PERFORMATIVE ARCHITECTURE:

Inspiring the Performance of Architecture Through the Movement of Dance

By

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Figure 1: *Mirror, both dancers with light gird along body.*

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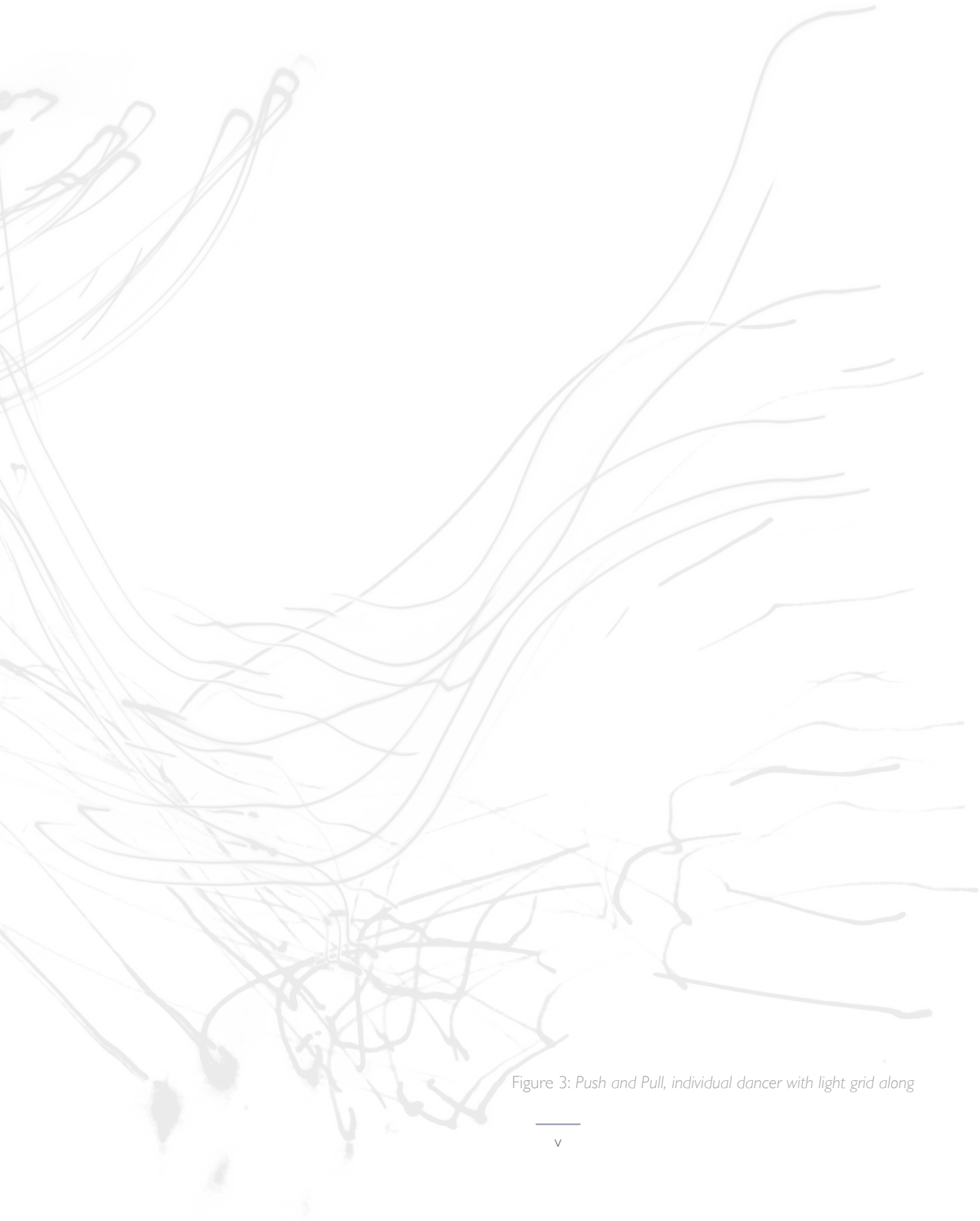

Figure 3: *Push and Pull, individual dancer with light grid along*

ABSTRACT

How does movement influence architecture and, in turn, how does architecture influence movement? It is through the design of the Sudbury Movement Centre where this architectural approach is demonstrated. The Sudbury Movement Centre (SMC) will be a building devoted entirely to movement, inspiring and provoking the movement of people in the space. Situated in Sudbury's downtown core, the building will be conceived as a compliment to the existing Sudbury Theatre Centre (STC). Through the architectural gestures in designing the SMC, an architectural relationship will be developed between the two buildings, enhancing, adjusting and modifying the experience of the existing theatre into an entire complex dedicated to movement. As a choreographer, my experience with movement finds itself seeking to influence my architectural expression. There are indeed studied parallels between dance and architecture. The theories of performance developed by Marvin Carlson, Richard Schechner, Erving Goffman and J.L Austin for example, have led to a critical understanding of 'performative' architecture. From a choreographic perspective, the work of Rudolf Laban, Oskar Schlemmer and William Forsythe have become imperative to my research and design development. Each choreographer has developed an understanding of the movement by exploring and analyzing dance through three-dimensional and two-dimensional methods. In an architectural sense, three case studies were researched, each addressing the parallels between dance and architecture in three unique ways; provoking movement, representing movement and the process of movement in two disciplines. Where these studies have successfully developed the connection between the two disciplines, my interpretation takes a different approach to the discipline and its potential as an architectural process. While these studies have become the grounding to my research-creation, my own work seeks to take this beyond a metaphorical interpretation. In order to understand architecture through a choreographic lens, the act of generating choreography was key to developing an architecture of movement. I then captured the choreography in a method that abstracted the movement of the dancers as a movement through space, a notational exploration which worked to translate the complexity of three-dimensional movement into a two-dimensional space. This process expanded my understanding of performed movement and a new perspective of my choreography became evident. A perspective that analyzes movement through a choreographic and architectural lens making clear the nuances in the movement gestures. It is these nuances that translate to a movement inspired architecture. The gestures of the choreography become the gestures of the architecture where each shapes the building form and informs the tectonic details of architectural design.

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Thank you to all of my family and friends for your love and support through all of my schooling. Especially to my parents for your constant support in everything I do, words cannot express how truly grateful I am. Thank you to my sister for your involvement in this thesis, I couldn't have done it without you. Finally, thank you to my dance family for always keeping my inspired. Never give up on what you love.

Figure 2: *Run and Push and Pull, both dancers with light grid concentrated around wrists and ankles.*

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PART ONE: RESEARCH DEVELOPMENT

Figure 4: *Current, both dancers with light points on wrists and ankles.*

INTRODUCTION

> *"Not only does the dancer's body form shapes and groups of dancers form moving or static designs, but also group arrangements carve up the stage space, establishing areas of open as well as enclosed space which are significant in their changes and contrasting effects."