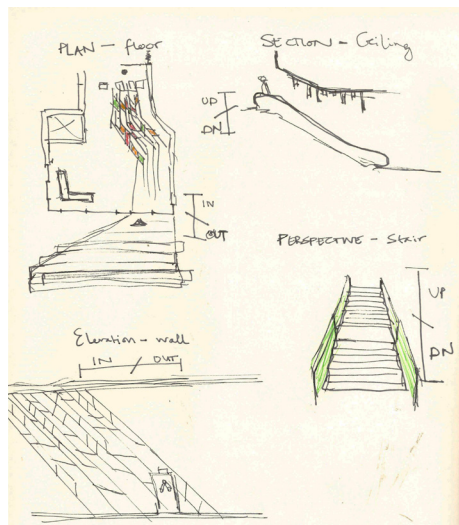
Figure 70: Initial sketches, selected portions of design.

Human Scale

In order to work with smaller pieces of the project — which would allow a focus on ornament in particular conditions — the transit station was broken up into more manageable parts. The ornament present in the design alludes to a motif of trees as the Leaside area is known for its many forested areas. The ornament is positioned in locations of transition: either between the interior and exterior or near a change in elevation. Each moment corresponds to an aspect of the forest. By narrowing in to specific moments of the architecture, the design is more attuned to the materiality, colour, texture and pattern used to create these spaces. This approach to design contrasts greatly from one that considers overall form first and adds material later. In the four selected conditions, ornament becomes more significant and heightens the awareness of these various thresholds. On the other hand, while the repetition of the motif promotes cohesiveness in the design, it still does not take into account the shape of the spaces on a larger scale. Once again, this iteration takes for granted certain surfaces that may exist on which to *apply* this motif.

Selected Focus Areas

1 - Wall; In/Out (of System)

2 - Ceiling; Up/Down (Platform to Concourse)

3 - Floor; In/Out (of Building)

4 - Stair; Up/Down (Concourse to Street)

PLANS
1:1000

SECTION AA
1:1000
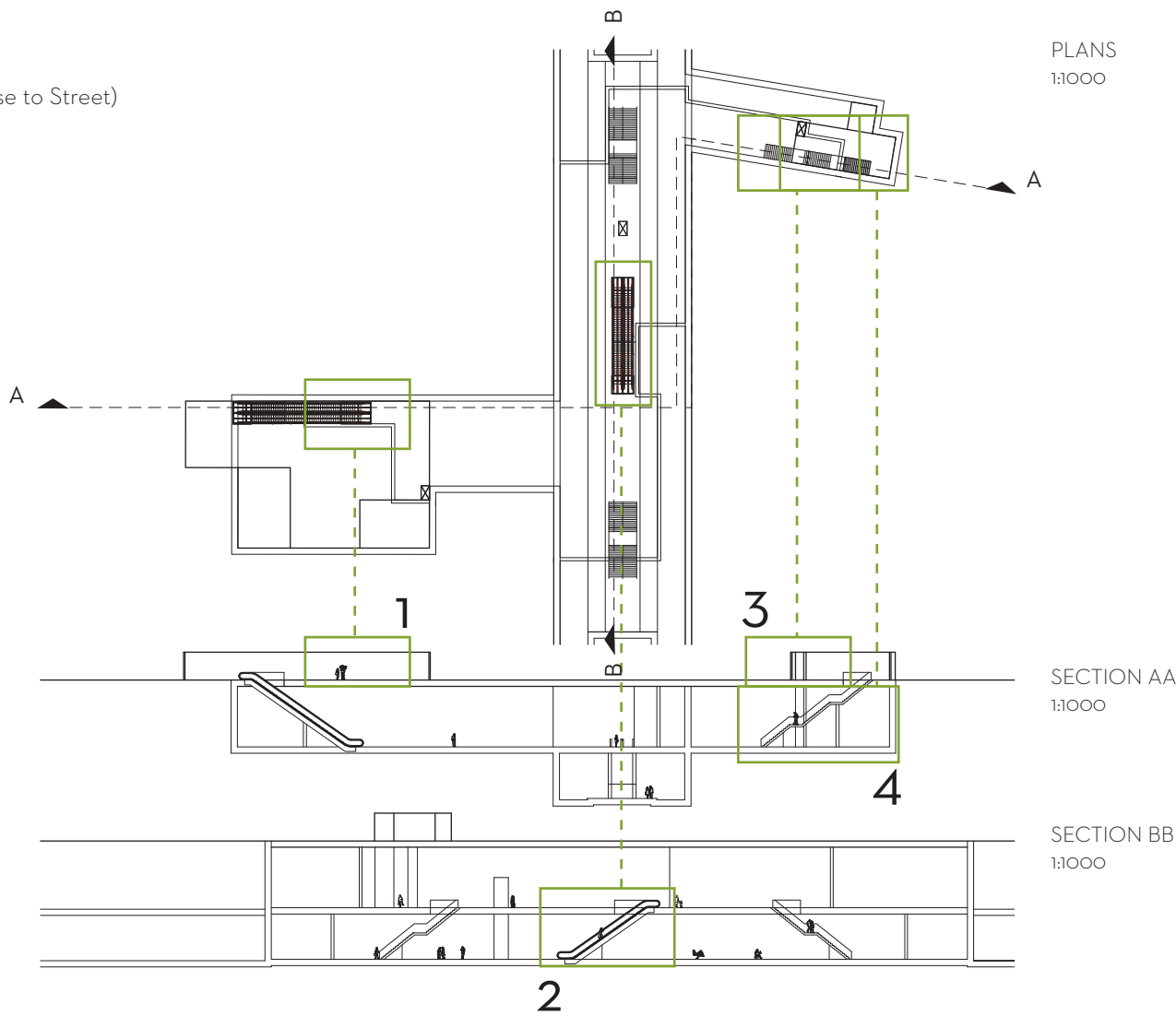
SECTION BB
1:1000

Figure 71:
Architectural drawings with selected areas highlighted

into the woods

colour?
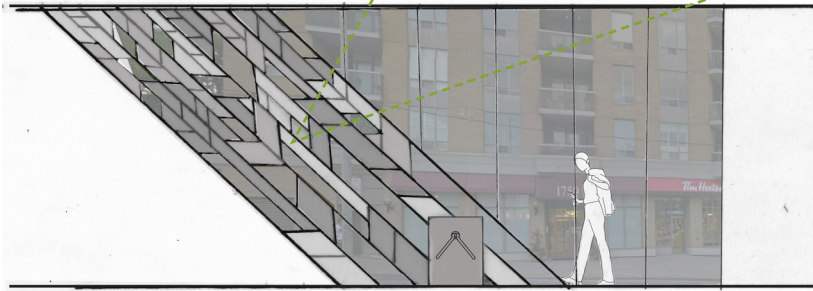
1 ELEVATION
1:200

foliated canopy

up

down

2 SECTION
1:200

in

out

forest floor
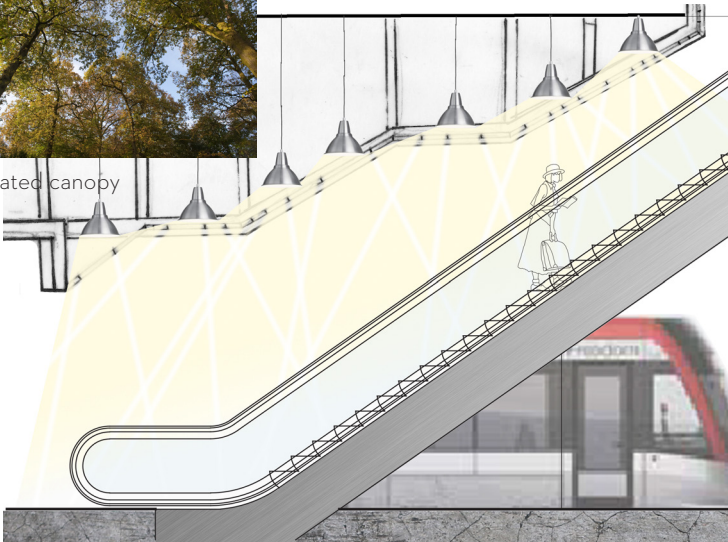
3 PLAN
1:200
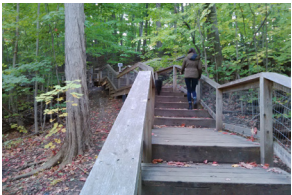
path among the trees

up

down

4 PERSPECTIVE
nts

Figure 72:
Design iterations for various areas

Parallel Lines   +   S-Curves   →   Combined Pattern
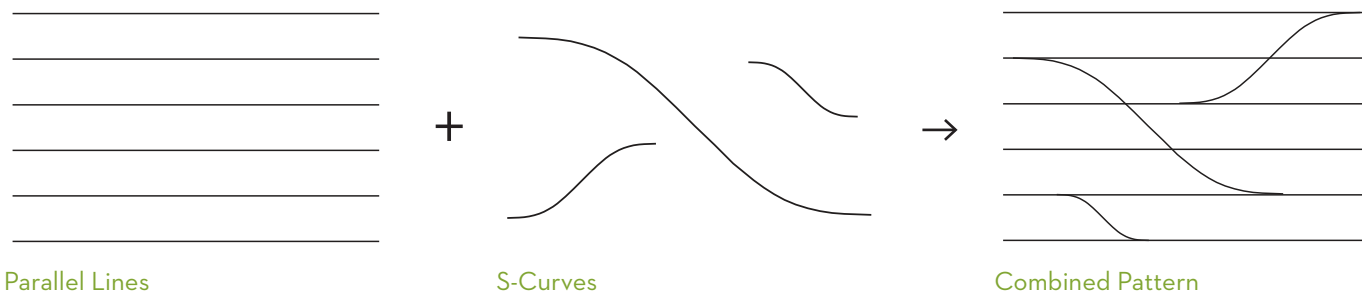
Figure 73:
Pattern for ornament

Figure 74:
Ground Floor Plan
1:1000

Program

Structure

Datum

Topography

Foliage

Circulation
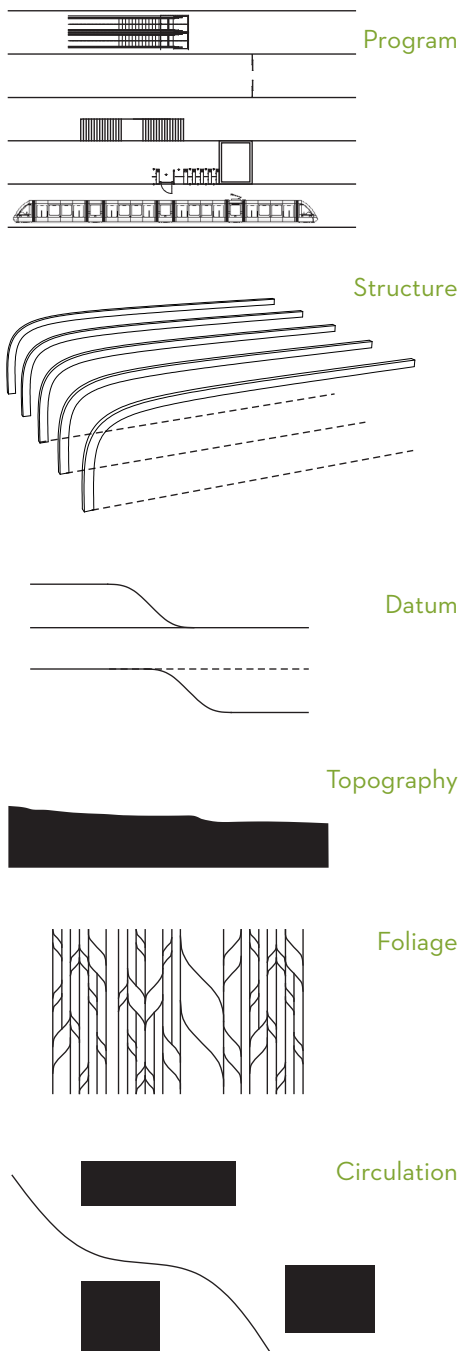
Pattern Thinking

"The conflicts that [patterns] foreground – for example, between architecture's predilection for structural order and its fascination with sensory affection…are central to contemporary practice and discourse." - Paul Anderson and David Solomon [1]

Using the motif from the last design attempt, we return to the first trial where a pattern (this time at a larger scale and with a smaller number of elements) is laid out onto the entire project. To begin with, a simple pattern of straight lines was set out across the site and served as a guide to laying out various programmatic components, the landscaping and form of the station. Parallel bands — running east-west just as the Light Rail Transit vehicle operates — separate entrance spaces, fare collection and vertical circulation. The main structure, a series of glulam beams, follows these strips further accentuating the building's organization. The curves of the roof and structure follow a second set of lines that connect to those that are parallel. The curves are derived from foliage, the site's topography as well as the fluid motion of circulation paths. This combined pattern has a strong relation to the immediate context — the ground cascades down to an adjacent playing field. The pattern also works three dimensionally (not just as a surface pattern but as guides to form surfaces).

1 Anderson and Solomon, *The Architecture of Patterns*. 133.

In elevation, the building strips curve upwards to different heights creating a hierarchy of spaces indicating the entrances, main circulation spaces, skylights and service spaces.

The curving roofline is a dynamic presence, similar to the flow of water or of pedestrians as they navigate through the interior. The building peels away from the ground allowing users to enter the landscape and delve deep into the earth. The roof swoops upwards allowing light to penetrate and animate the space with shadow play. A moment to pause and admire. Through such formal gestures, the design moves away from the traditional connotation of ornament as applied surface decoration. The ornament is related to the design approach; it provides a guide to shaping the spaces and form of the transit station. The building materializes through ornamental thinking according to the pattern logic that has been established (in this case: parallel lines with s-curves of various proportions connecting them).

Figure 76:
Exterior Perspective
Approach to Main Entrance

North (Eglinton)

South

West (Bayview)

East (Park)
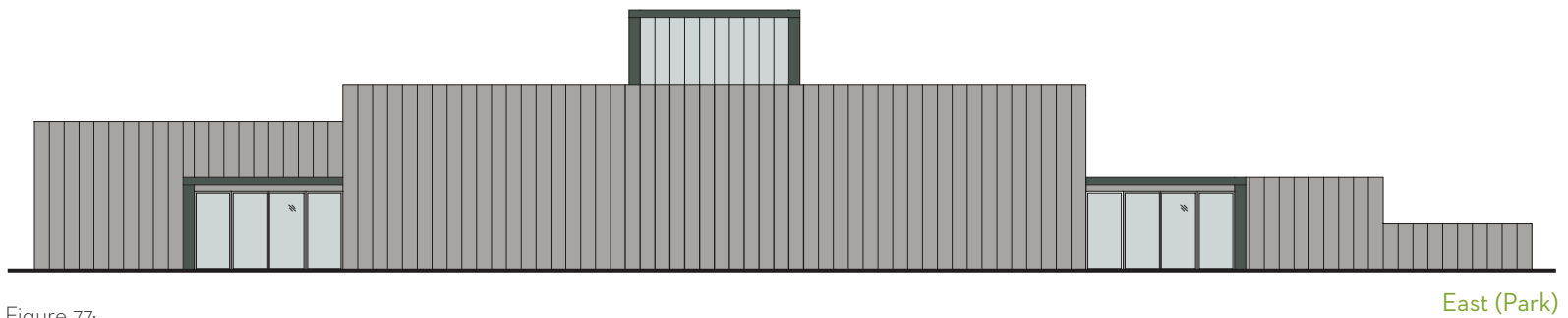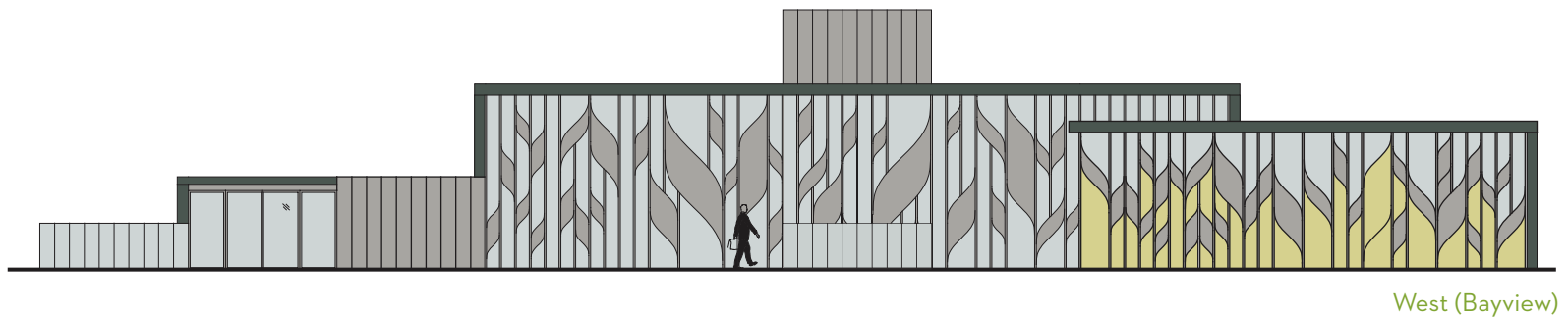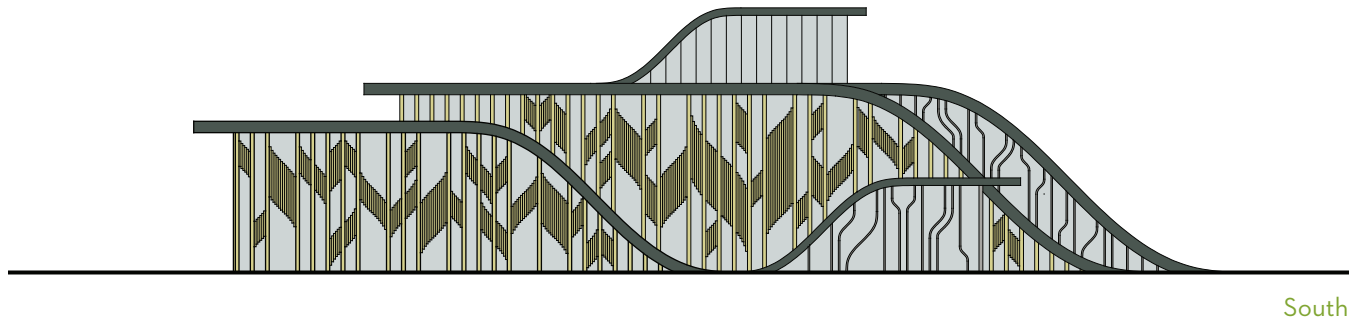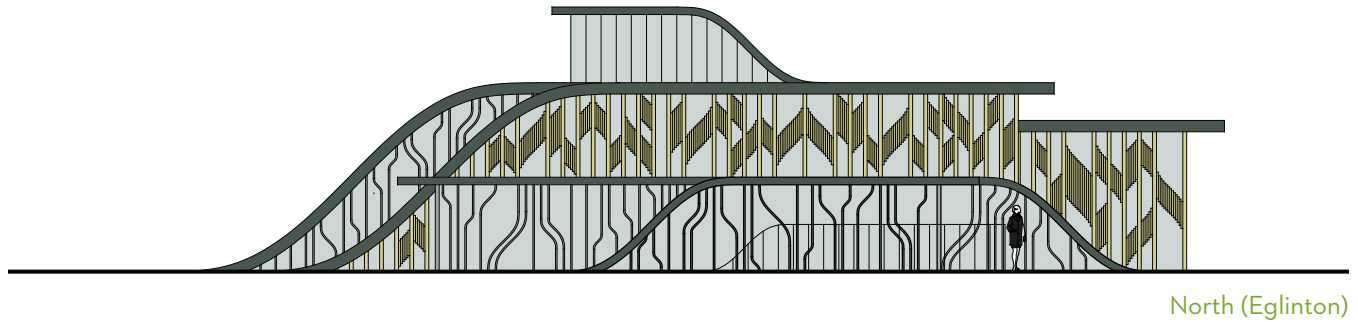
Figure 77:
Main Entrance - Elevations
1:200

The curving lines not only set the building form but also combine with the parallel lines to create patterns on various surfaces or out of building components. Additionally, they permit a flow from one datum to another. The variation of ornament follows these transitions from one space to the next. As Kent Bloomer observes, "Patterns of ornament refuse to be arrested for more than a moment."[2] In his definition, ornament consists of a system of visible and intricate line work forming motifs that are repeated and continue to wander. These patterns with dynamic lines never seem at rest — a fitting comparison to the users of a transit station. The use of strong, straight lines as one element to the ornament allows one to project these stripes beyond their physical appearances or constraints. The mind engages with the architecture. The changes in patterns, materials and construction techniques throughout the project bring about a dynamic aspect to the design. The variety of wall, ceiling and floor types indicate moments of change in orientation and location. For example, at grade, the colourful presence of a green ceiling signifies entry points into the station. The playful façade also signals the entrances while referring to roots and foliage. Upon stepping into the station, the unconventional quality of the space is first felt by the material below one's feet: wood. This surface changes to tile as one pays their fare and enters the transit system. Within this next circulation space, the patterning of the west façade has a more natural appearance whereas the north and south walls are geometric. This difference is partly due to the change in material from metal to wood sticks. All the north and south walls align with the first pattern of strokes spaced four meters apart. The lines of the wooden ceiling, the floor planks and tiles run east-west — following the first pattern of line work.

2 Kent Bloomer, "A Critical Distinction between Ornament and Decoration," *306090* Decoration (2006). 56.
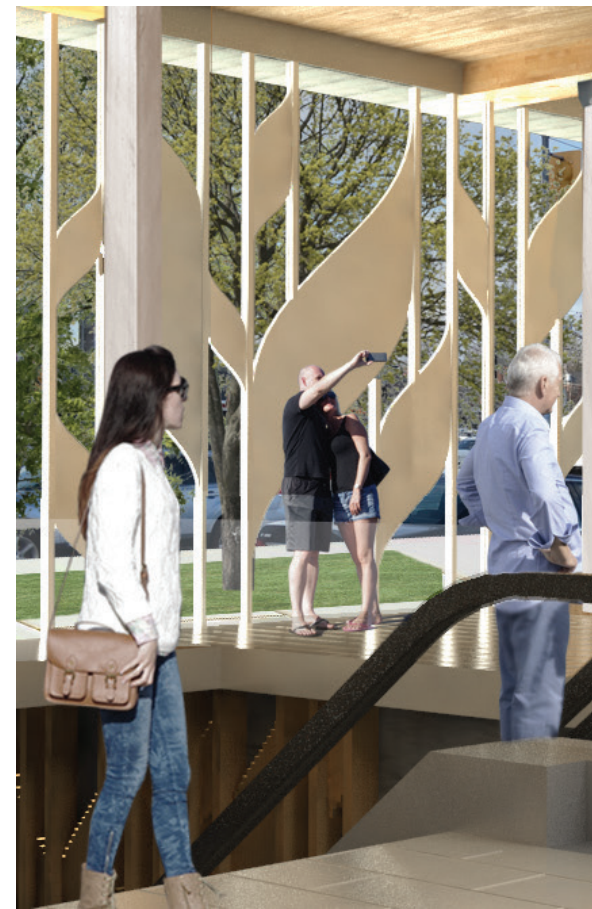
Figure 78:
Interior Perspective
Main Entrance

A-A

B
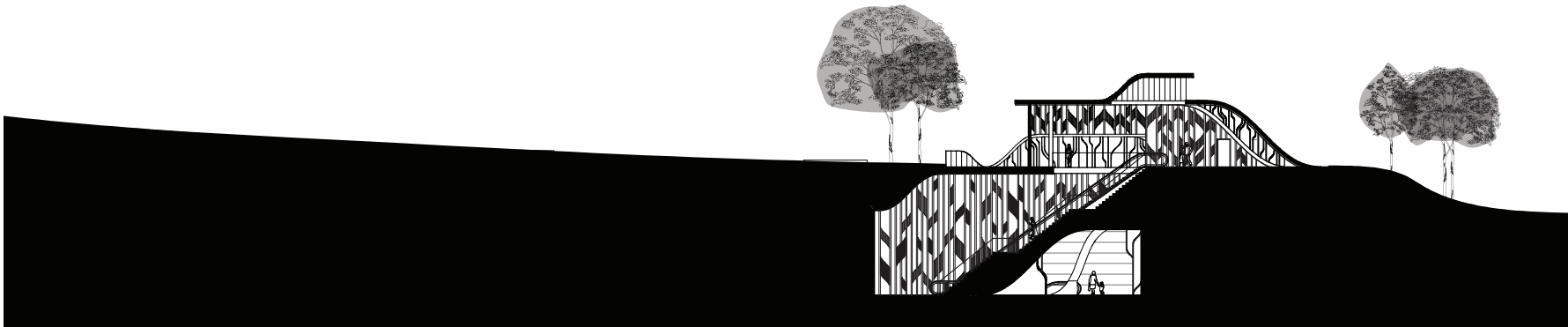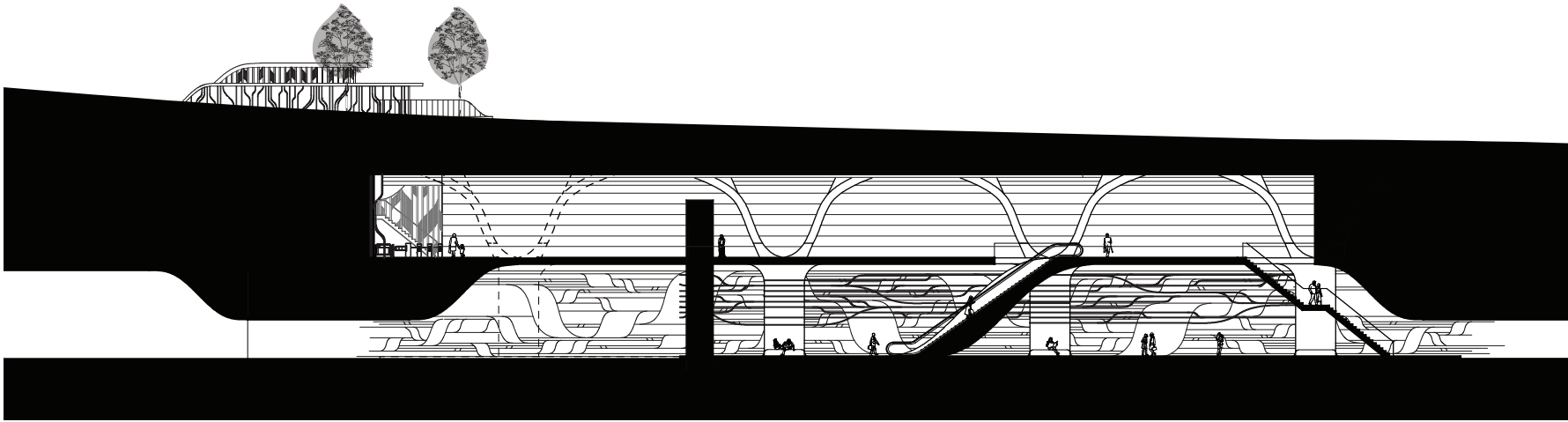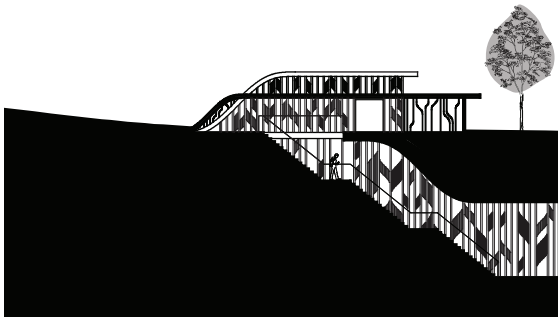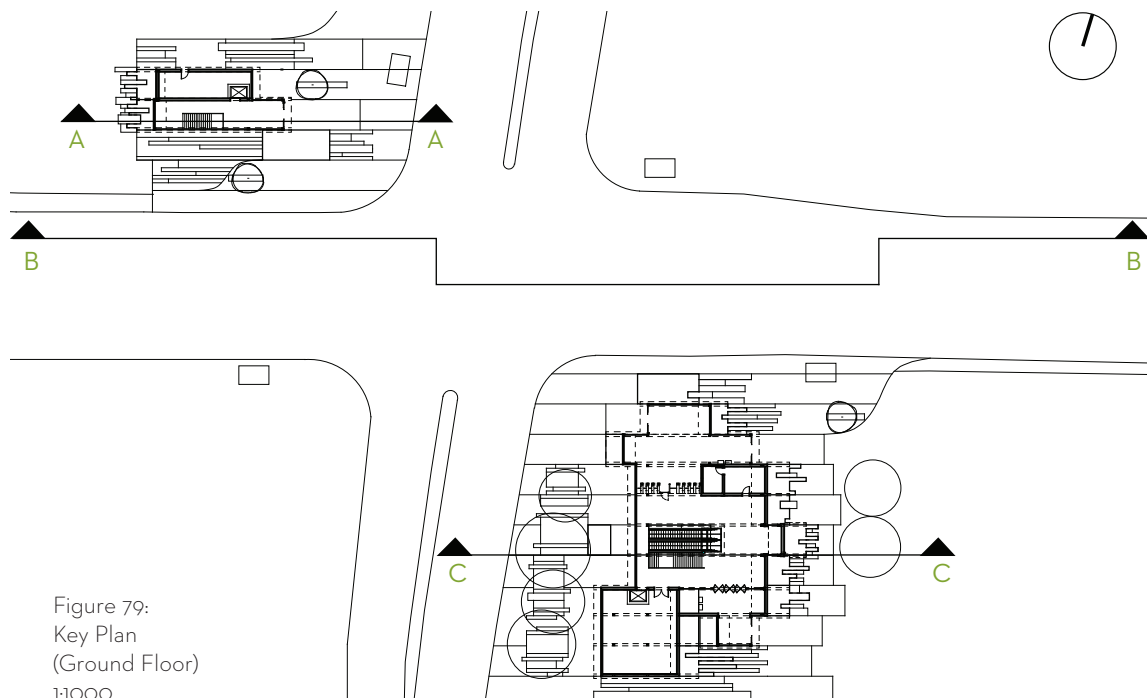
Figure 79:
Key Plan
(Ground Floor)
1:1000

C

C

B-B

Figure 80:
Descent to the Platform Level
Longitudinal Sections
1:500

These conditions continue as one descends below grade at which point additional configurations come into play. The ornament shifts in materiality and patterning according to various parameters. Descending to the LRT track platform, the commuter circulates through spaces expressing growth and verticality down to the strata of bedrock below grade. At the concourse level, the vertical patterns are replaced with horizontal wall and ceiling types.

C-C
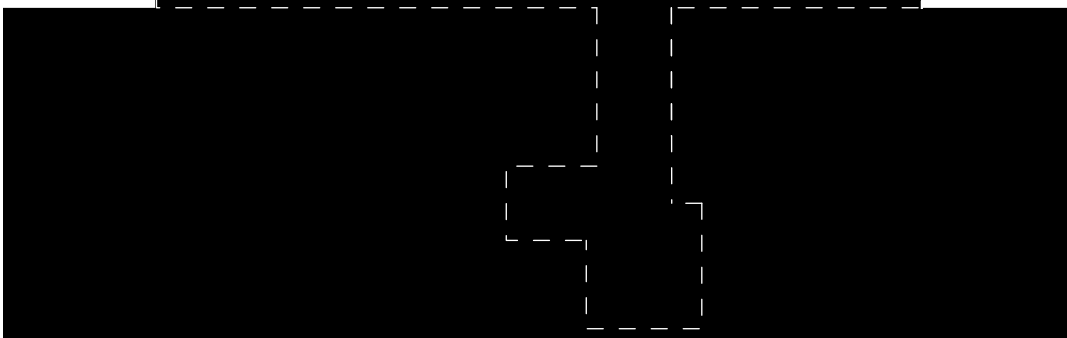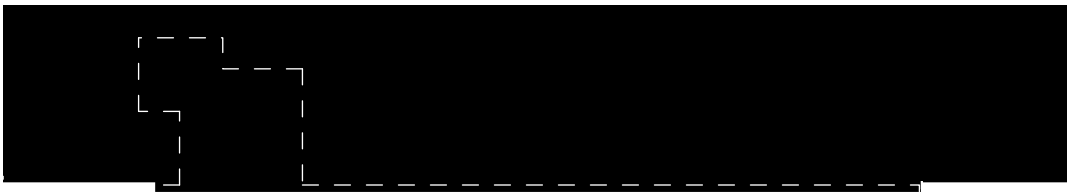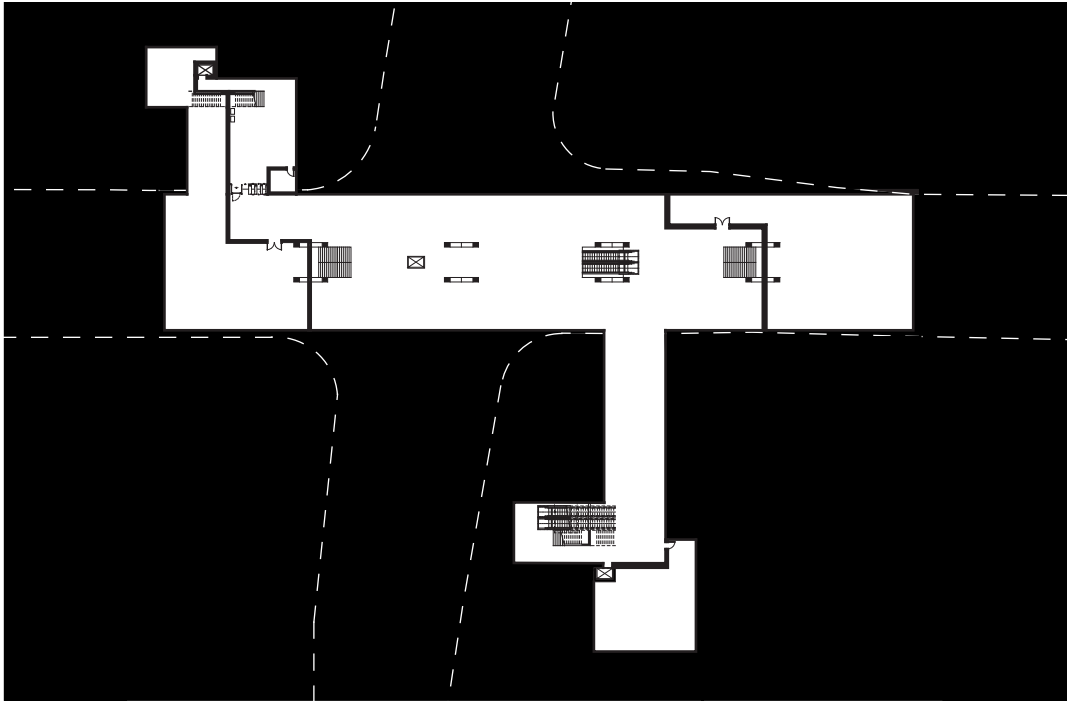
Once again, the glulam structure organizes the main programmatic elements. The stairs, escalators and elevator to access the platform are all located between pairs of curving v-shaped columns. At the top and bottom of these access points, the tile transitions to a polished concrete providing a continuity of material from one datum to the other.

Figure 81:
Concourse Floor PLan
1:1000

Figure 82:
Platform Floor Plan
1:1000

The following drawings illustrate the circulation of people through the station as well as the continuity or changes in material and patterns. The two-dimensional images demonstrate the unfolding of interior spaces and the connectivity between them (shown in colour). The swatches of building components that surround the line drawings convey the variety in the architectural palette from one level down to the next.
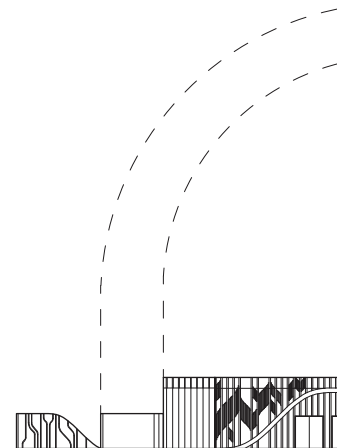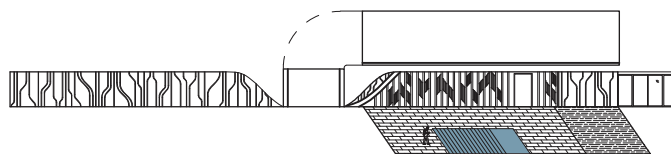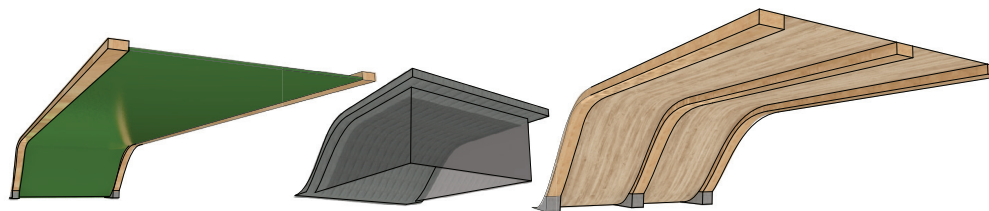
Figure 83:
Unforlded Space
Ground Floor
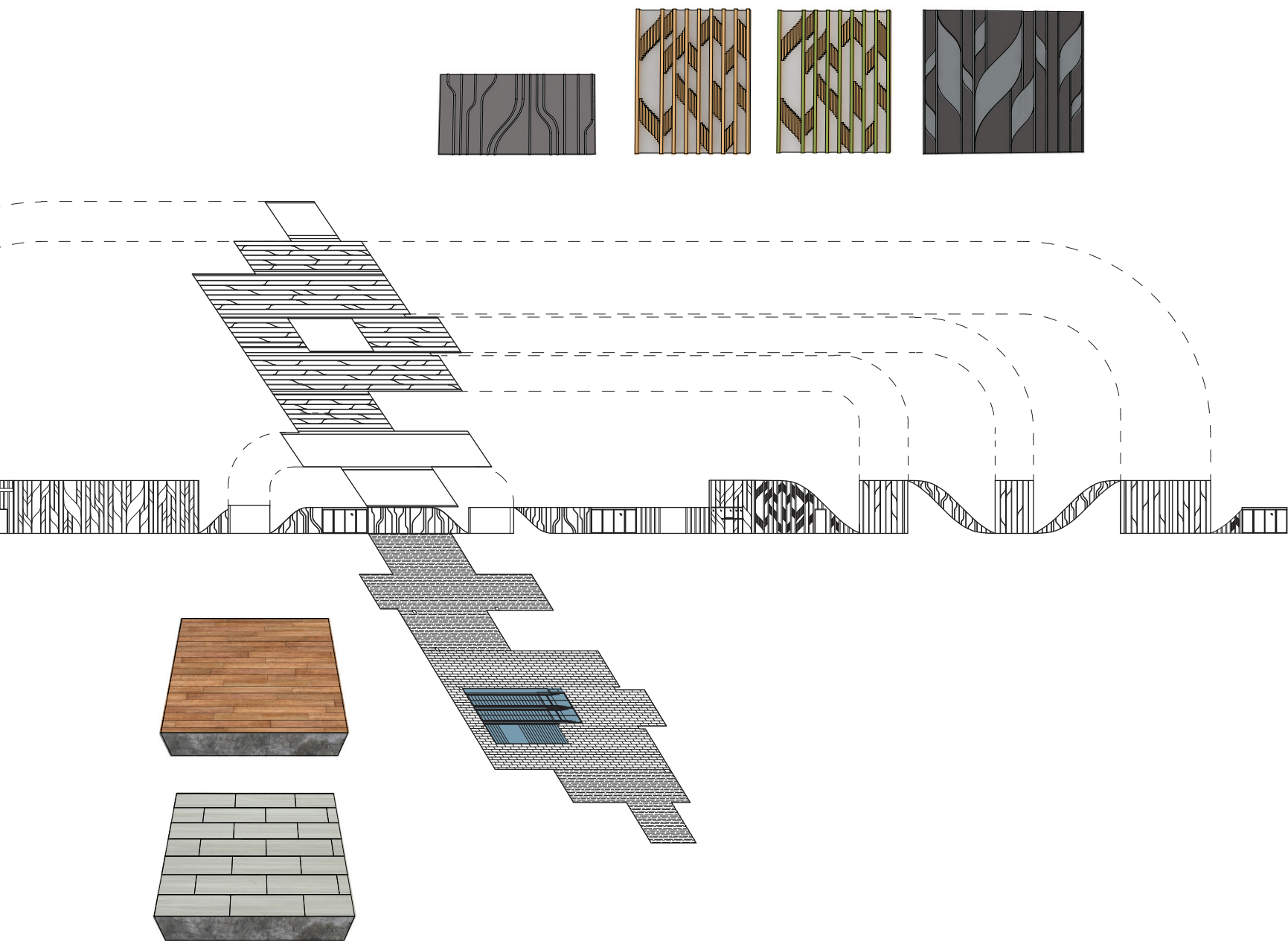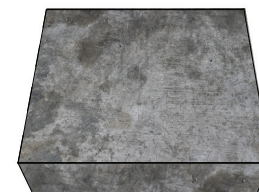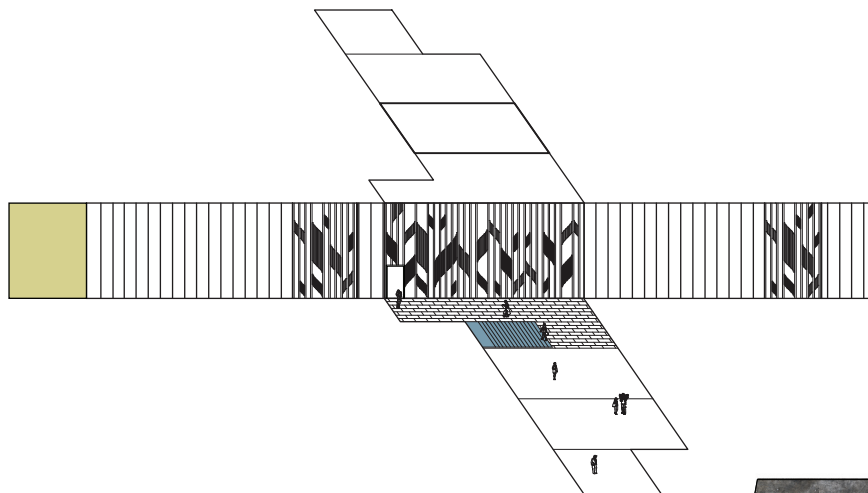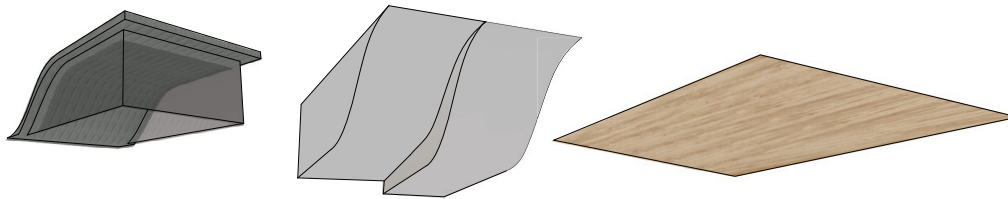
Figure 84:
Unfolded Space
Concourse Wings
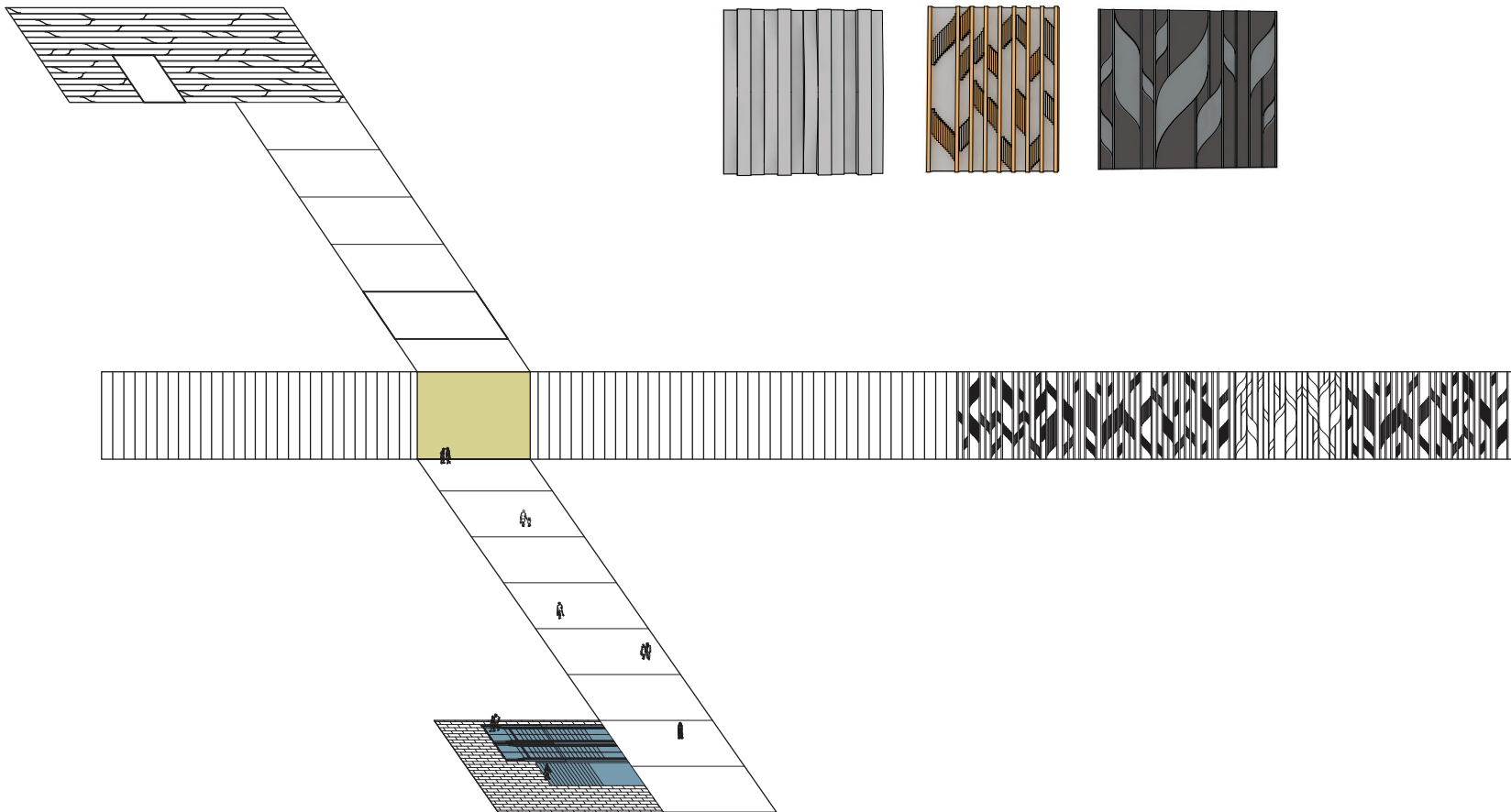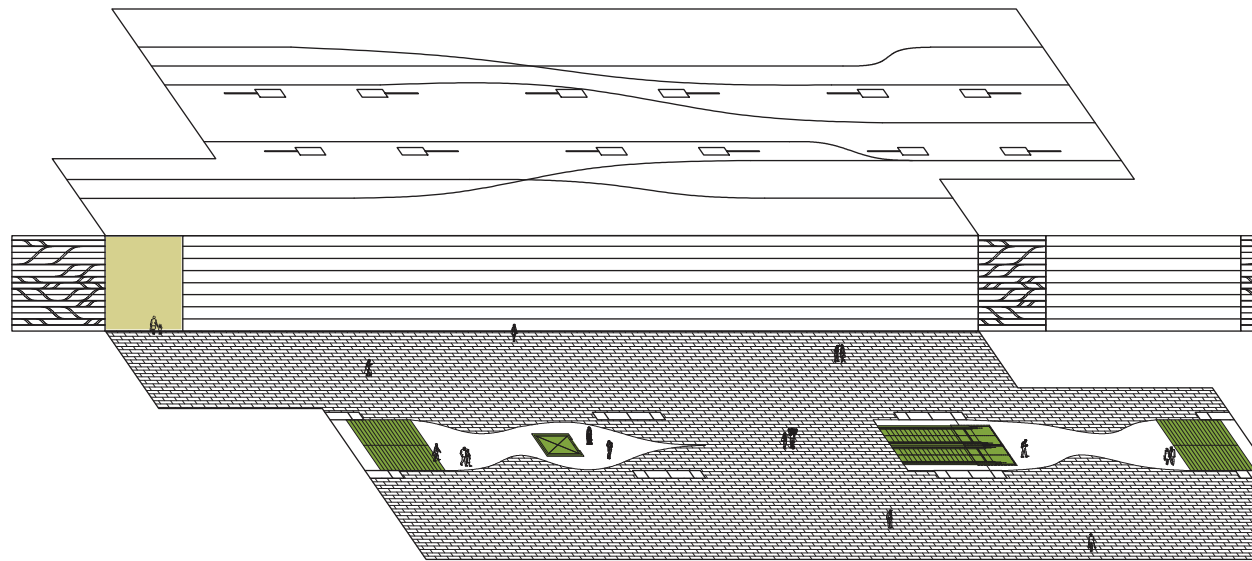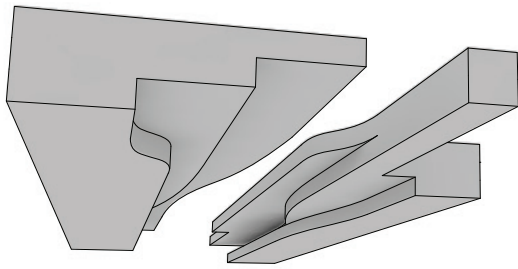
Figure 85:
Unfolded Space
Concourse
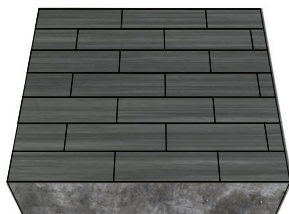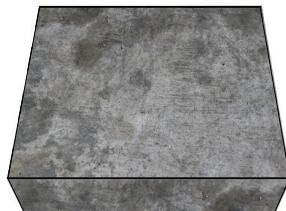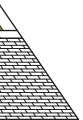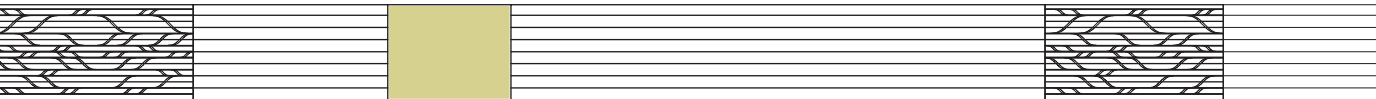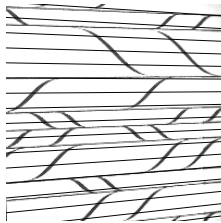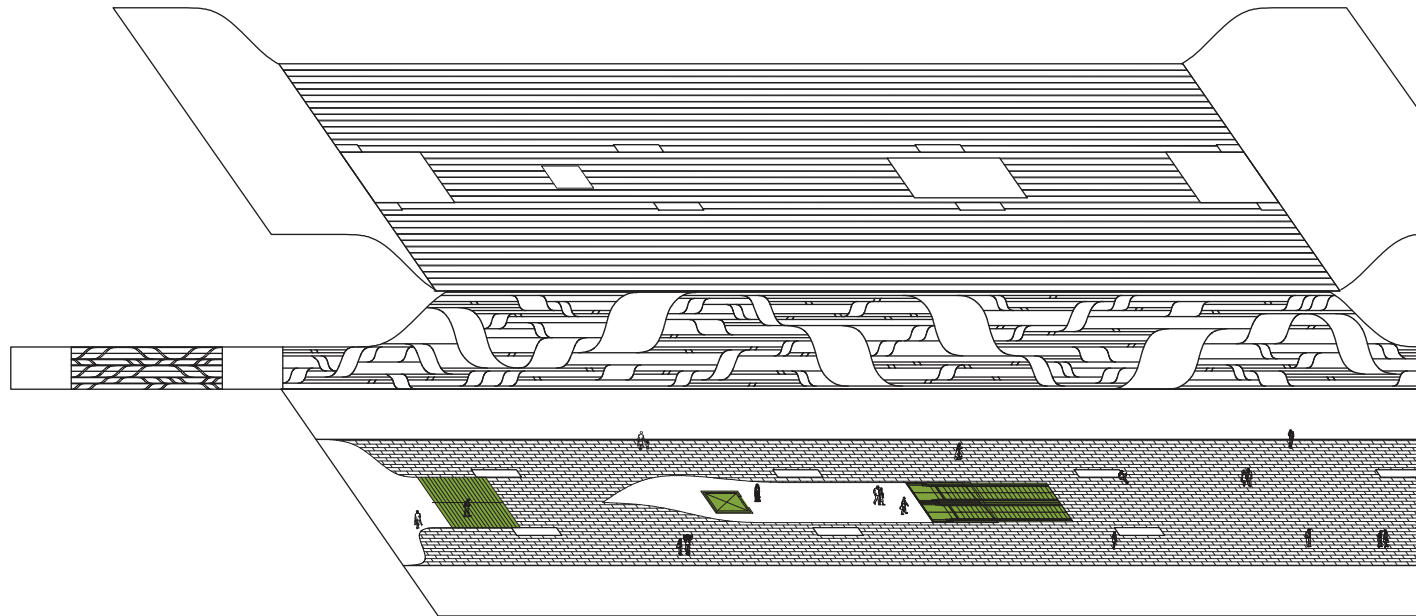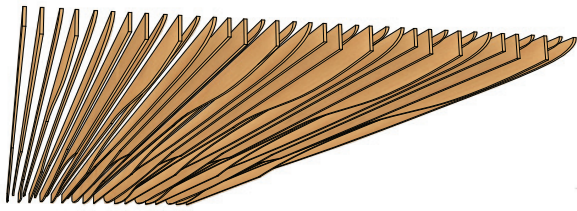
Figure 86:
Unfolded Space
Platform
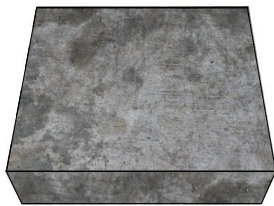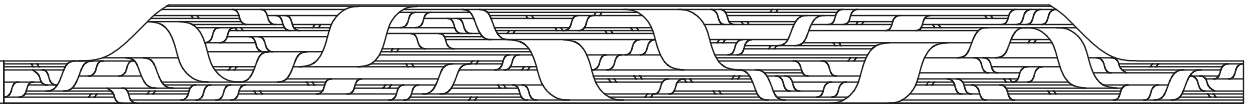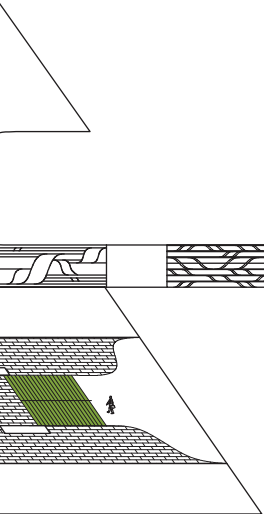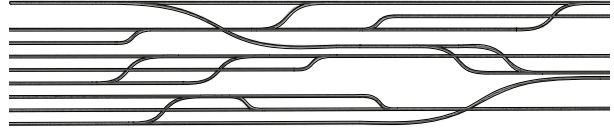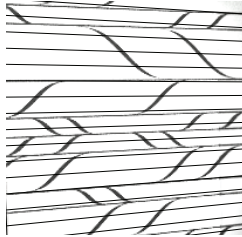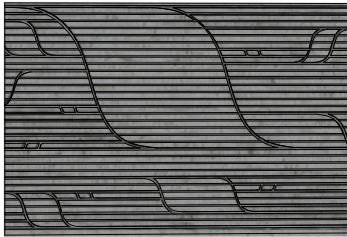
Moving further below the ground, the strong presence of wood fades as it is used solely on the ceiling of the platform level. A series of undulating wooden slats form a grille in between which linear lights are placed to illuminate the space. The presence of light also signals connection points to the various floor levels. Lighting indicates areas of passage from one space to another. At either end of the platform, 'lightbox' walls (composed of metal tracery screens backlit against frosted acrylic) signal users towards staircases to the concourse level. These walls extend up to the space above.

Figure 87:
Interior Perspective
Platform

From the concourse, it is the skylights that guide users towards the wings that connect up to the main entrance pavilions. Finally, the glazing of these main spaces at grade open up towards the intersection of Bayview and Eglinton; this provides one last orientation point. From the exterior, this openness and transparency animates the intersection with the movement of people, the glow of light and the vibrancy of the green coloured ceilings.

Figure 88:
Interior Perspective
Concourse

This iteration blends the first design attempt (related to structure) with the second (related to surfaces). The overarching pattern is borrowed by both the structure and the surfaces of the transit station. The structure organizes the building program while the surfaces are manipulated to create space and add beauty. Together, with the underlying pattern, both structure and surface *are* the ornament.

As a piece of city infrastructure, the Leaside station alludes to the human manipulation of landscape while also attempting to recall the natural beauty that surrounds the area: the parks, ravine and forests. Nature connects all of humanity and is a current concern to society. While the landscape was a main factor in informing the patterns and forms used for the project, the landscaping in which it sits is also an important consideration. To continue the language of the station at grade, the roof strips are pulled out into the paving as a portion of the ground covering. The linear pattern extends out from the building and into the landscape connecting the roof to the land. The landscaping dissolves into smaller components to appeal to human scale. These pieces also range in size to fit with the scale of the urban plaza as well as that of the building or the city. A linear patchwork of pavers, grass and plants integrate the site with the station. Large swaths of darker paving indicate entrance doors. The project's site covers the entire southeast and northwest corner of the intersection commanding its position as a neighbourhood landmark and giving it an identity.
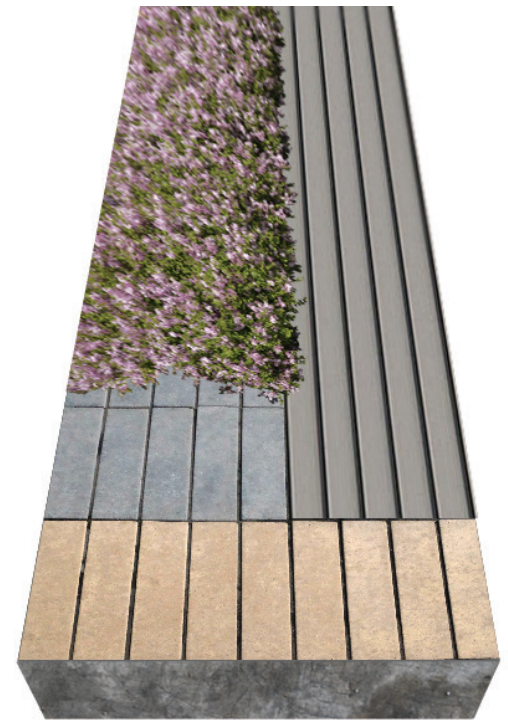
Figure 89:
Materiality of landscaping
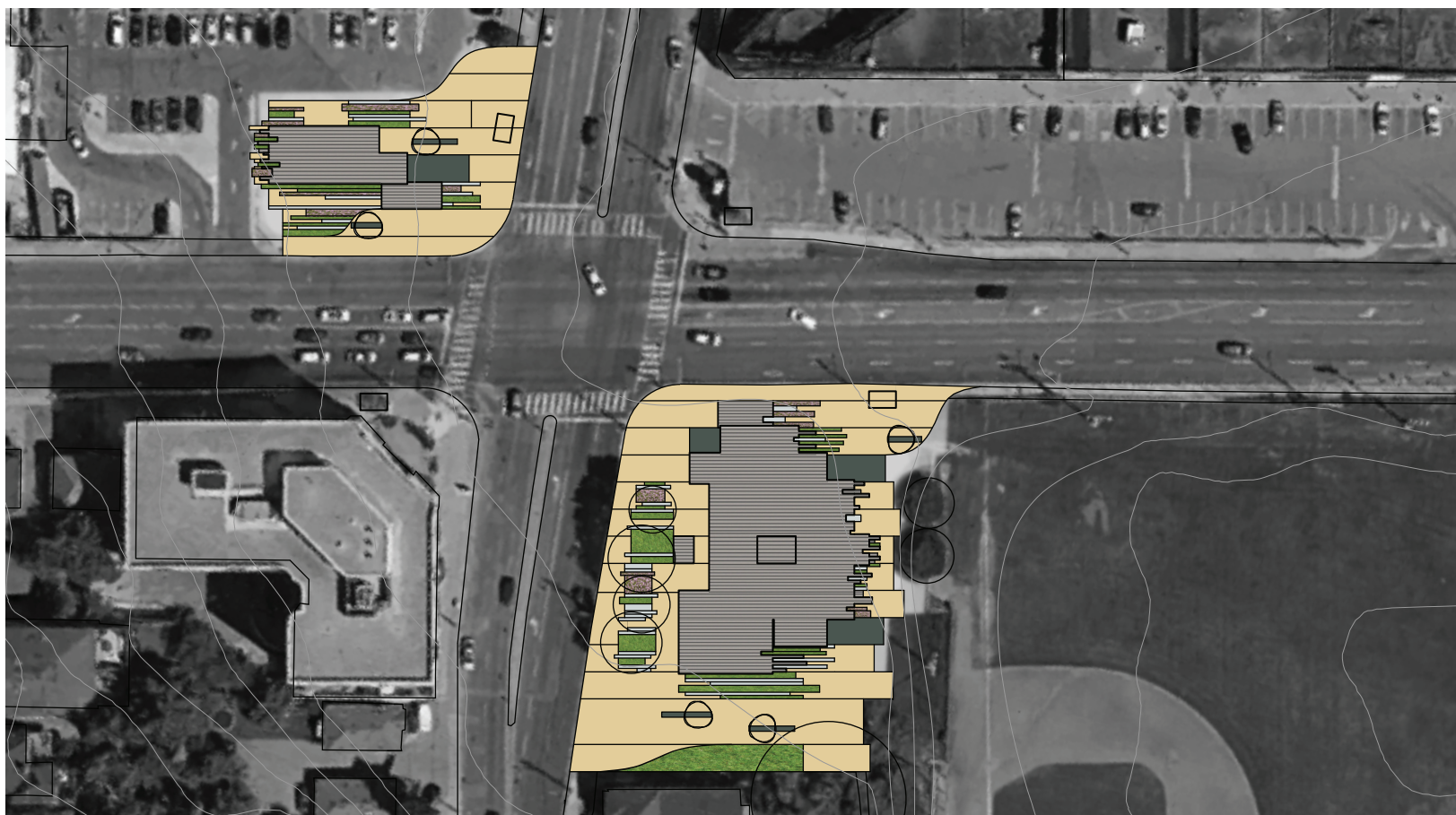
Figure 90:
Roof and Landscape Plan
1:1000

Finally, Leaside station can be contrasted with the typical transit architecture of the city. The difference between this design and that of the norm is the particular attention to space that not only functions properly but also goes beyond programmatic elements and includes ornament and pattern for the purpose of delight to those who interact with it. The mundane experience of visiting the station is elevated and enriched by the atmosphere and intrigue created through the ornamental design approach. Users become less distracted by their personal electronic devices and instead use them to capture a vibrant and dynamic space.

The exceptional use of variety in the architecture need not be contained to Leaside station; it can be extended to the rest of the Eglinton Crosstown line creating unique landmarks at each transit stop. This also contrasts Toronto's existing transportation network that typically relies merely on a colour change of tiles to account for such variety and identity between stations. Furthermore, signage must be added for wayfinding within these typical stations as opposed to using the architecture itself to assist passengers in navigating through the space.

In contrast to the argument of this thesis, ornament considered solely at the end of a design exercise results in wallpaper, in decoration. When designing through an entirely ornamental approach, ornament is able to pervade the design at a level of integration with the site context, program and narrative. Overall, the ornament of Leaside station provides a human connection to the site, to nature, and allows for the recognition of spatial organization of building elements as a means of wayfinding. Meanwhile, through its playful patterns, lines and forms, ornament enriches the built environment by imbuing delight into an often-dull space of transit architecture.
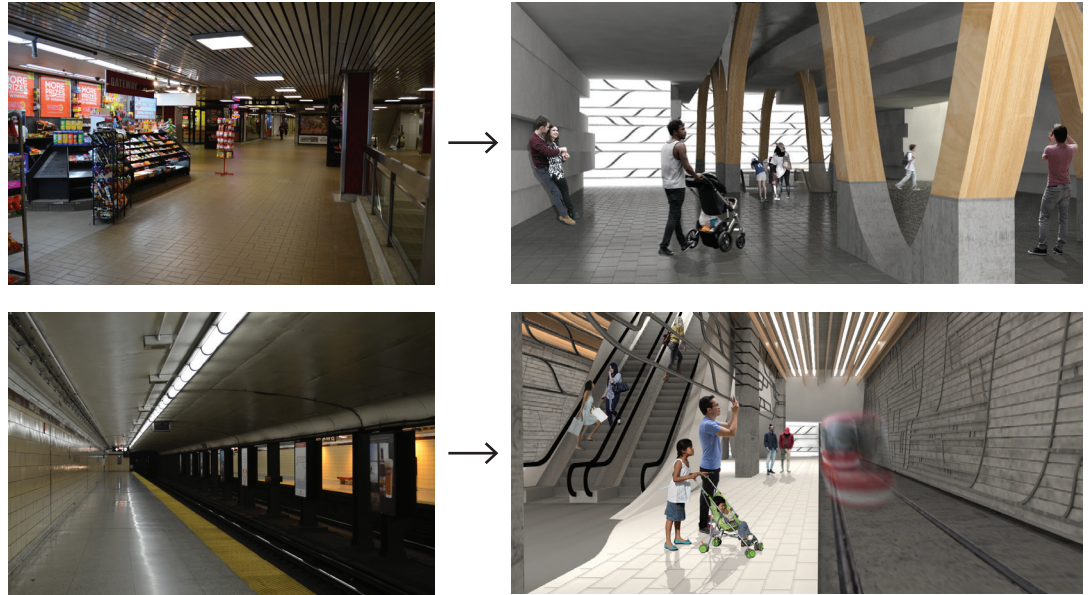
Figure 91: Comparison of the concourse and platform to existing transit stations.

Ornament has guided the architectural design. It requires one to be cognizant of choices made in terms of scale, surface, space, appearance, material and concepts conveyed through architecture. On one hand, it provides a universal lexicon to understand the architectural concept and program. On the other hand, it simply adds delight. All instances, however, are observed and experienced by the occupants. The users are free to interpret the vocabulary of ornament and to construe from it their individual meaning or significance. This architecture, through ornament, adds value to the urban fabric. It enriches the experience of the city as well as that of a daily commute. While transit architecture may only represent a transient moment in one's day, design through ornament adds elements that may entice the transit users and passersby to slow down, pause and reflect. Ornament provides a language through which the public can access and engage with architecture. Ornament provides architects a process in which various aspects of design can be explicitly considered. Ornament is what, for too long, has been missing from architectural discourse.
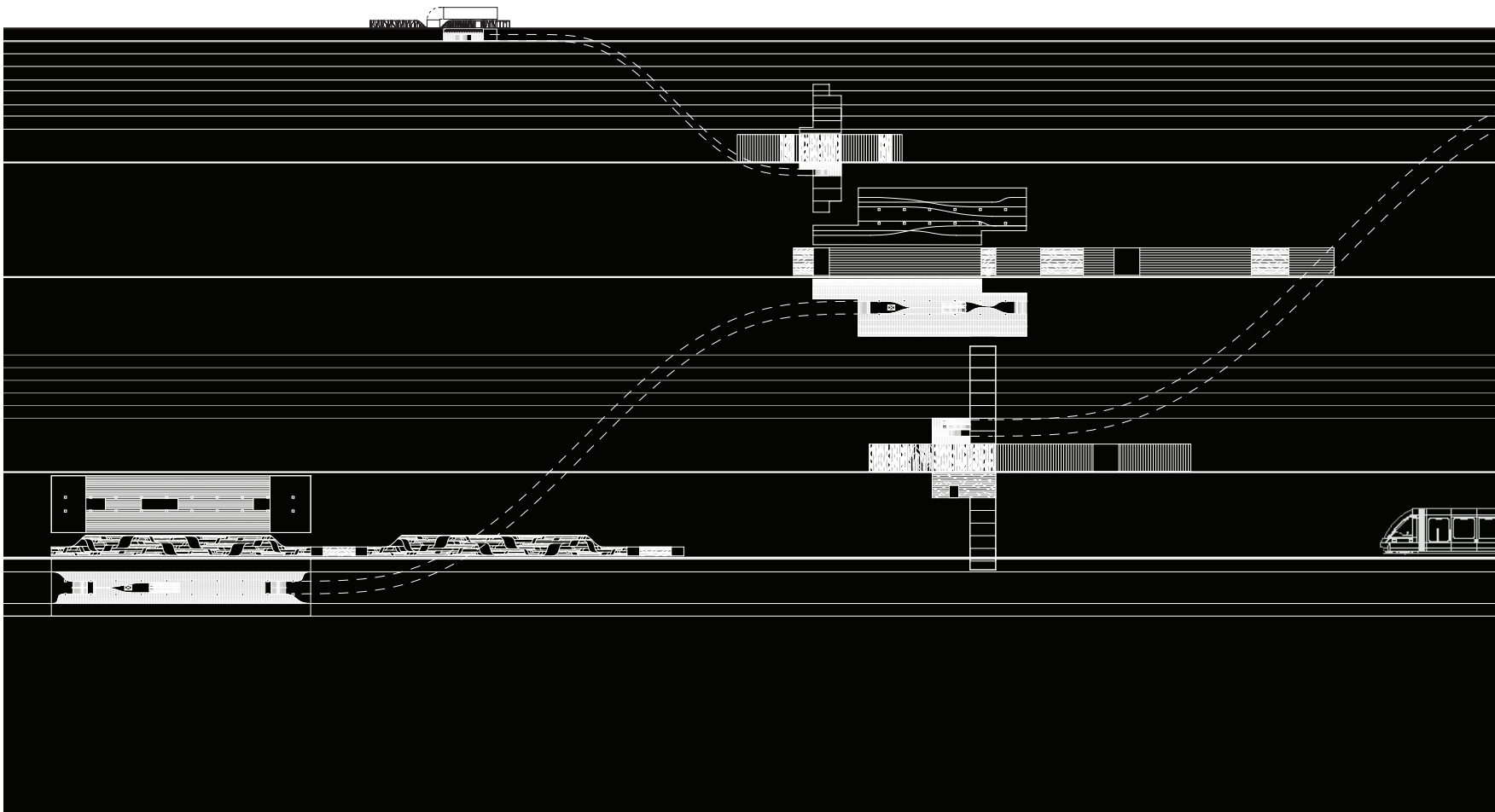
Figure 92:
Initial Design Drawing
Unfolded Spaces
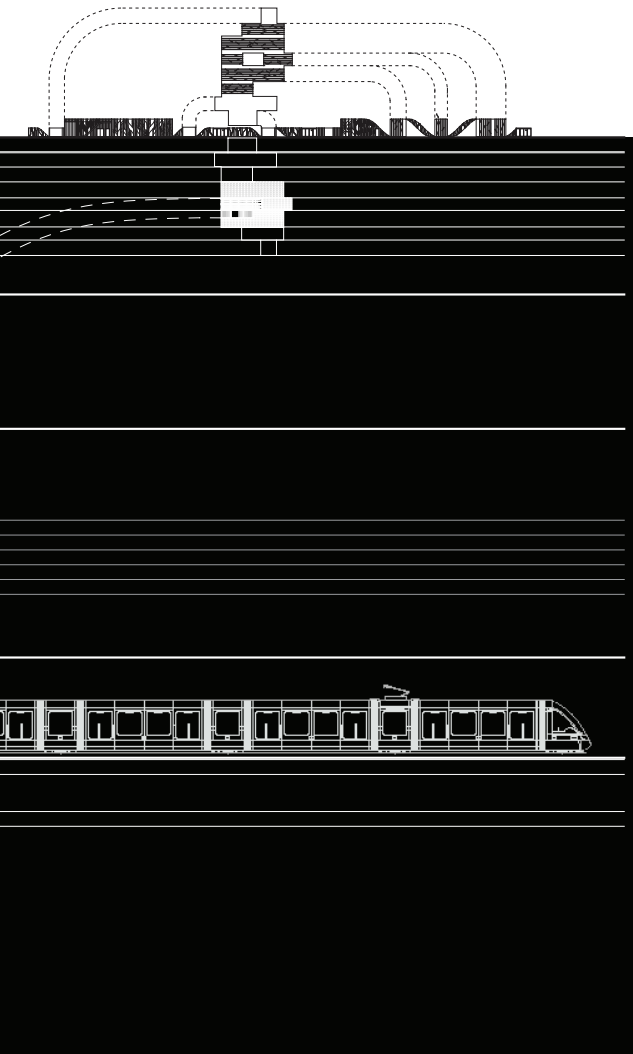
CONCLUSION

Adolf Loos may have been quick to dismiss ornament altogether but he was correct in condemning its use as a commodity. For ornament to be compatible with the innovations and progress made in contemporary culture, architects must cease to use ornaments from the past. In fact, the preconceptions of ornament must be updated entirely. To employ ornament in today's architectural praxis is to include it as a design process. Ornament is capable of guiding design decisions for any project and is no longer simply placed, as an object, onto the final product.

Past ornaments can serve to inform contemporary ornament in architecture but only once architects have resolved to incorporate it into the design process rather than add it at the end.

Ornament structures architecture; both through patterns used to lay out spaces and those used to articulate surfaces. Ornament can establish a building's organization by distinguishing spaces or providing continuity between them. Patterns provide order by allowing the eye to rest and measure. Ornament makes architecture legible to those who interact with it.

Ornament further engages the public with architecture by providing an aspect of beauty and delight. While many buildings can function on a basic level, ornament creates architecture that establishes deeper connections with its users. Part of this stems from the variety that ornament offers the built environment. A varied palette of patterns, motifs and designs is capable of appealing to a large population from a multitude of different backgrounds and perspectives. The abstract nature of contemporary ornament promotes unique interpretations from each individual. Ornament stimulates the minds and the eyes of these people in a way that homogenous, unadorned architecture never will.

APPENDIX 1
Model Photos
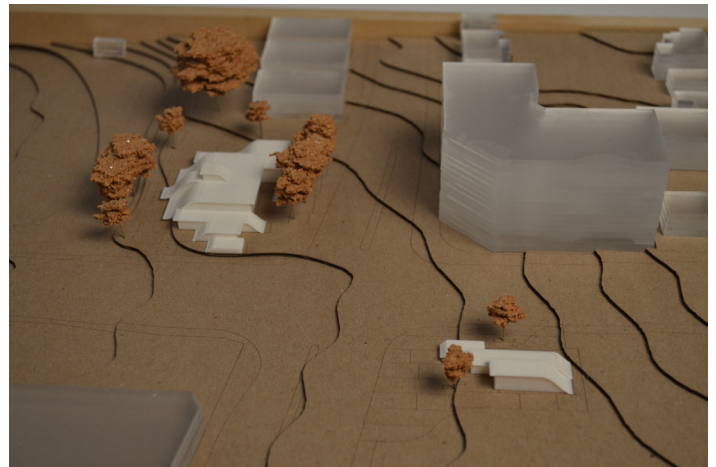
The following are photographs of physical models prepared for the Substantial Completion presentation and Final Review.
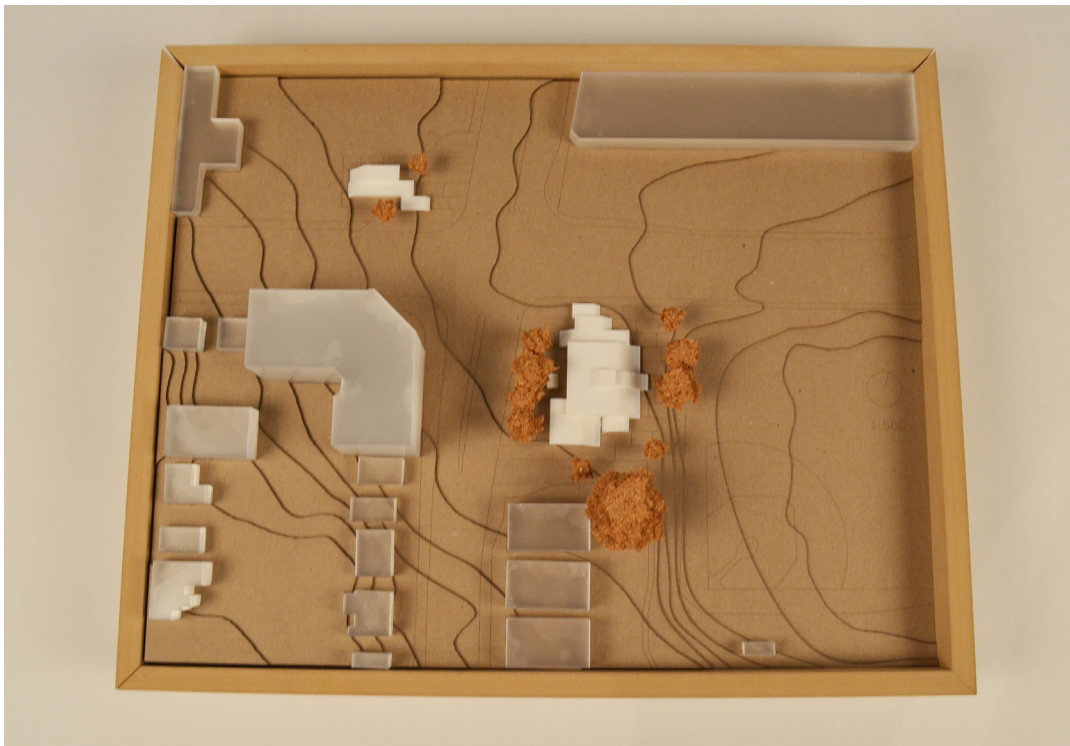
Figure 93:
Context and Massing Model
1:500
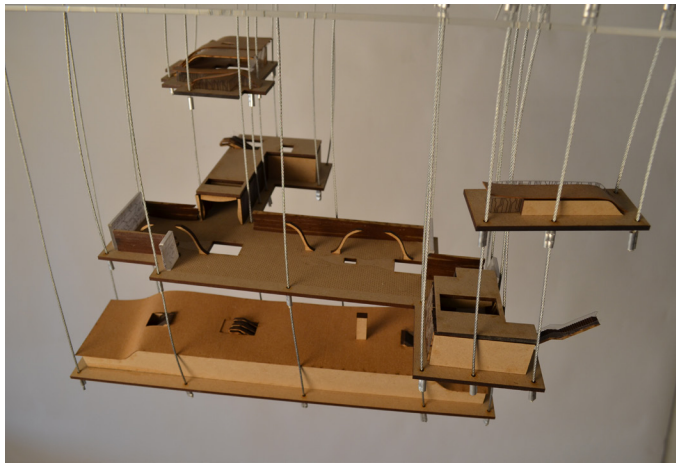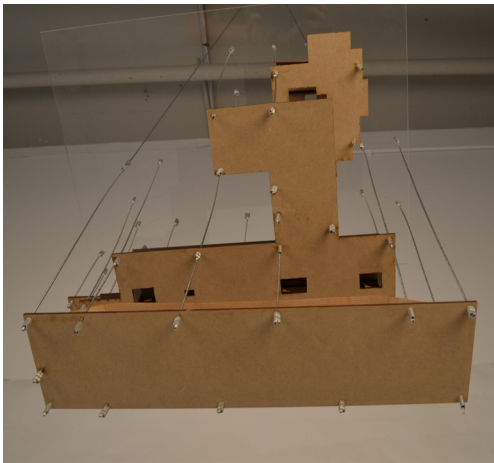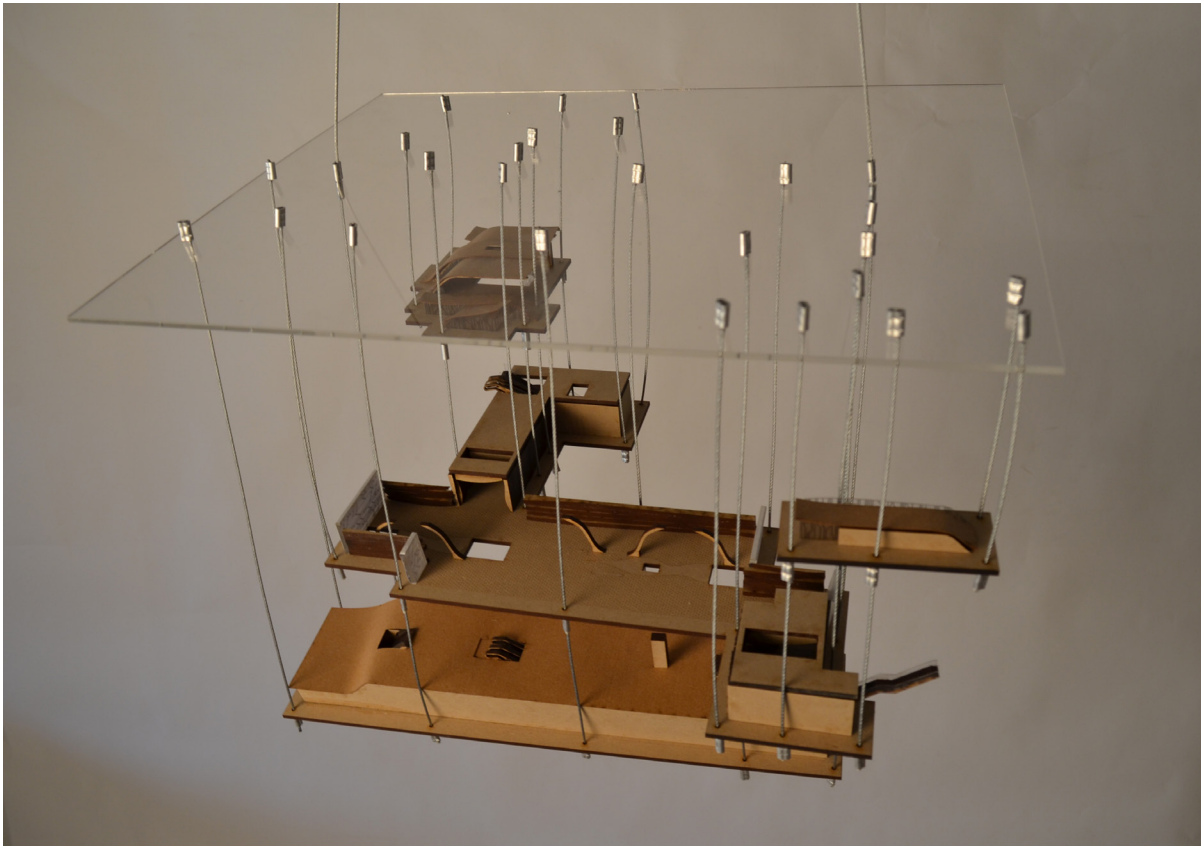
Figure 94:
Hanging Model
Main Interior Spaces:
Entrances, Concourse and Platform
1:250
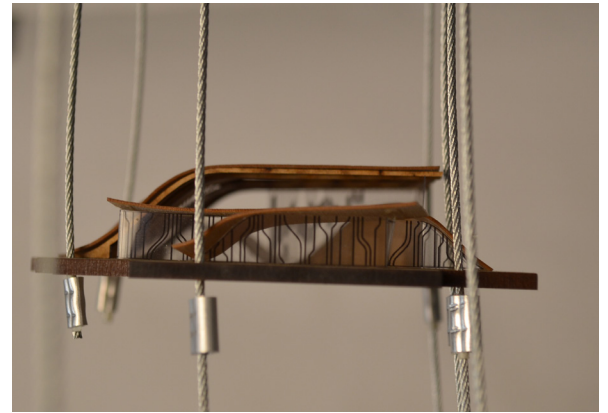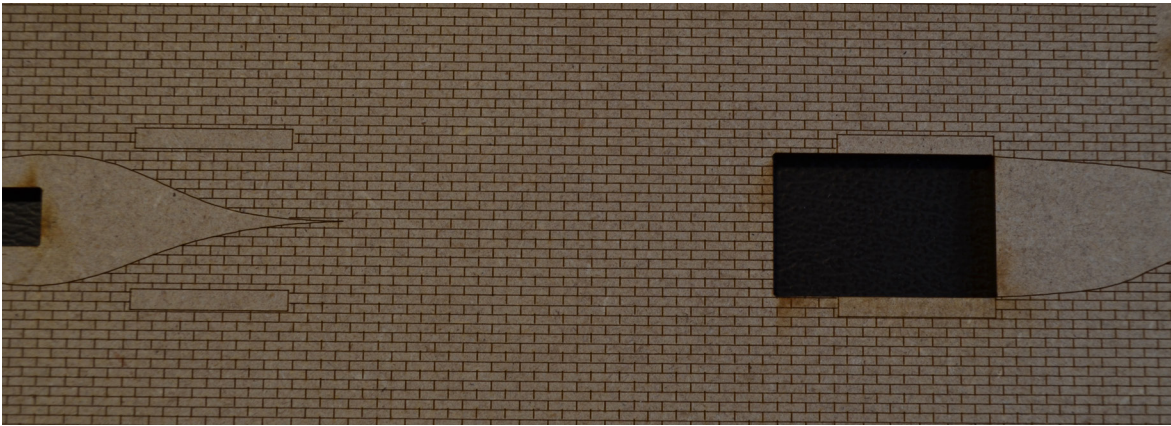
Figure 95:
Details of Hanging Model
1:250
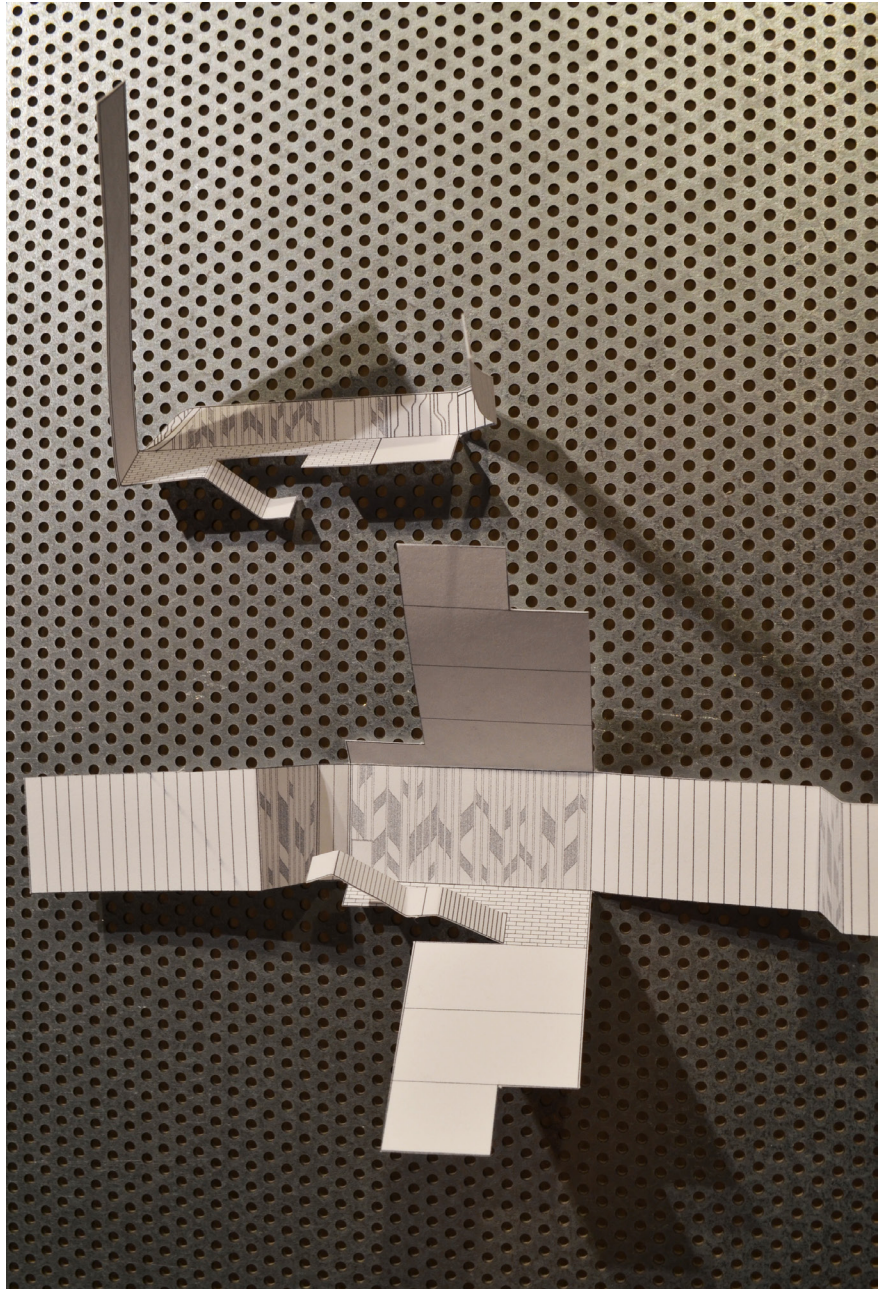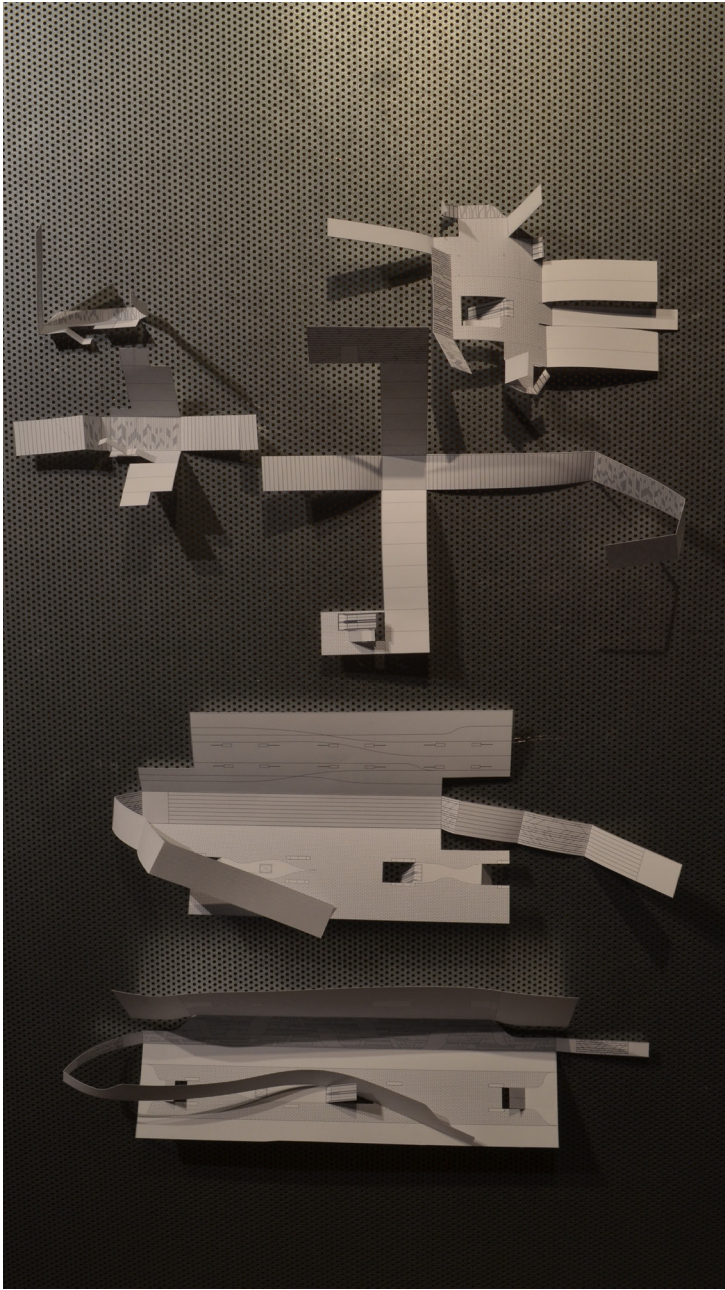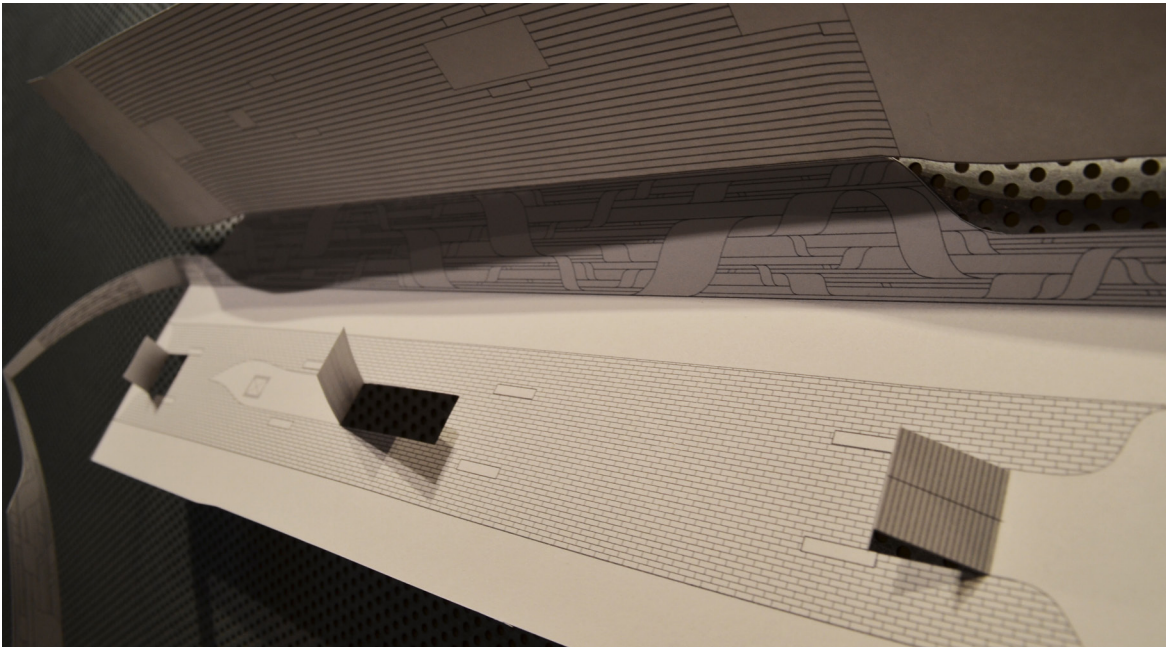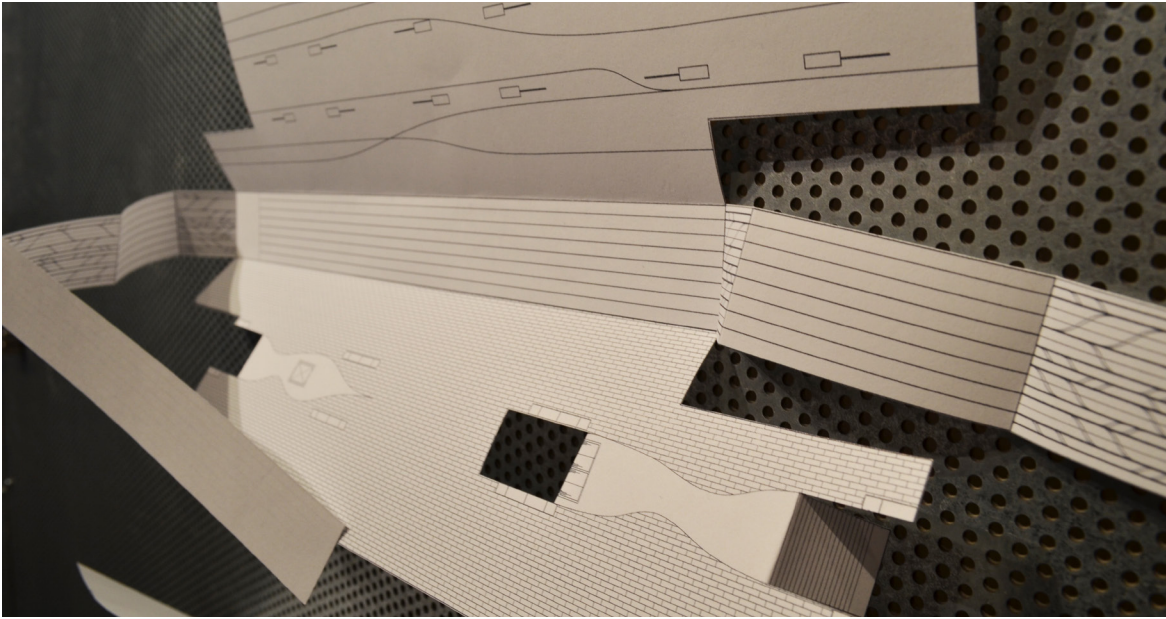
Figure 96:
Folded Spaces
1:250

APPENDIX 2
Drawings
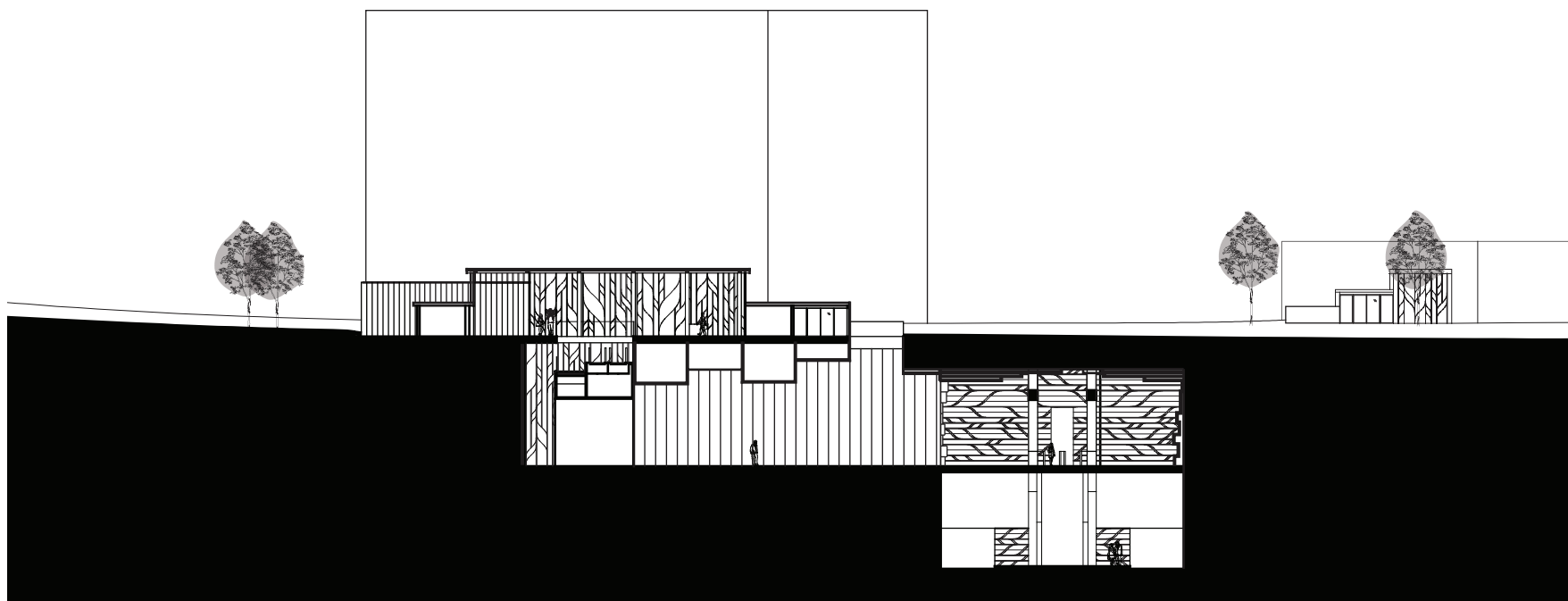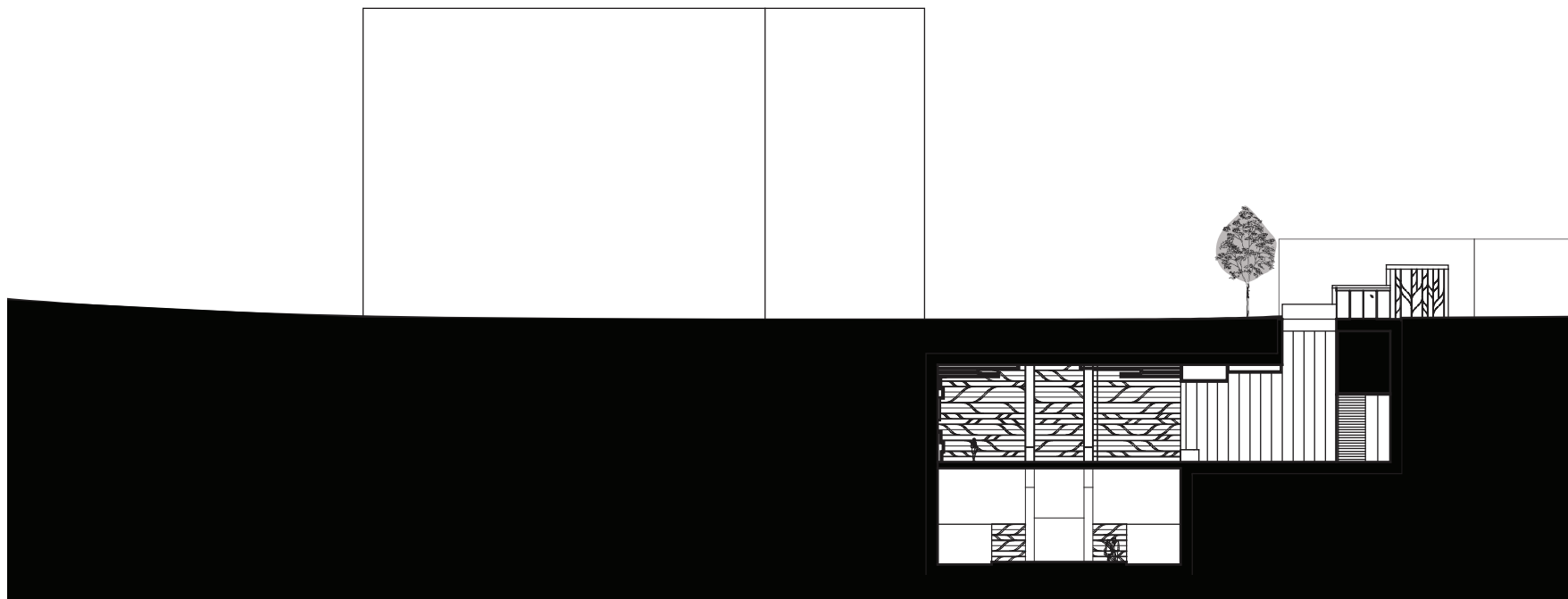
Appendix 2

Further design drawings
prepared for August 2016
Final Review.
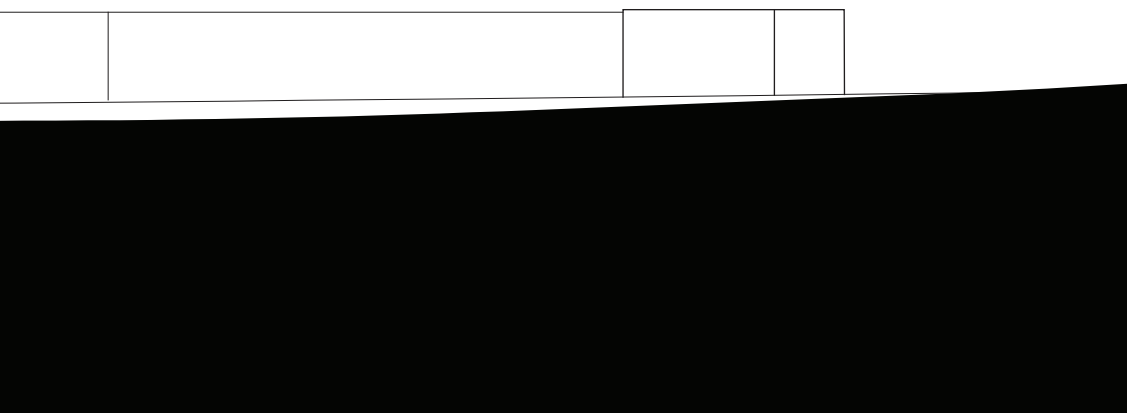
Figure 97:
Detailed Cross Sections
1:500
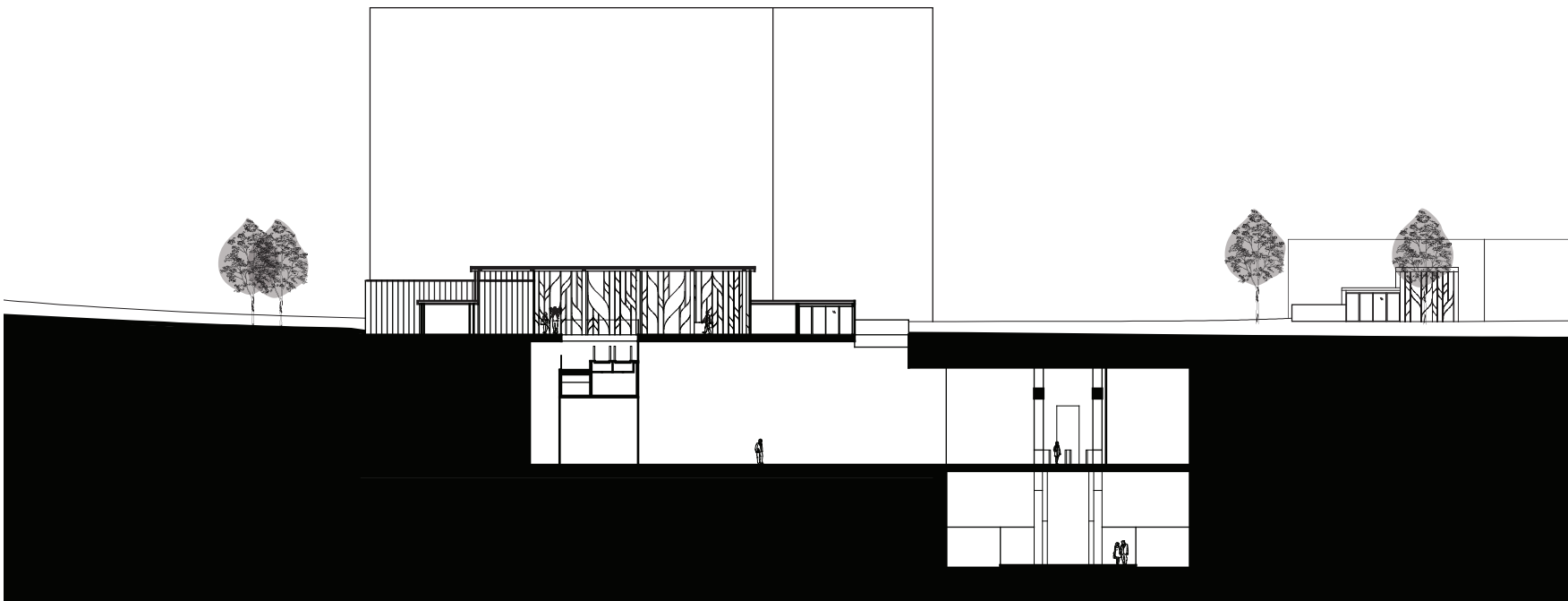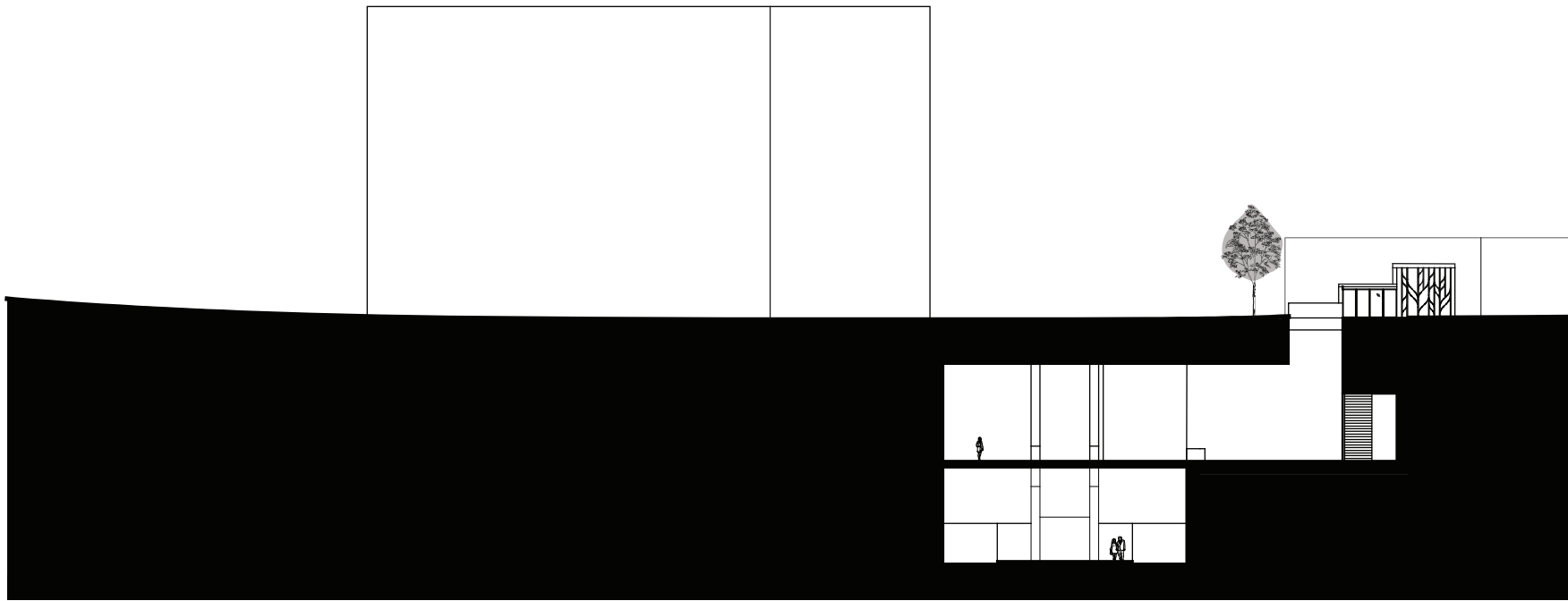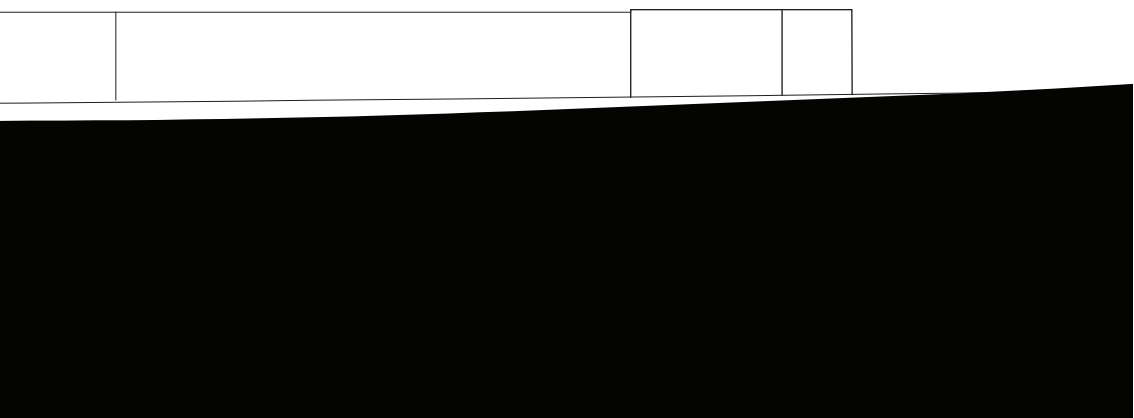
Figure 98:
Plain Cross Sections
1:500
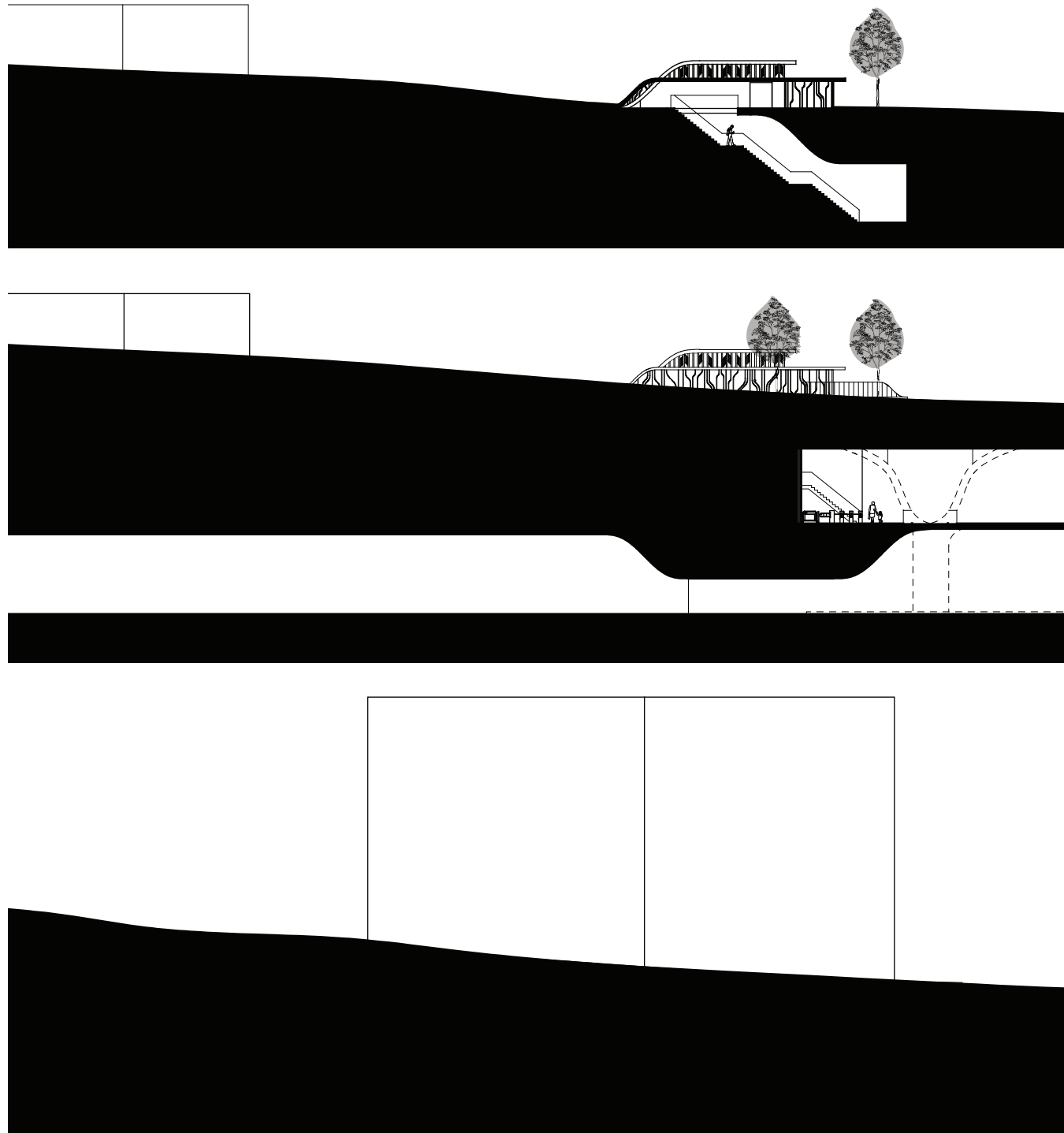
Figure 99:
Plain Longitudinal Sections
1:500
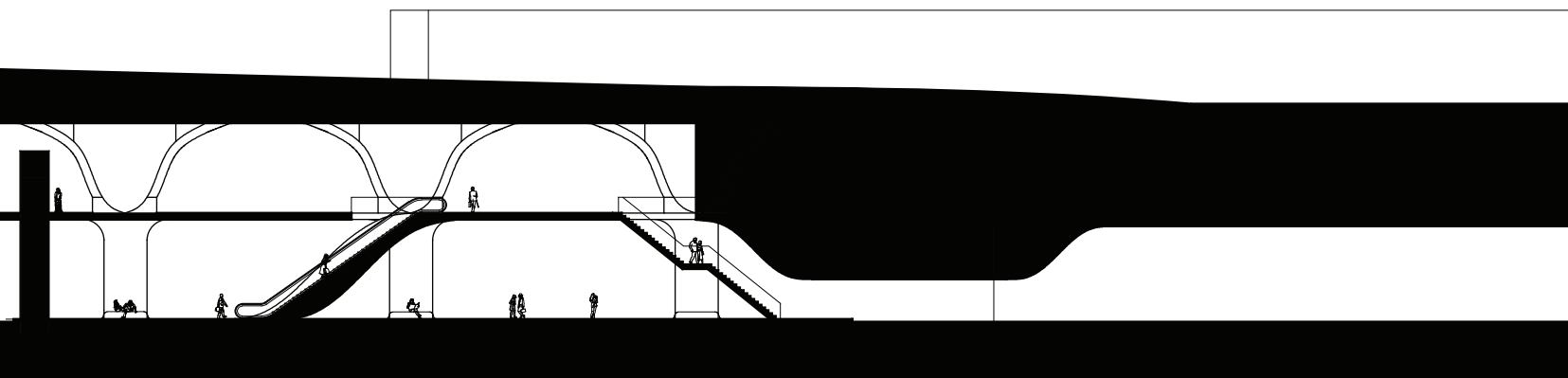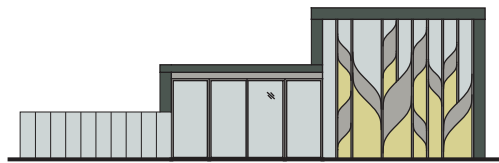
East
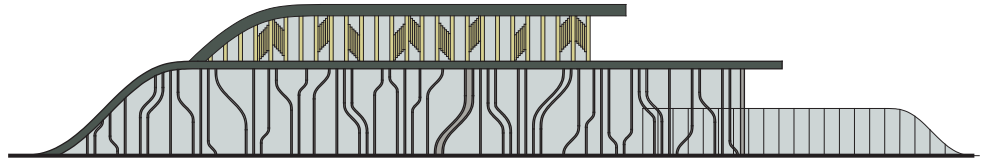
South
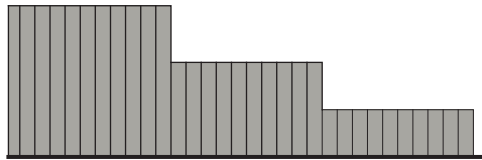
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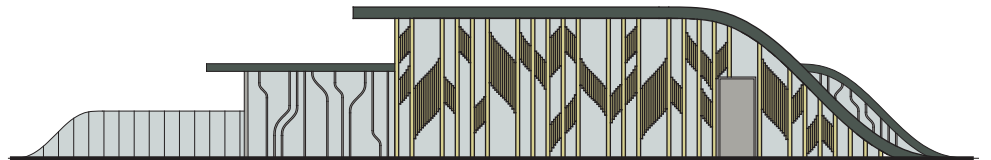
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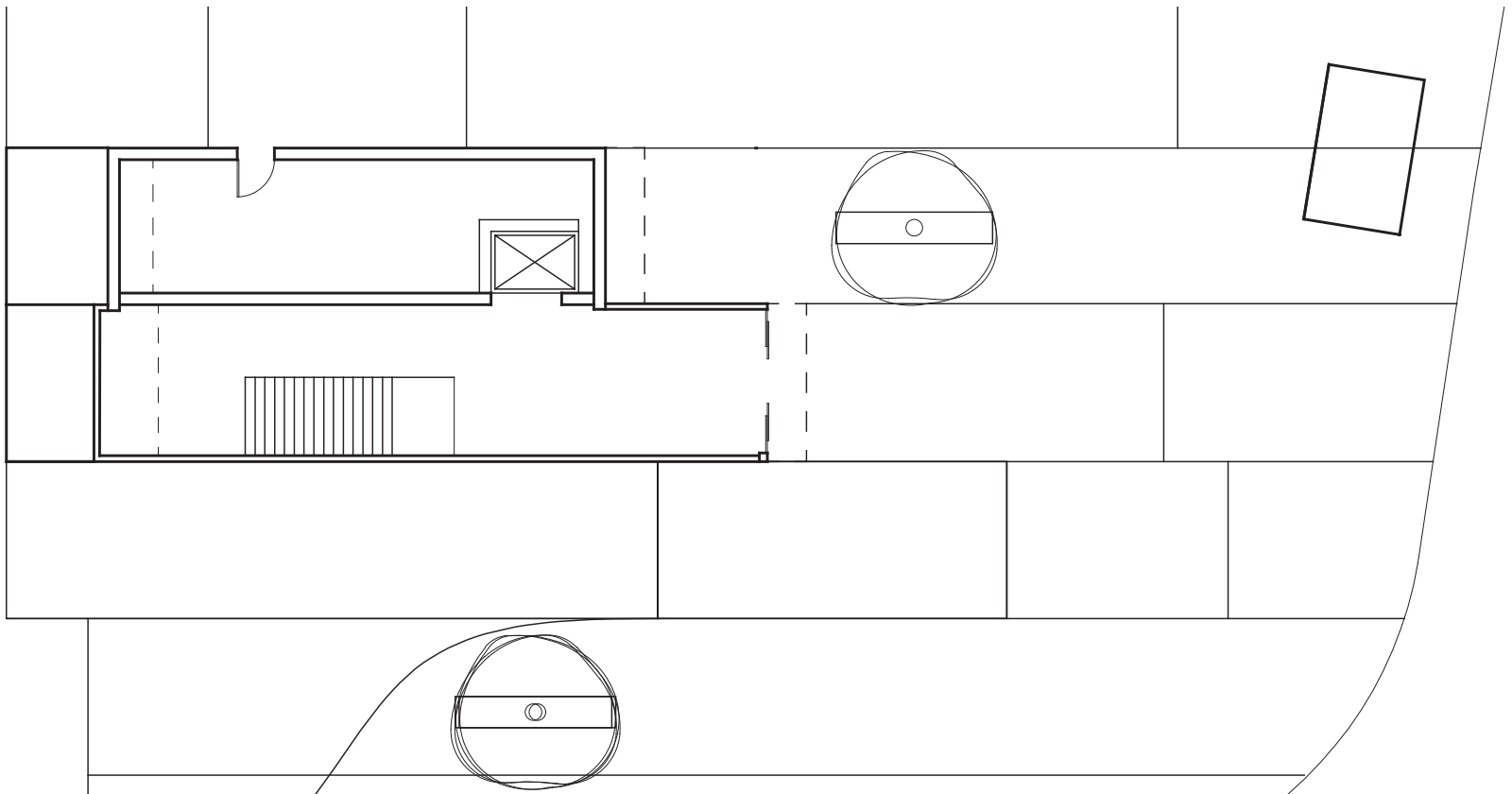
Figure 100:
Secondary Entrance
Floor Plan and Elevations

1 2 3   5

Figure 101:
Main Entrance
Floor Plan

1 2 3   5
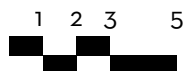
Figure 102:
Initial Design Renderings
Concourse and Platform

Figure 103:
Initial Design Rendering
Approach to Main Entrance
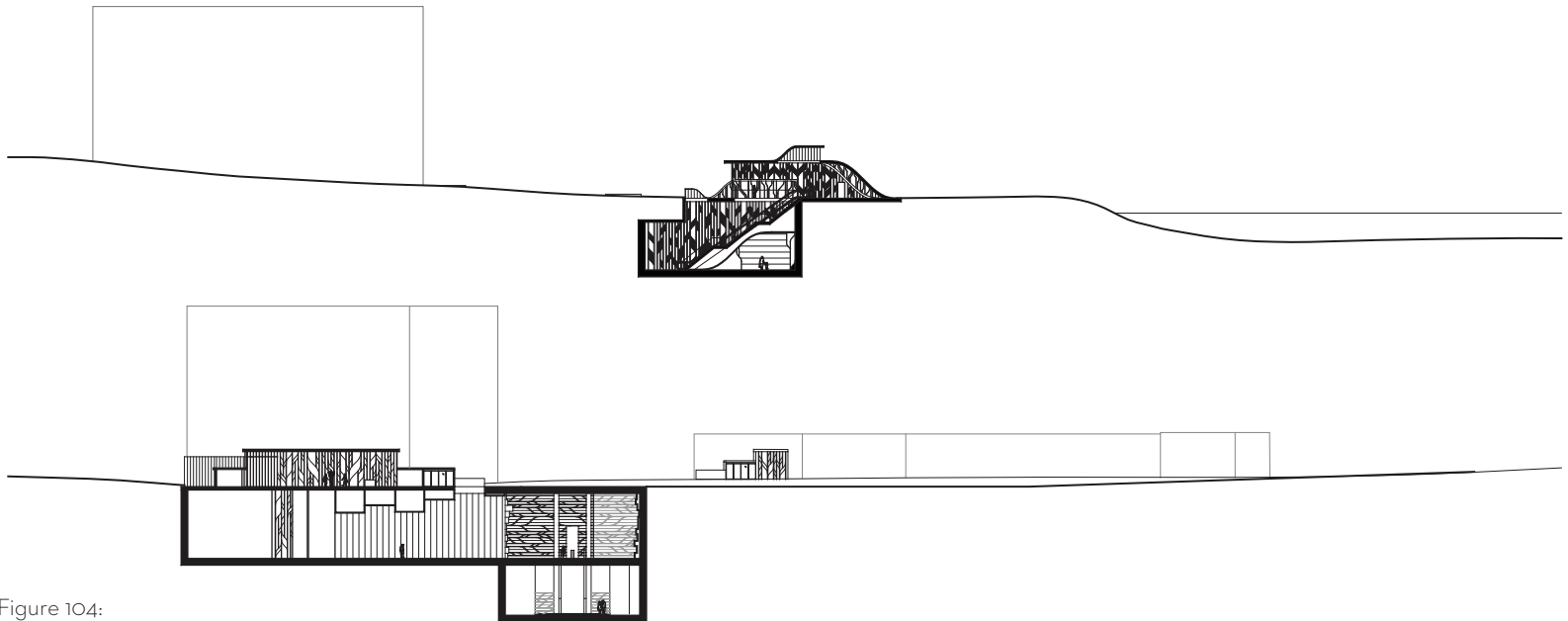
Figure 104:
Initial Design Drawings
Longitudinal and Cross Sections
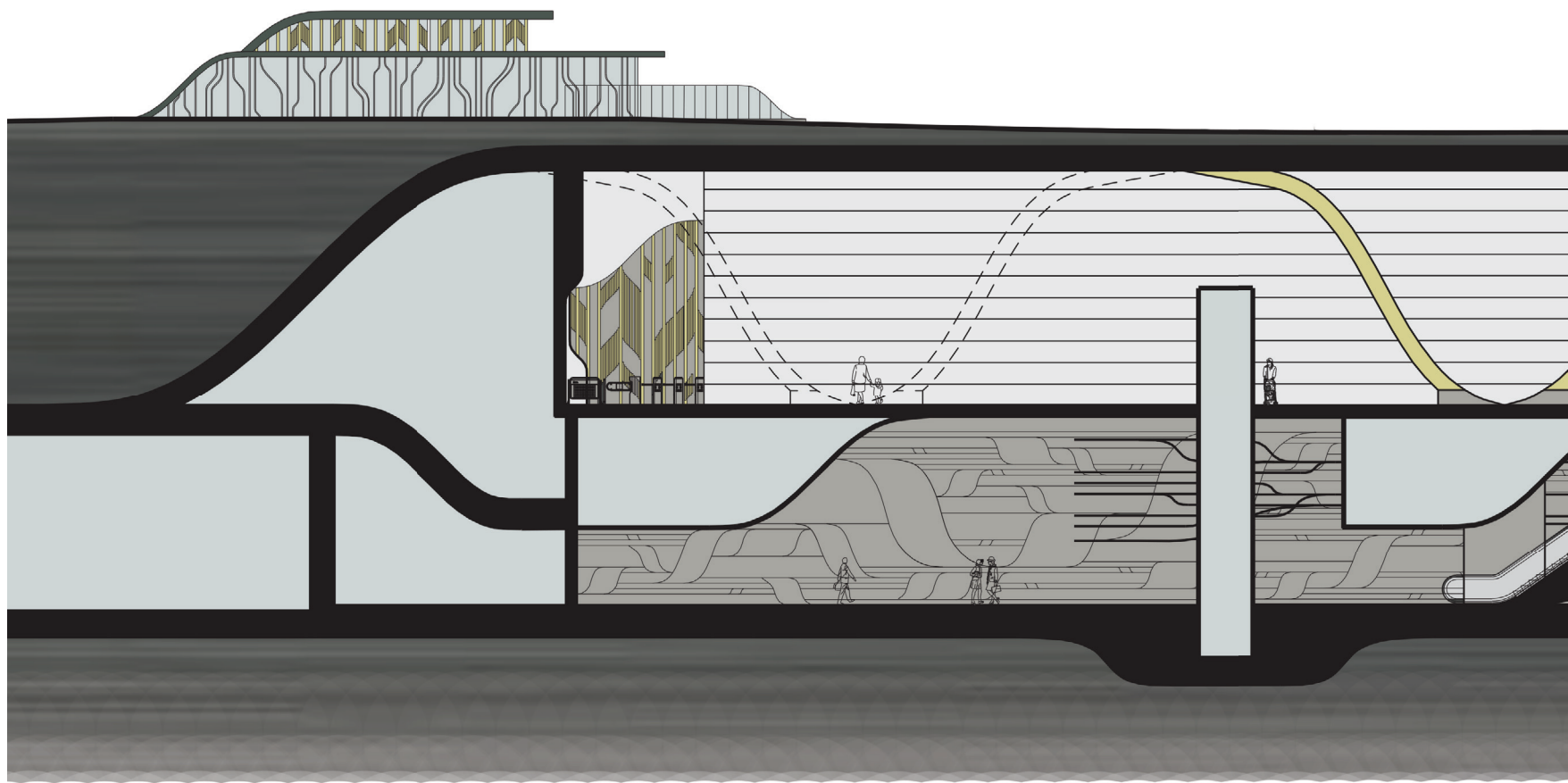
Figure 105:
Longitudinal Section
1:250

Appendix 2

Design drawing for
exploration between
Substantial Completion and
Final Review milestones.
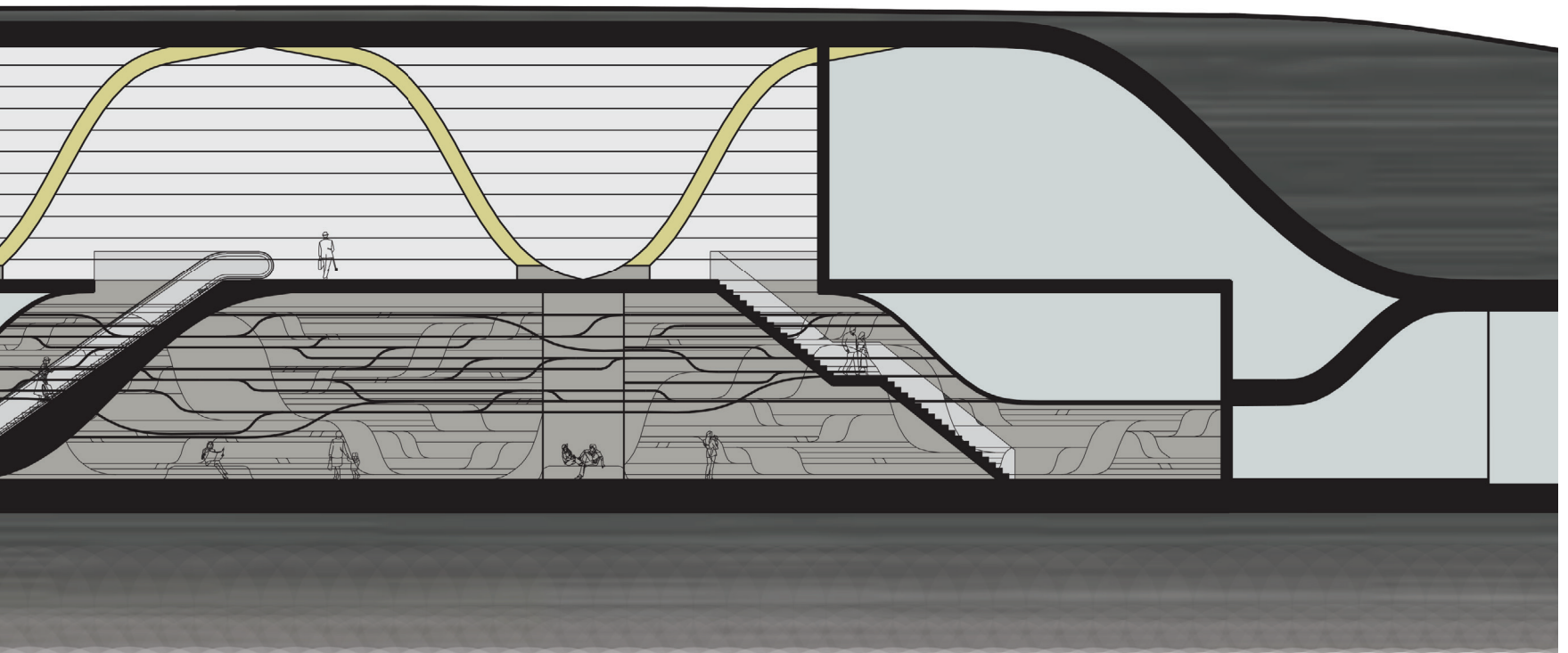
APPENDIX 3
Sketches

BAYVIEW

EGLINTON
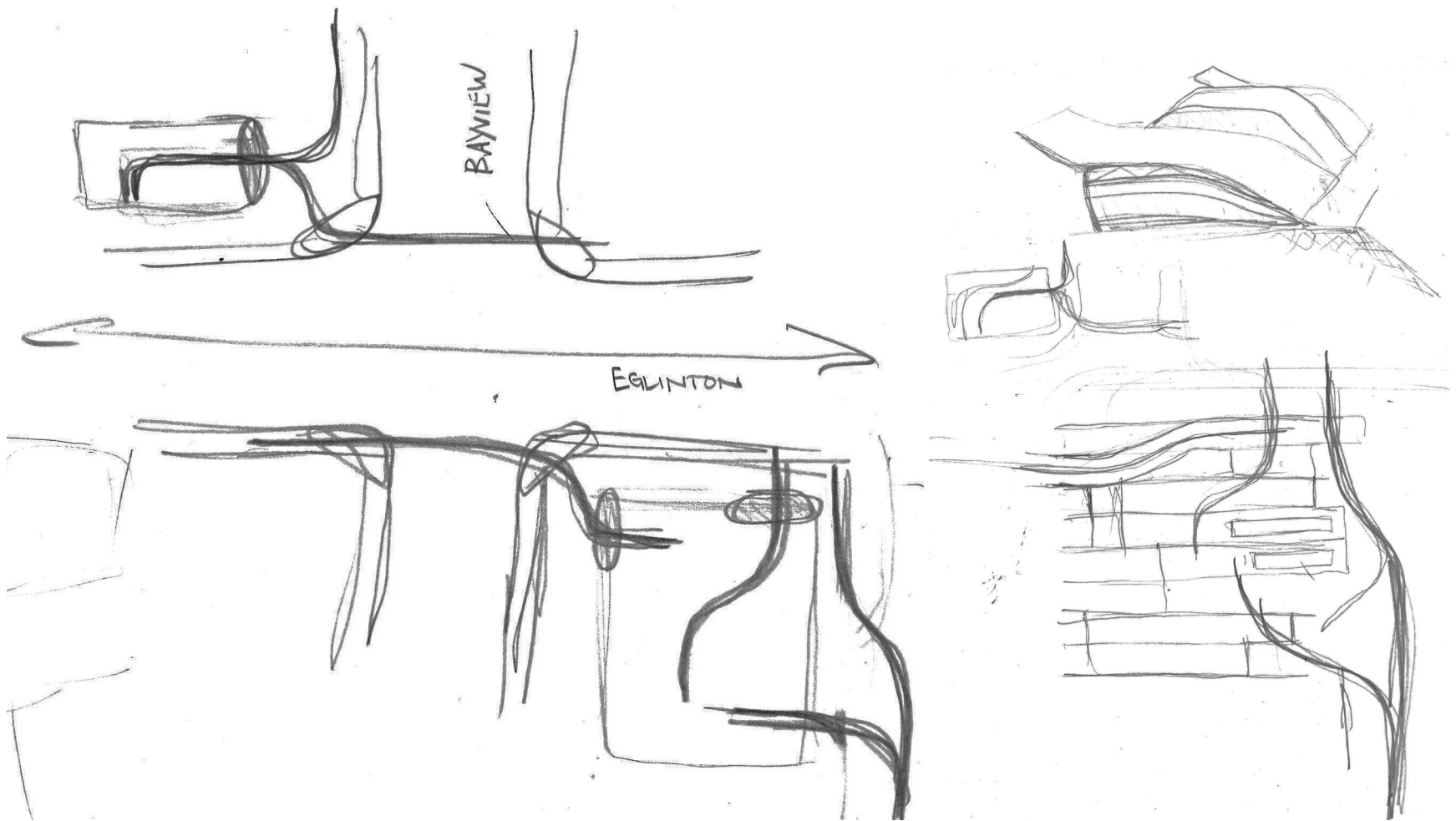
Figure 106:
Early sketches of the intersection
and idea of parallel strips

Appendix 3

Preliminary design sketches,
models and iterative drawings
leading to the final proposed
architectural scheme.
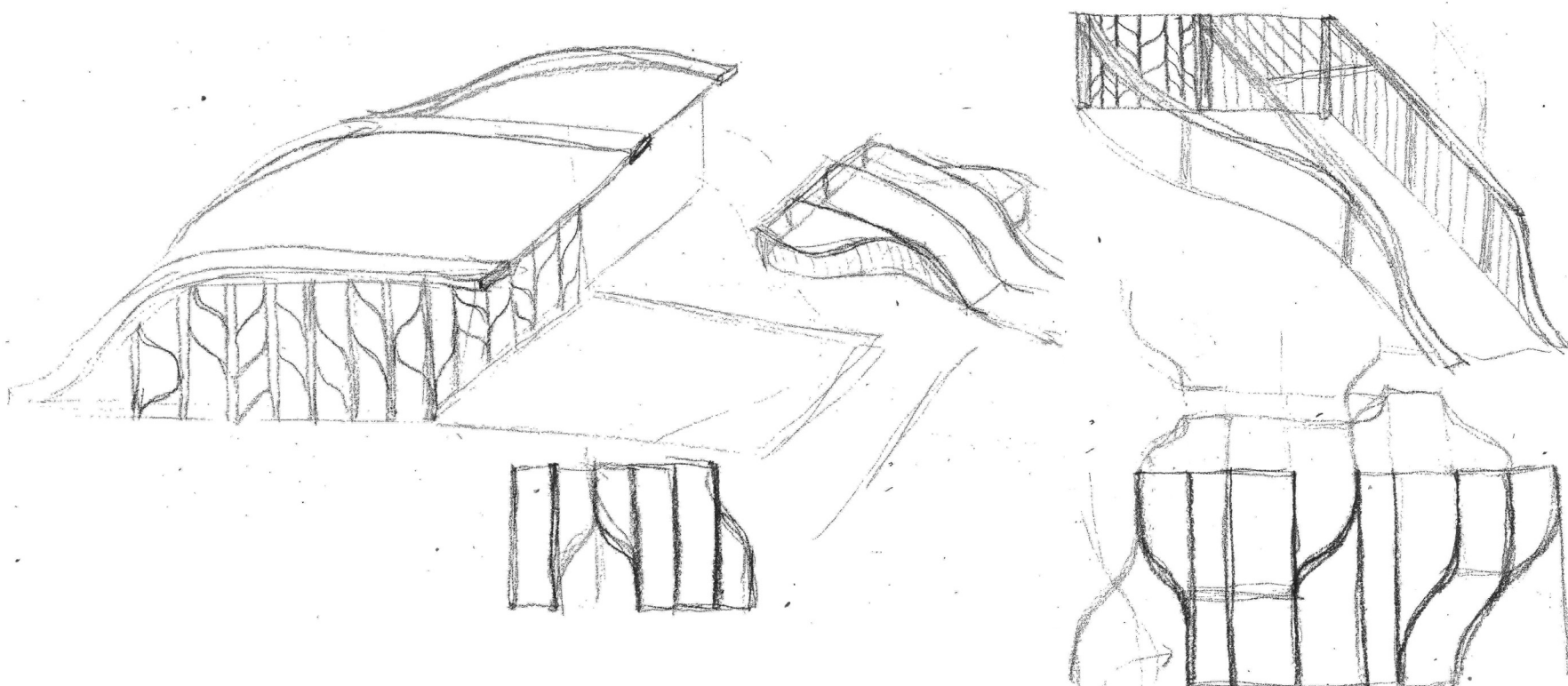
Figure 107:
The pattern employed for both the
form and surfaces of the station

PLAN

ROOF

WALKWAY

FIELD

R

W

F
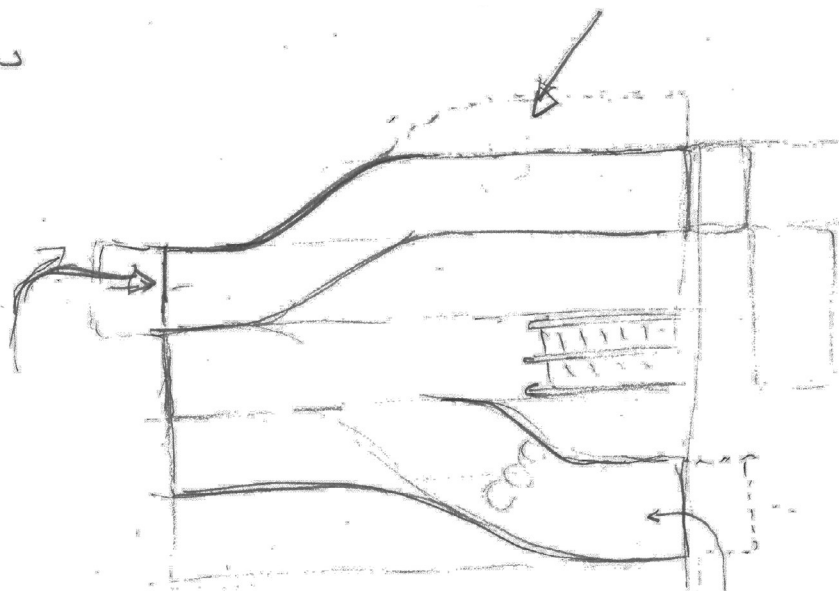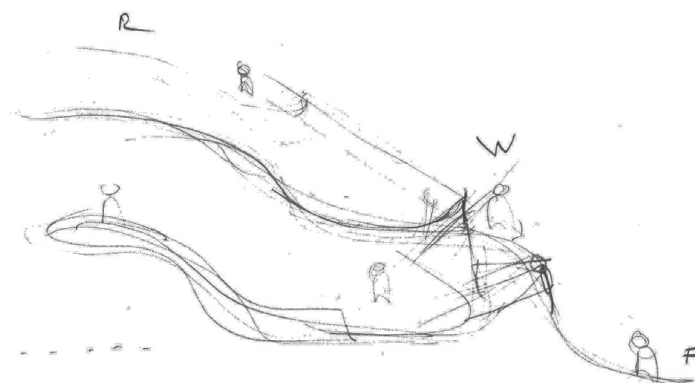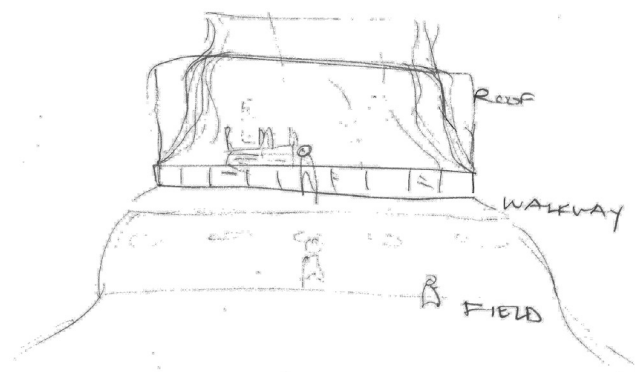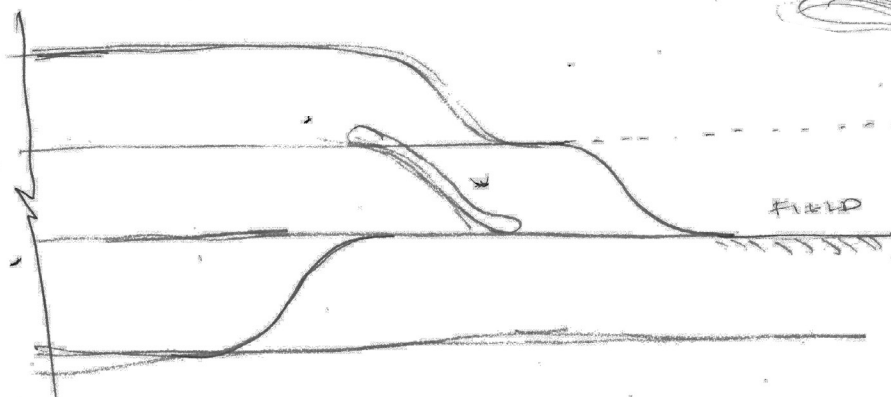
SECTION

FIELD

Figure 108:
Thinking of the pattern in section
and its relation to the adjacent field
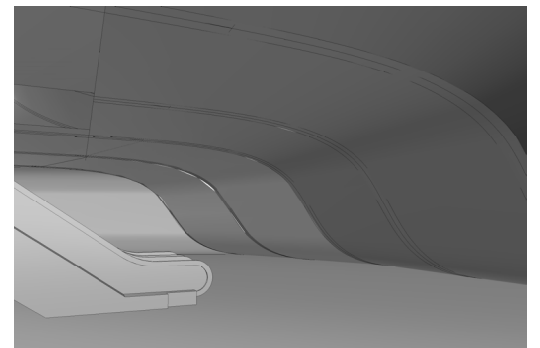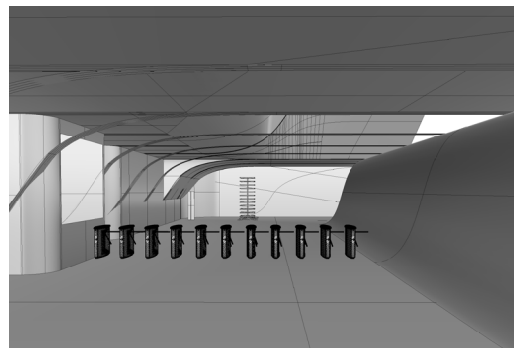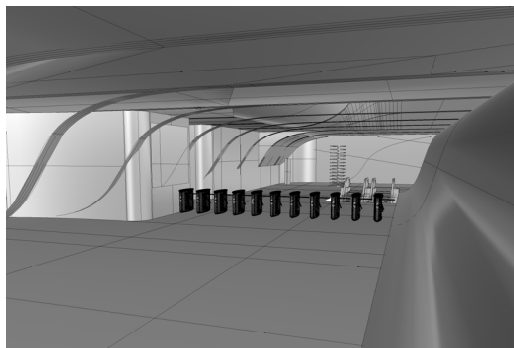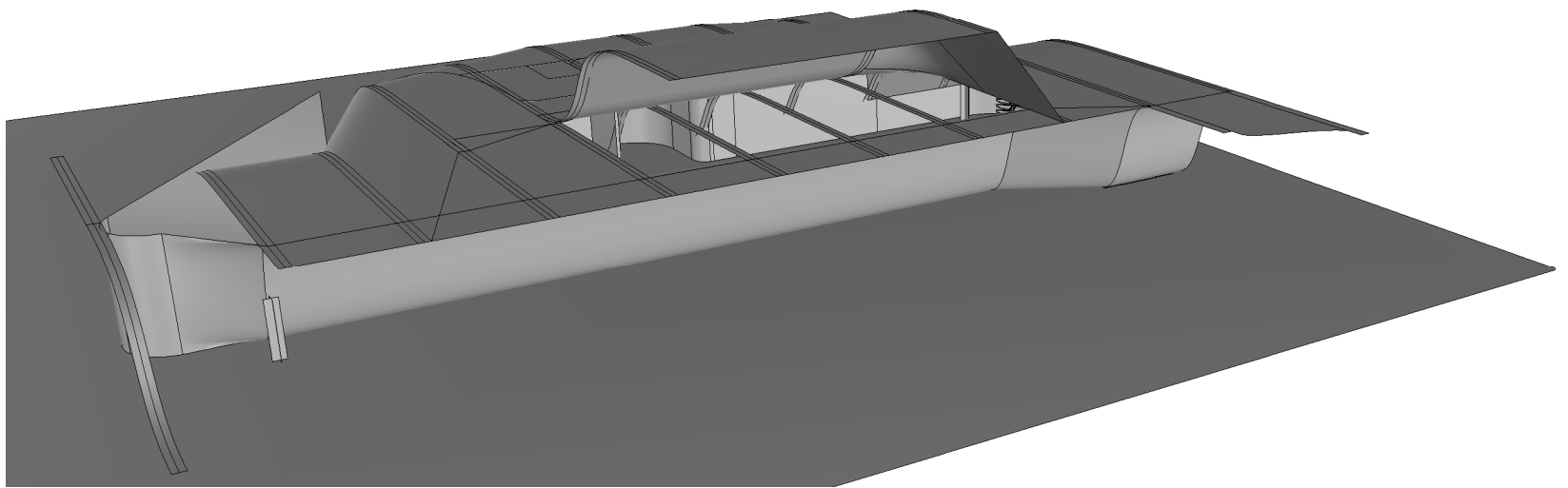
Figure 109:
Digital massing model incorporating a main skylight
and providing a sense of the interior space
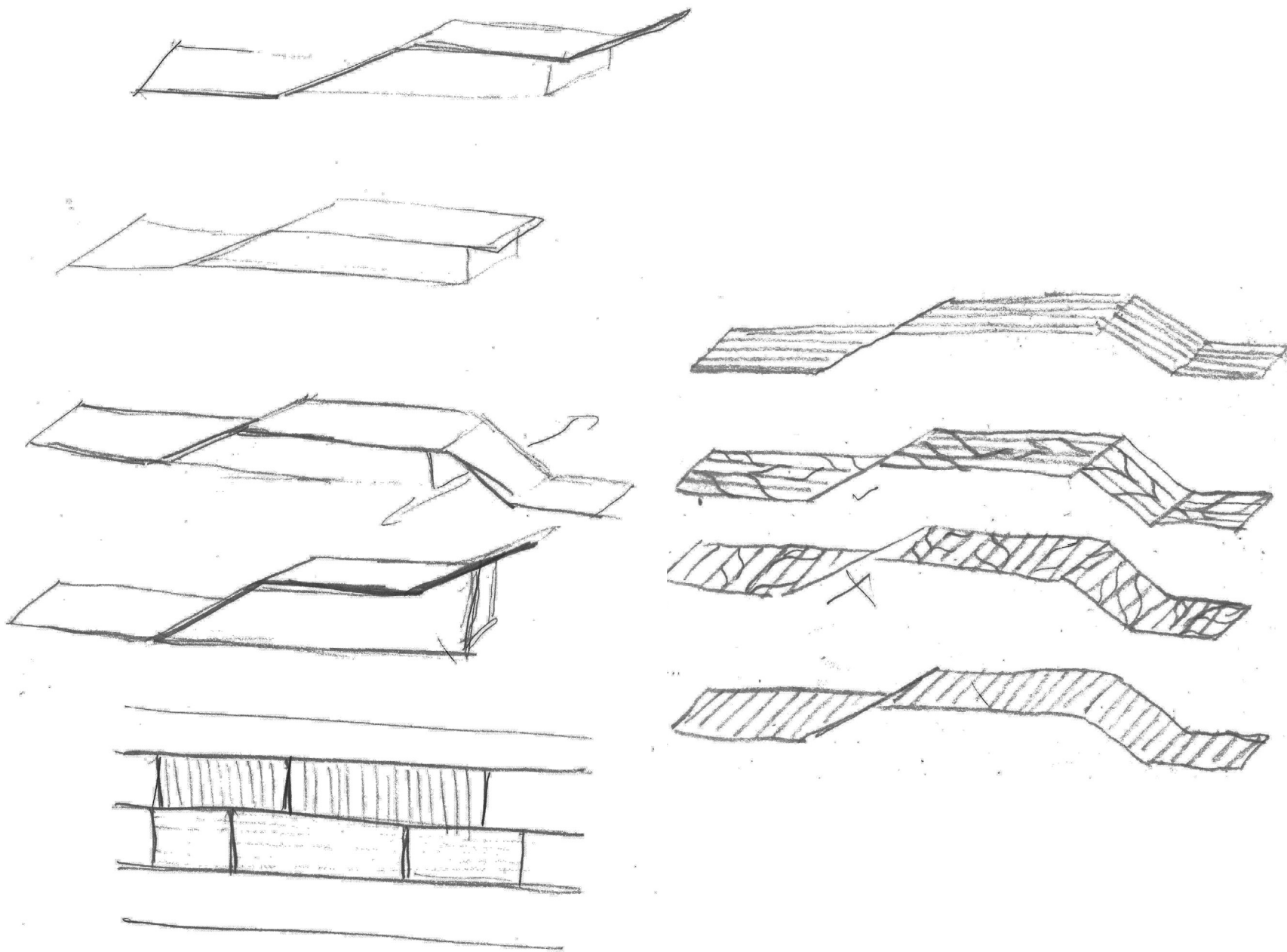
Figure 110:
Variation and articulation
of the building strips

SECTION

BUILDING

FIELD
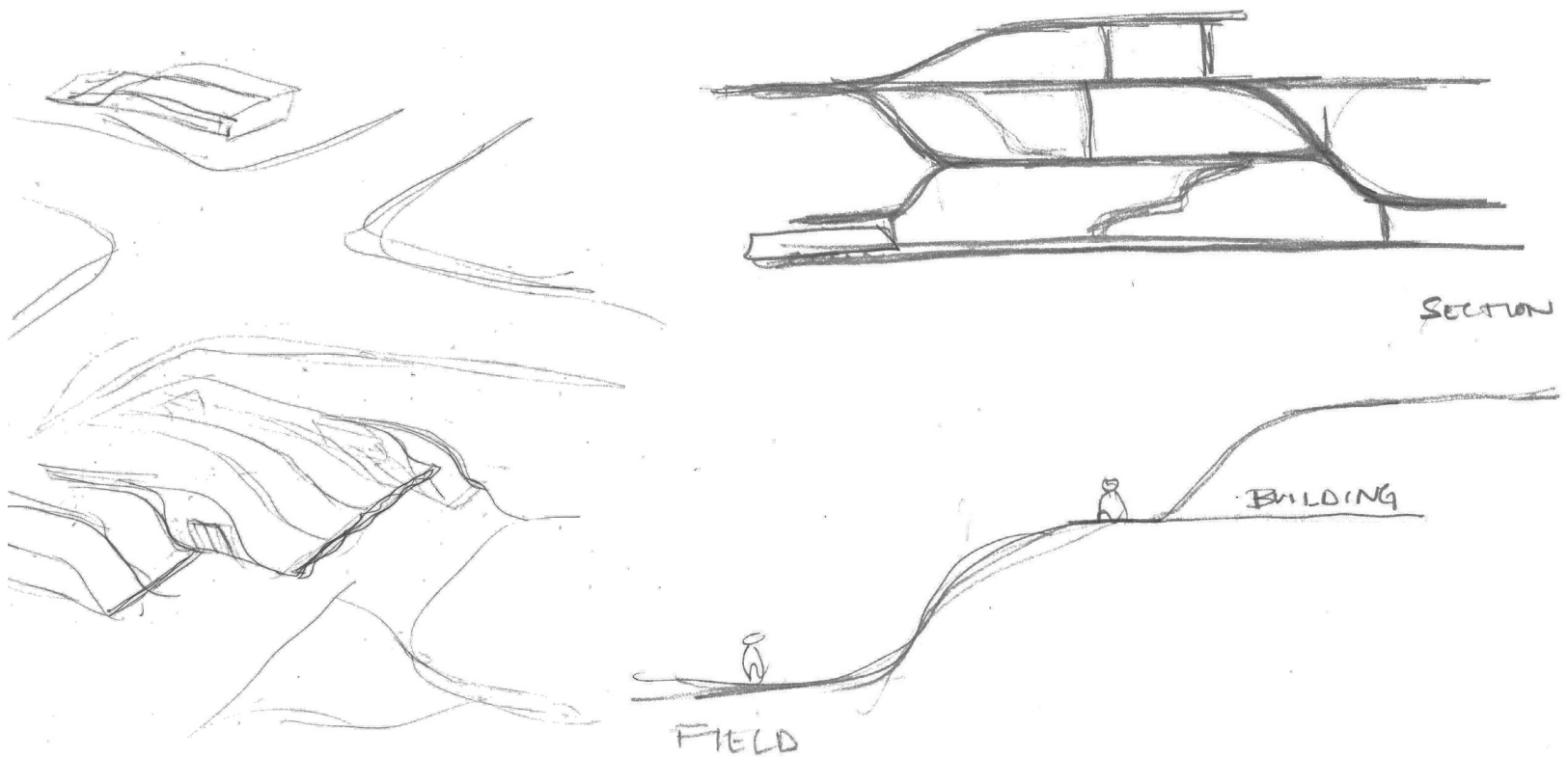
Figure 111:
Sense of the buildings on site and the
connection between different levels
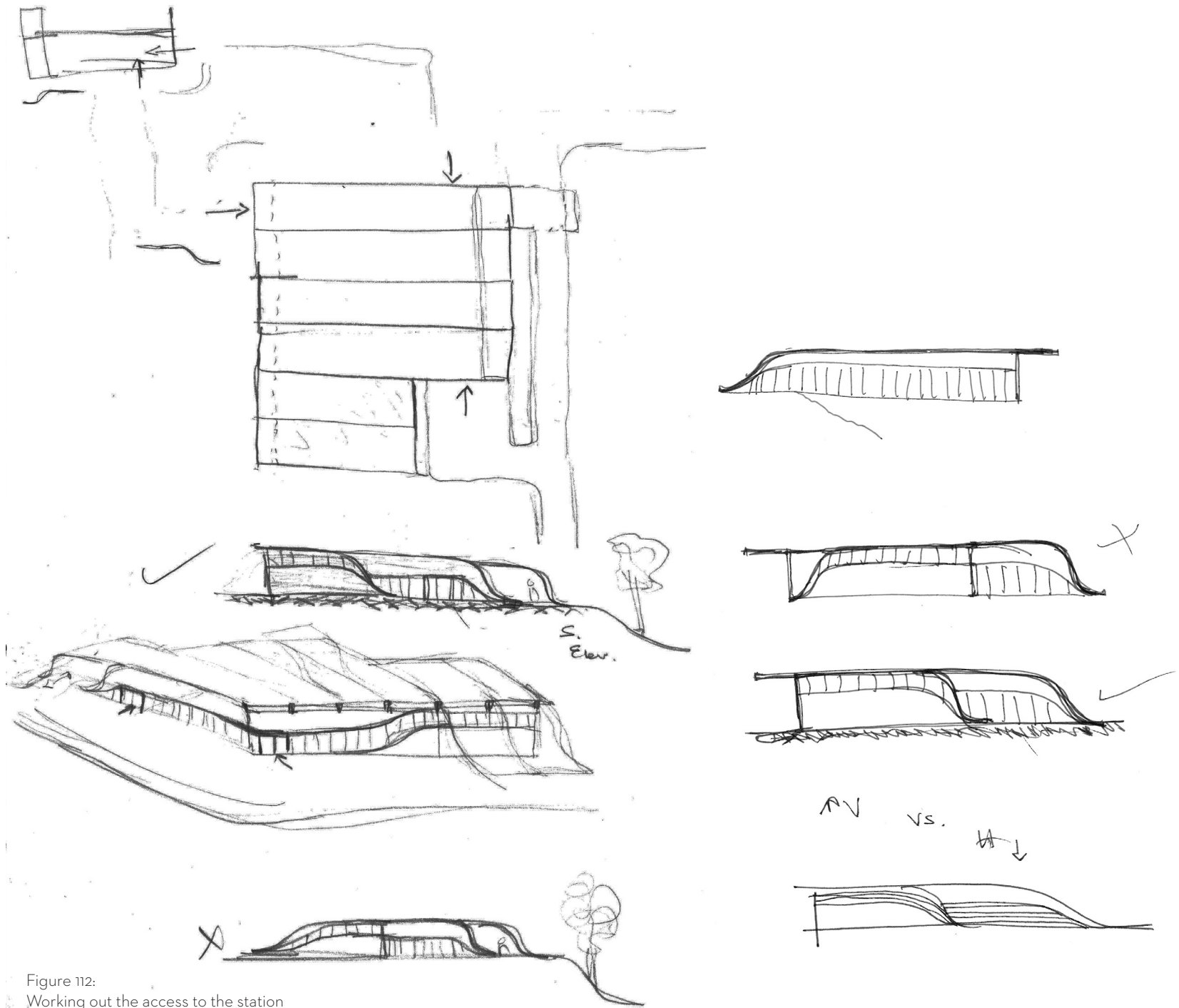
Figure 112:
Working out the access to the station
and its appearance in elevation
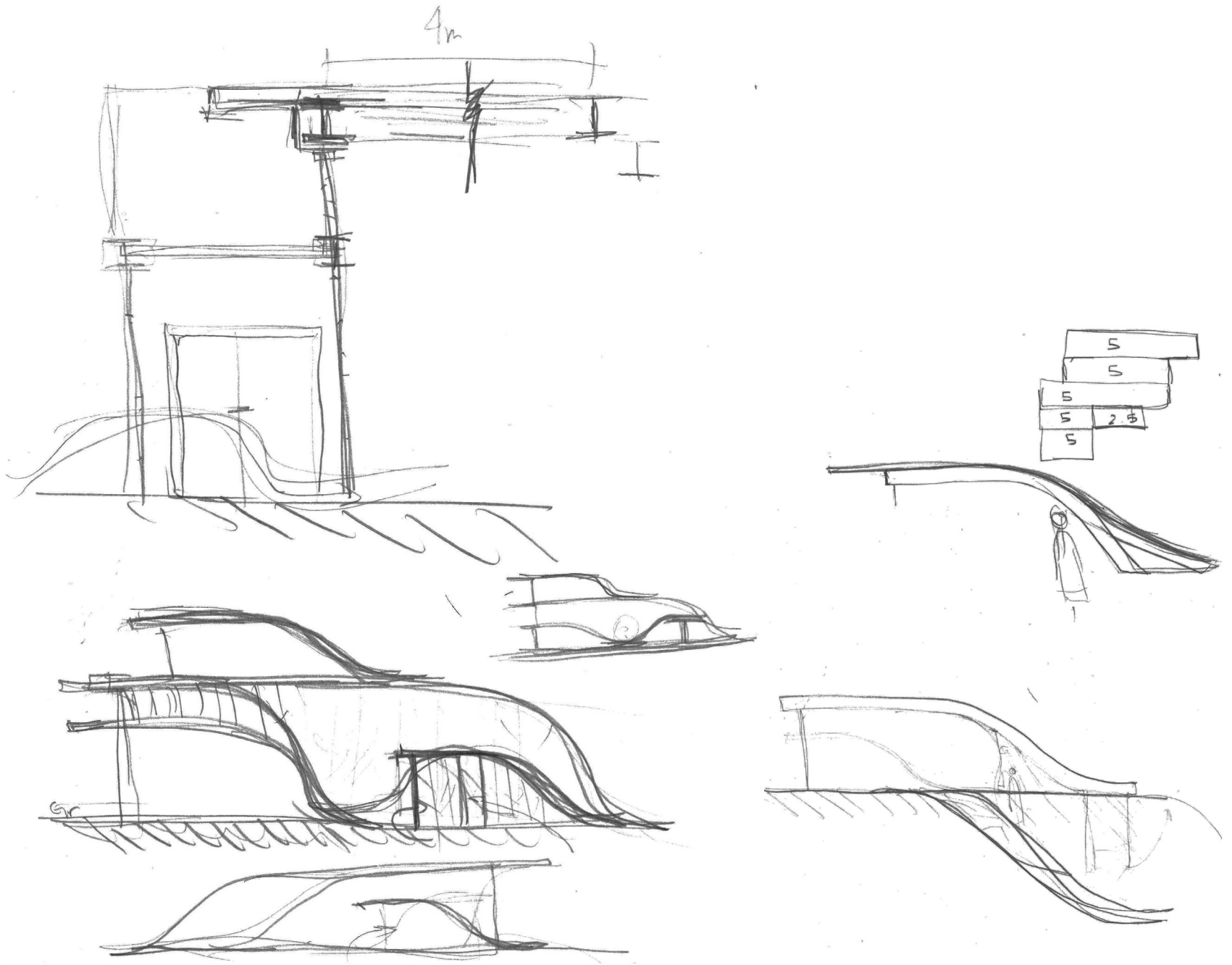
Figure 113:
Detailing the structure of the entrance buildings
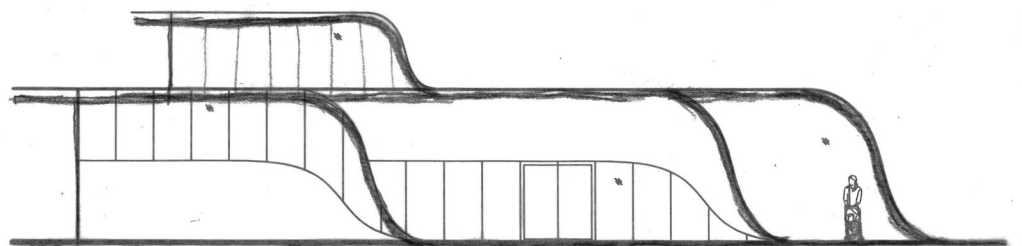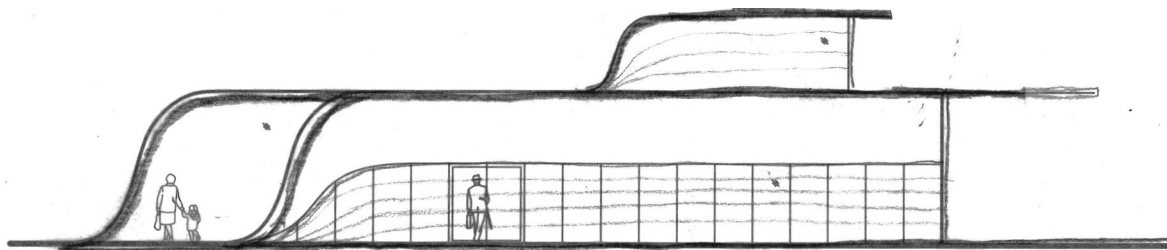and determining the heights of the spaces
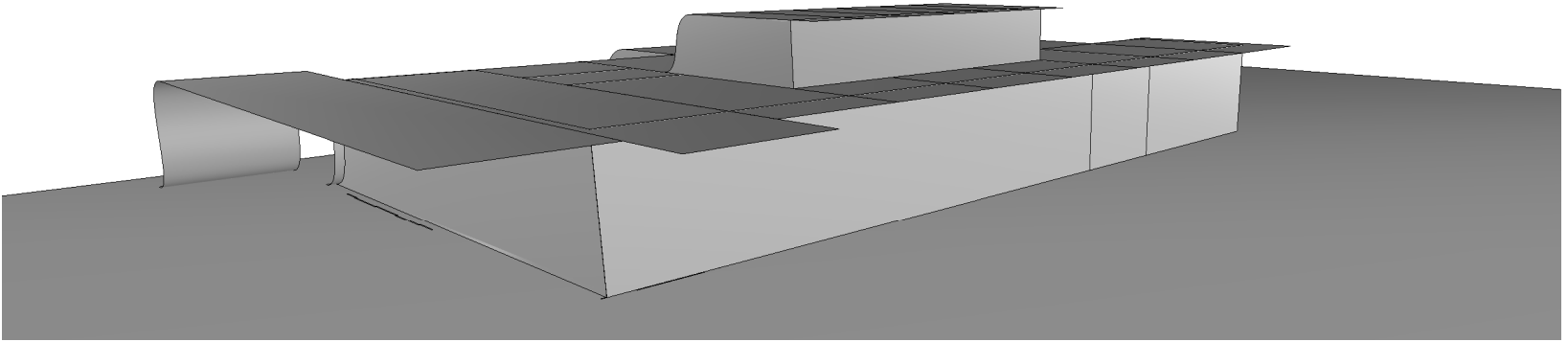
Figure 114:
Revised digital model
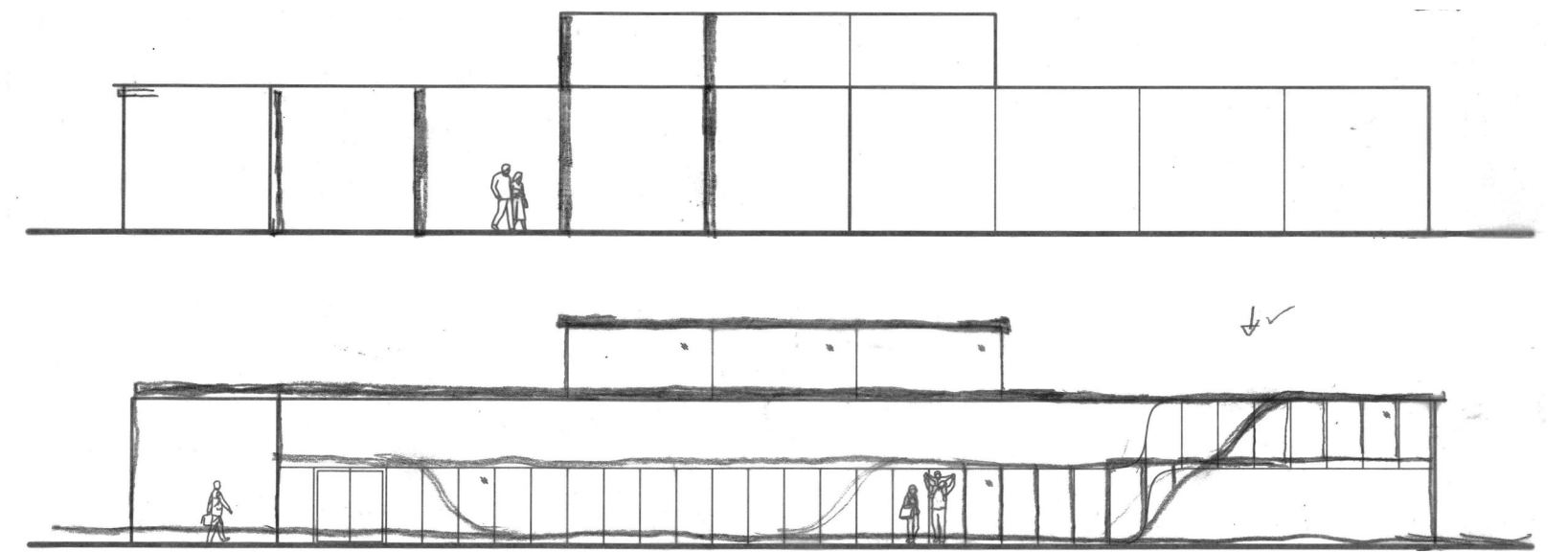
Figure 115:
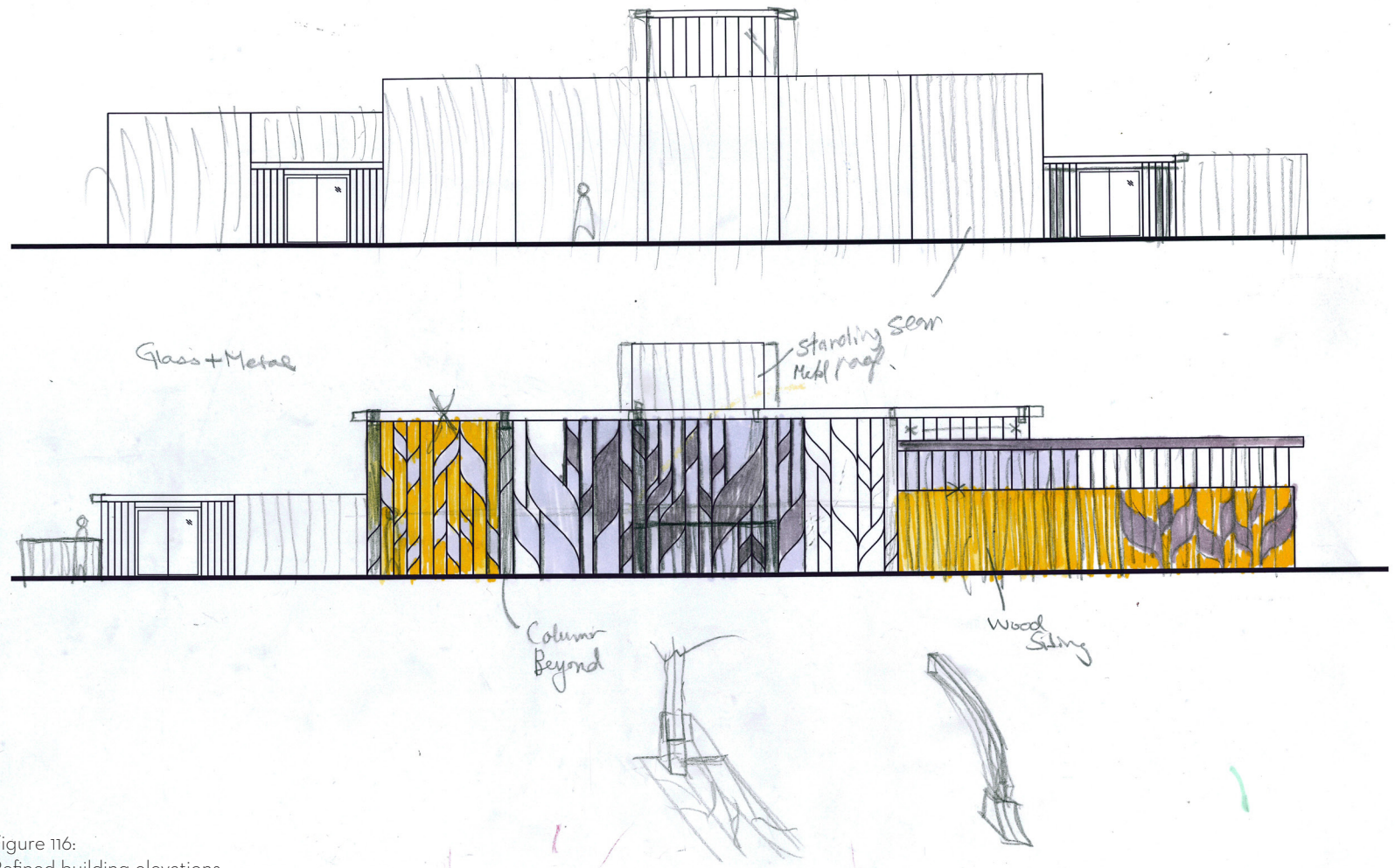Early iterations of the building elevations

SOUTH.

WEST

NORTH
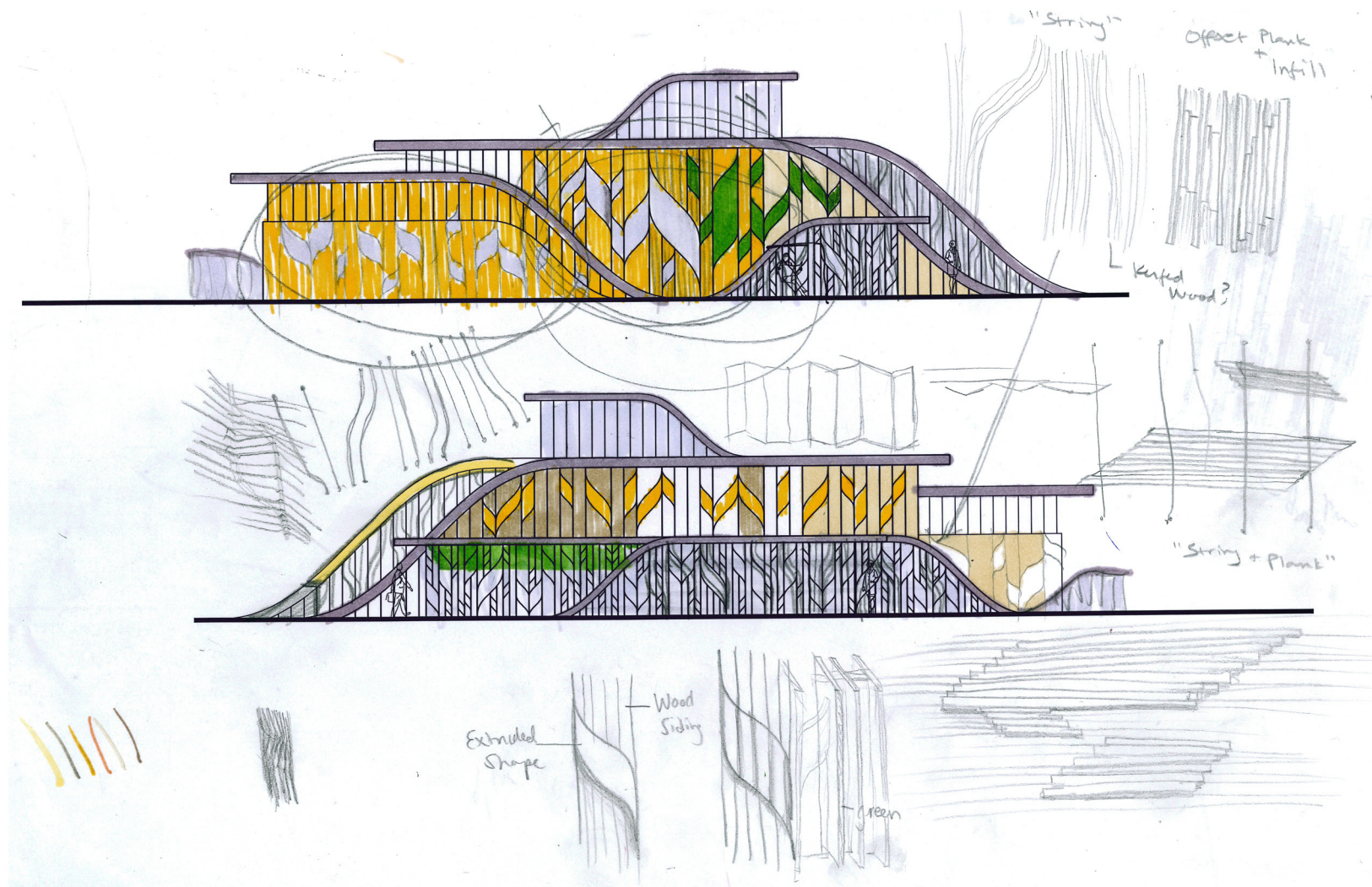
Glass + Metal

standing seam
Metal roof

Column
Beyond

Wood
Siding

Figure 116:
Refined building elevations
with further sketches suggesting materiality

"String"

Offset Plank
+ Infill

Kerfed
Wood?

"String + Plank"

Extruded
Shape

Wood
Siding

green

1   2   3   4   5

V

H

6   7   8   9   10

Frit?

"String" — Glazing + Screen

V

ENTRY – "glow" breeze

2/4

②

3/5

⑤

④

③

1

2

3

4

"faded"

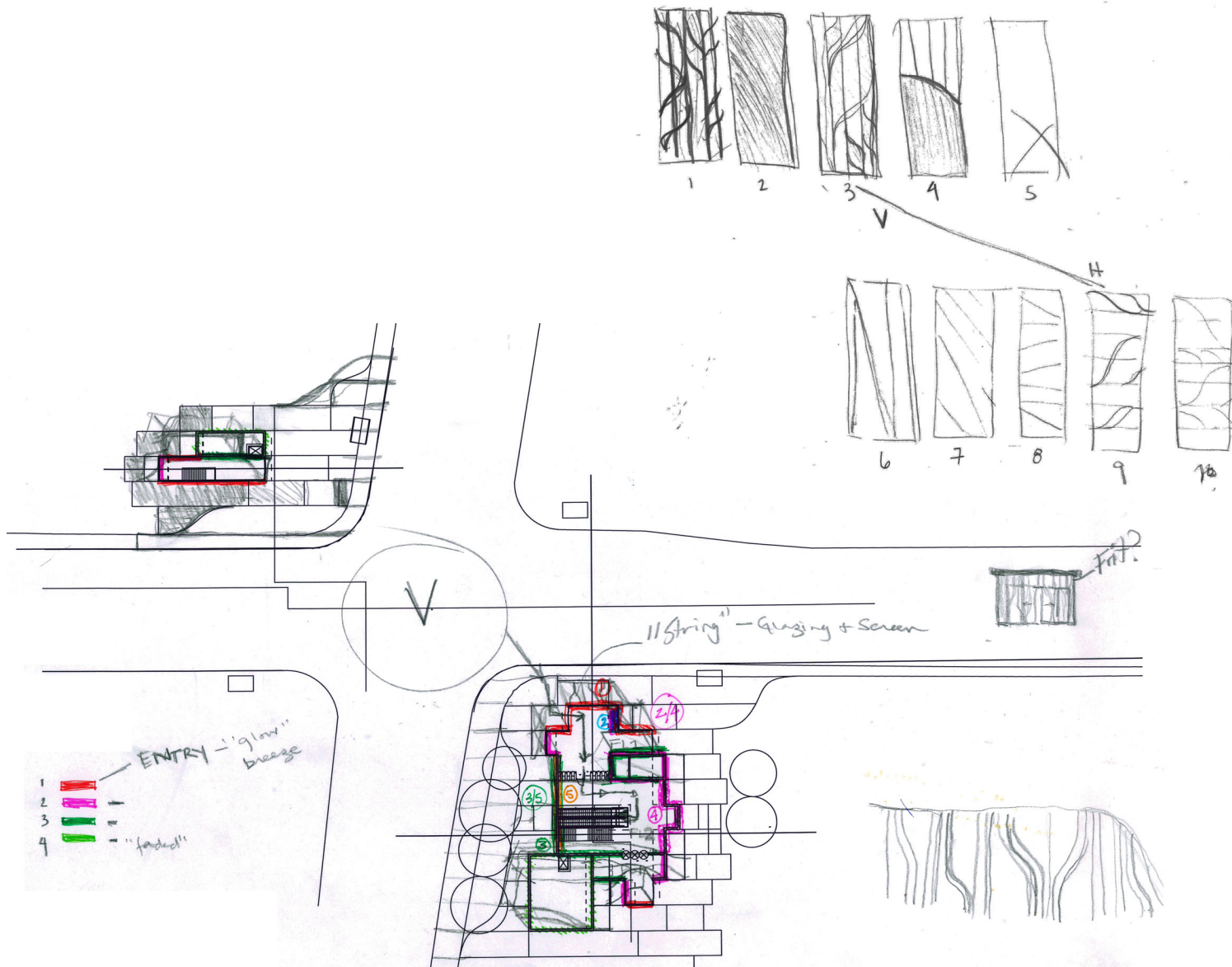Figure 117:
Locating the various wall types, Ground Floor

Figure 118:
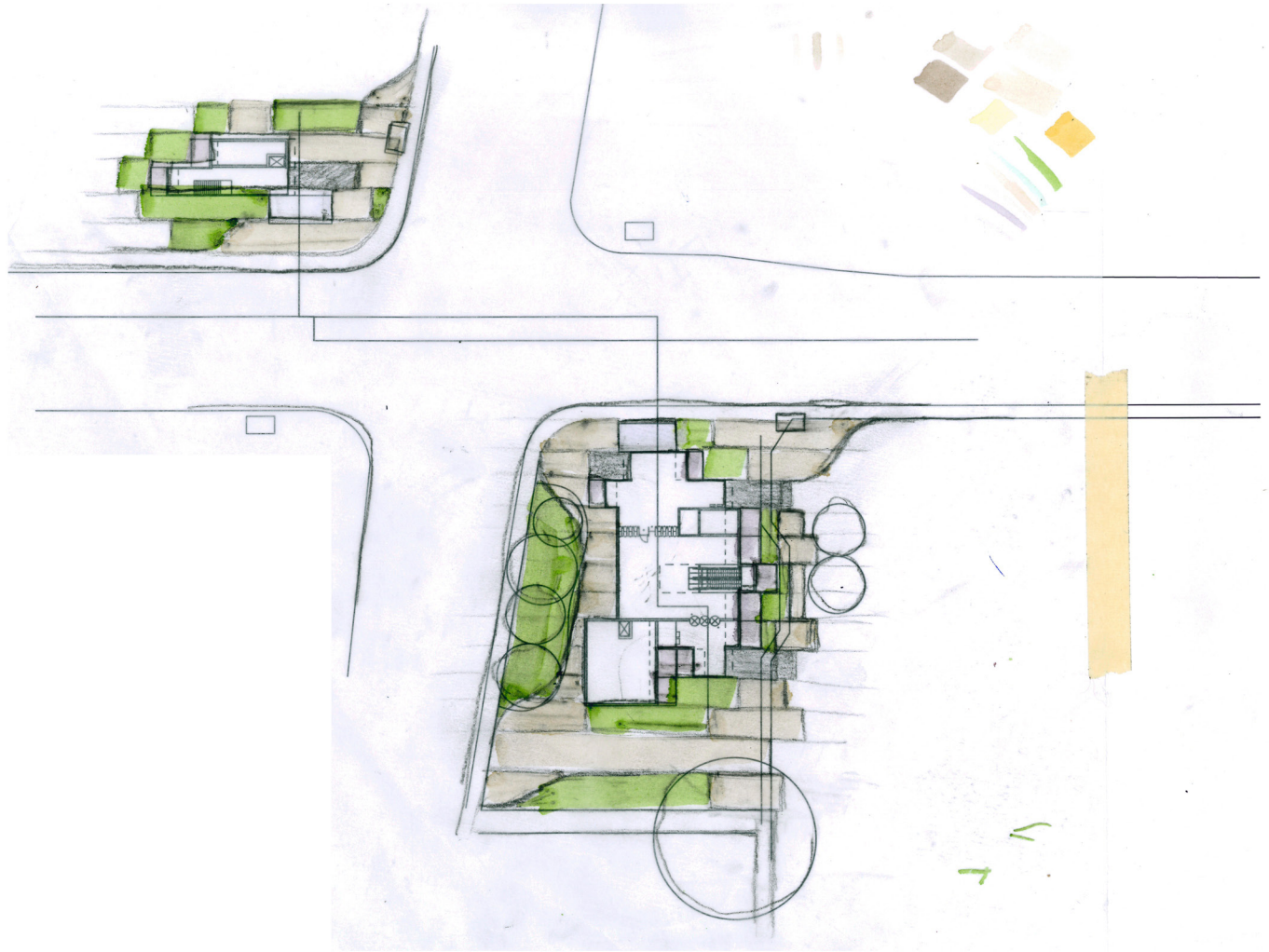Locating the various wall types, Concourse Level

Figure 119:
Site plan, blending the building strips
with the landscaping
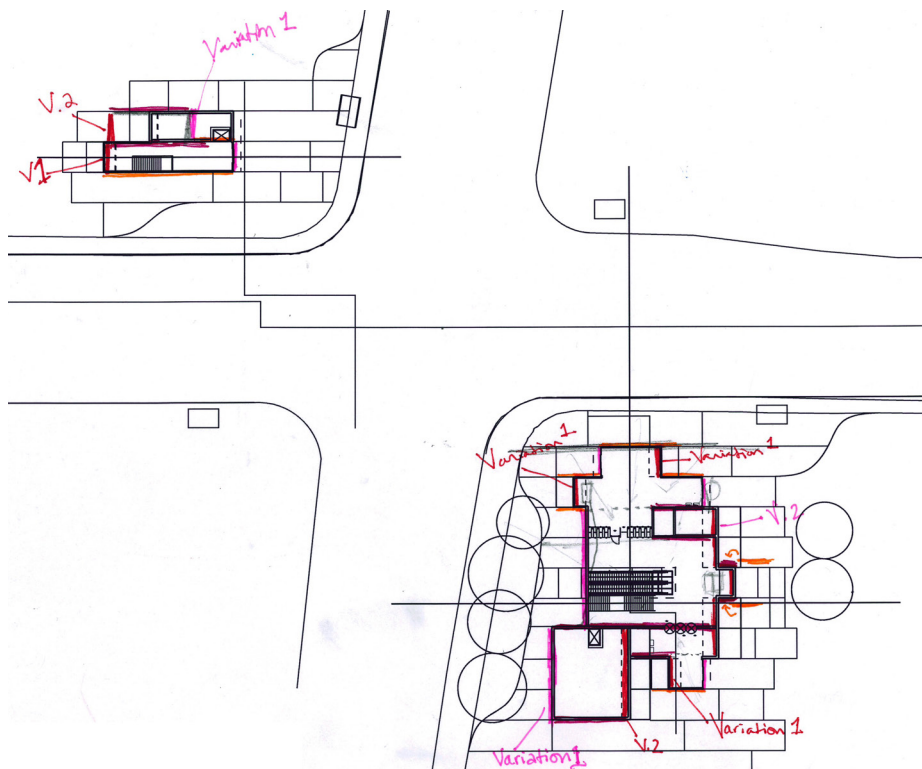
Figure 120:
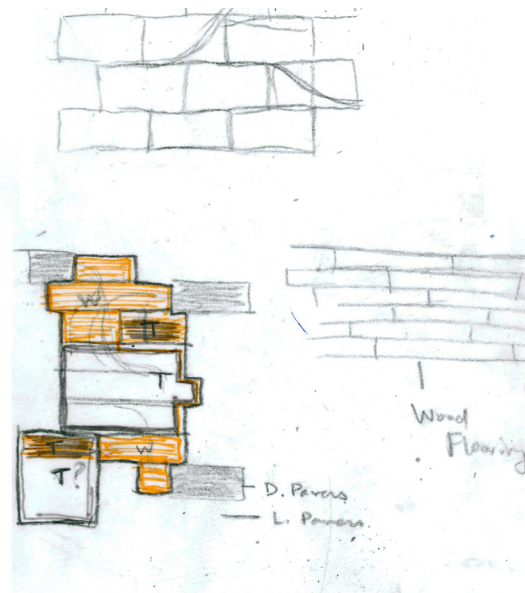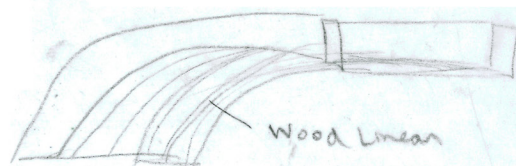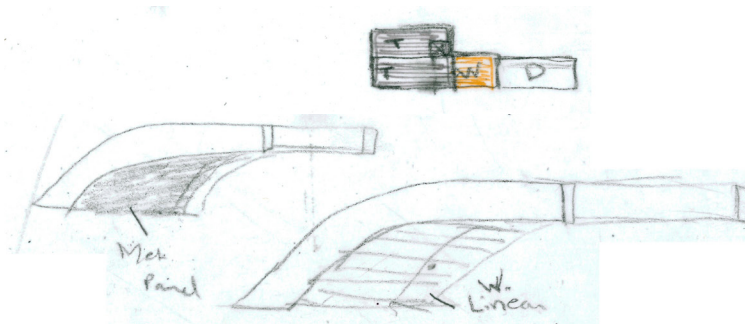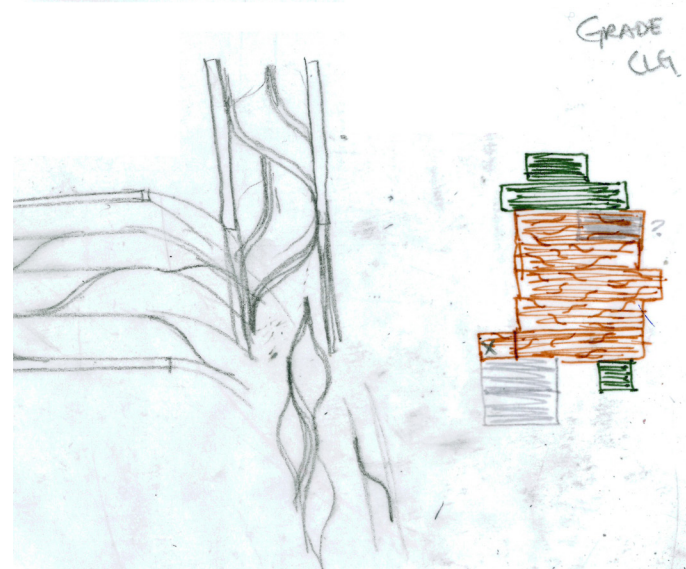Ground Floor
Determining wall, floor and ceiling types

C. Flr.

Tile

Stained? Concrete

Floor Tile w/ Natural Wave

Pi Concrete w/ Reveal

Control Joint

C Clg.

Skylight

Wood Grille

skylight

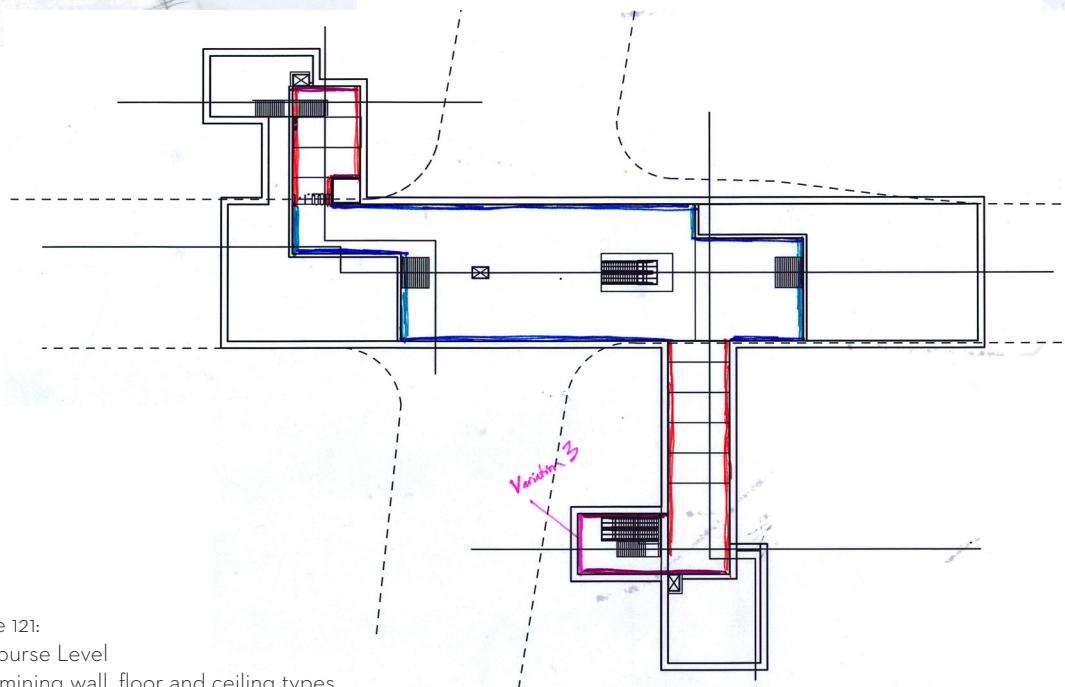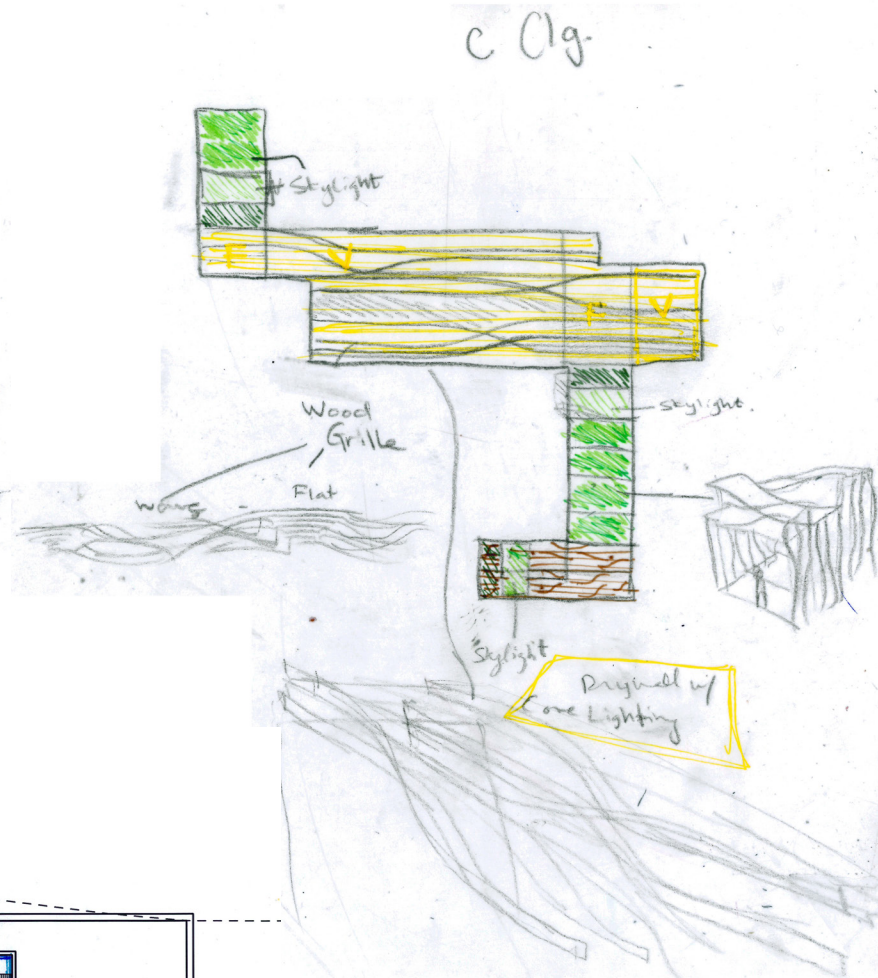Wong — Flat

Skylight

Drywall w/ Cove Lighting

Variation 3

Figure 121:
Concourse Level
Determining wall, floor and ceiling types

Stained?
Concrete

p. Flr.

drywall

Wood Grille

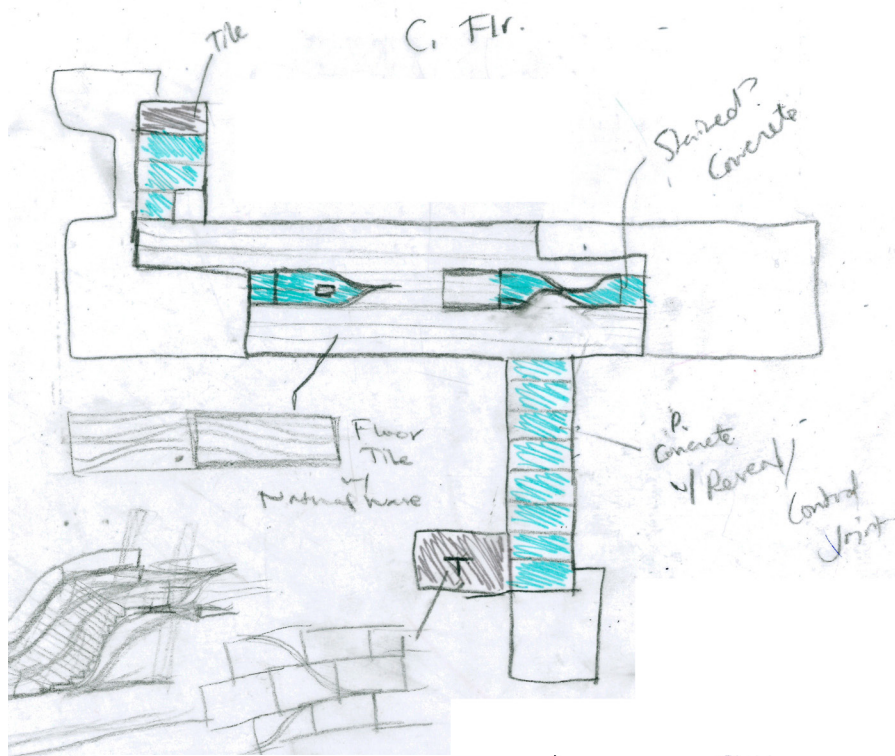Liver Tile w/ Colour Change.

"Lightbox"

Concrete w/ Texture

⑫

⑪

Fl.

9

10
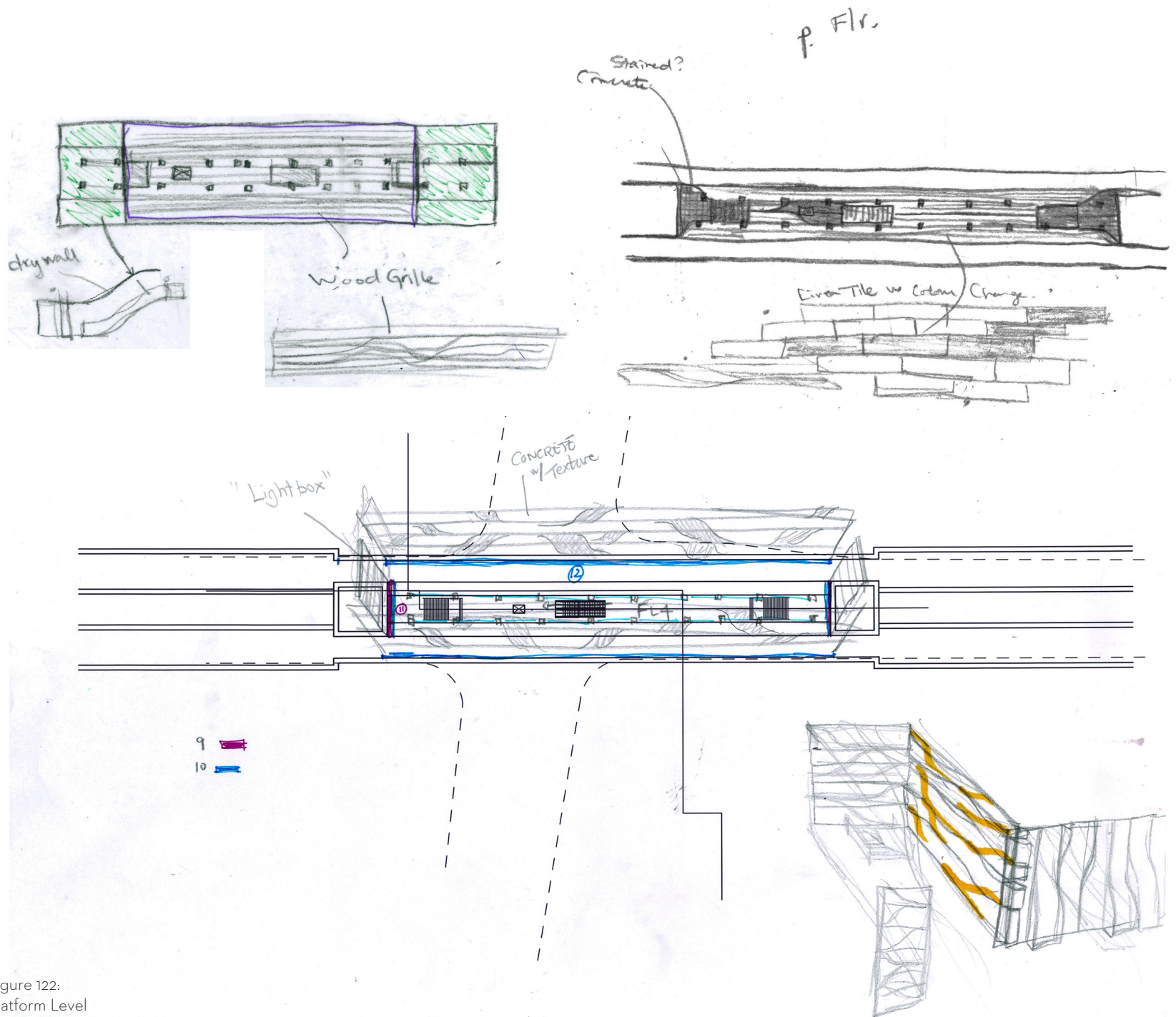
Figure 122:
Platform Level
Determining wall, floor and ceiling types

curtain system
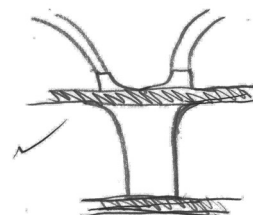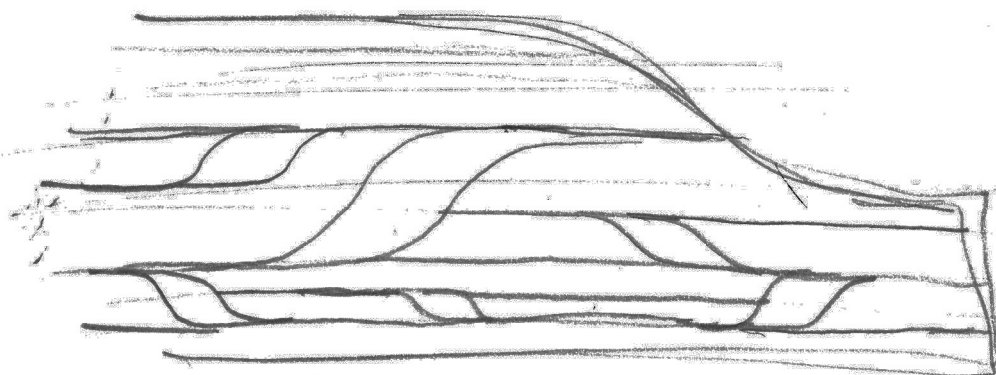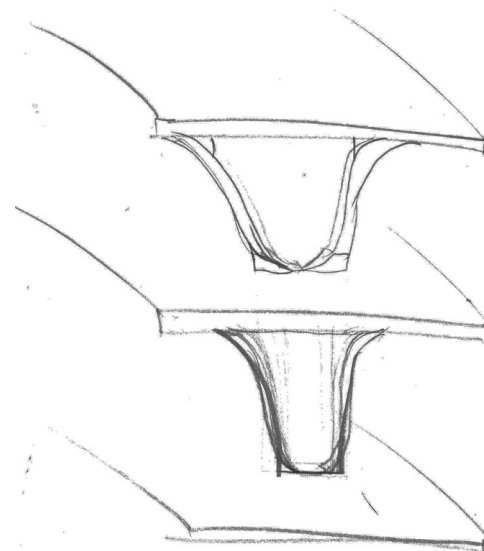
concrete panel

met panel

Colour?

400

300

screen

pet screen

gloss
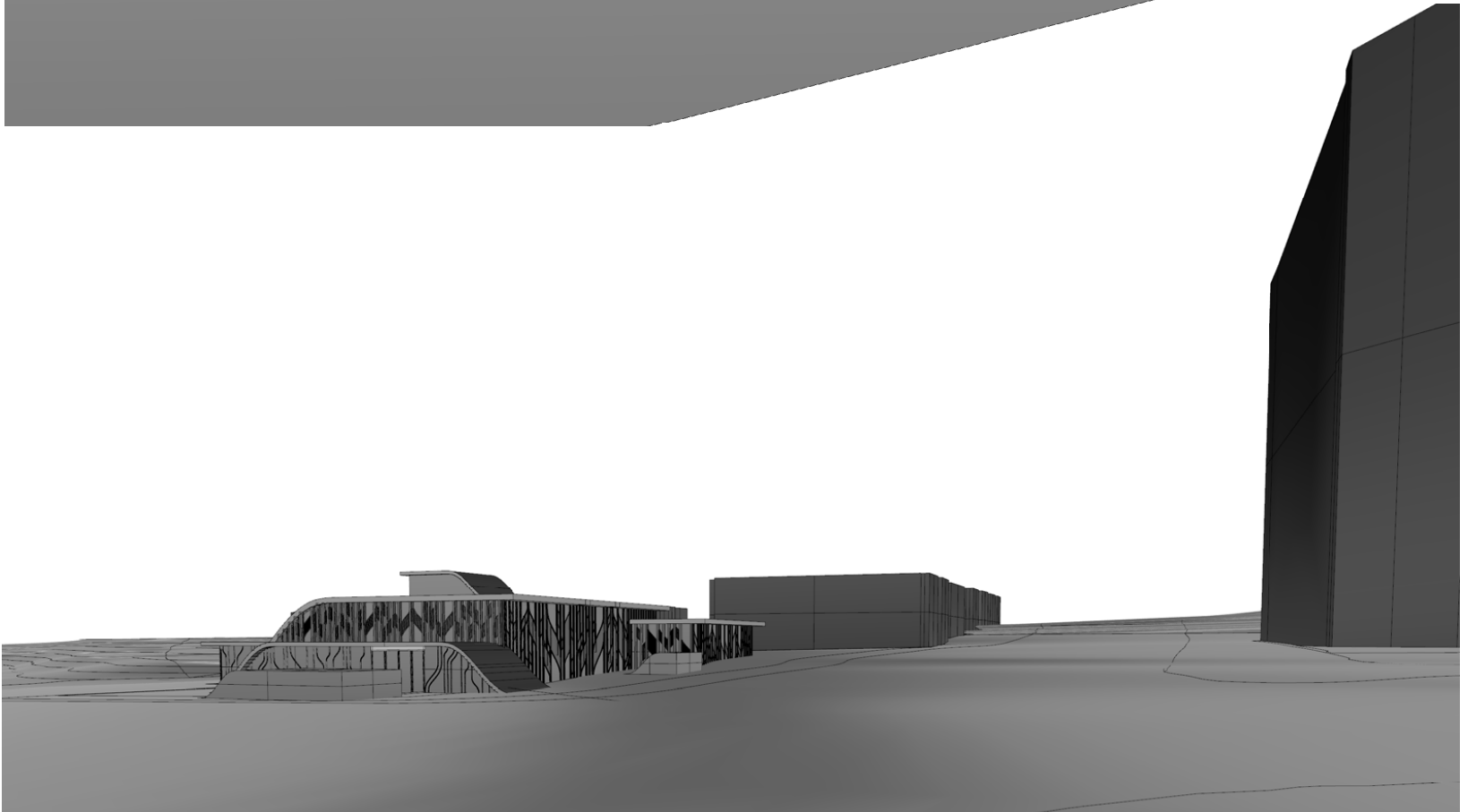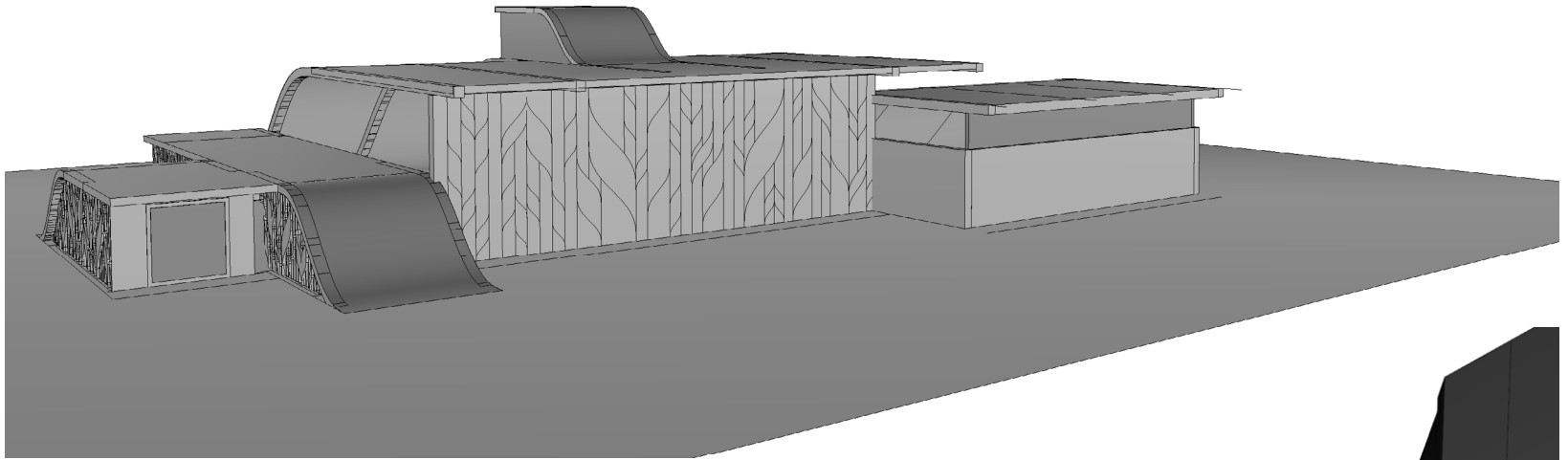
Figure 123:
Detailed sketches of
wall and ceiling types
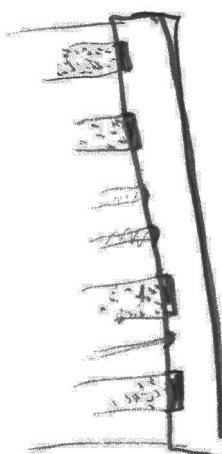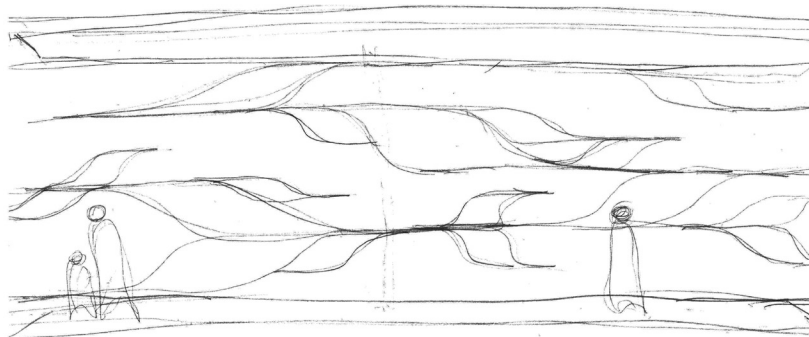
Figure 124:
Digital model of the final design

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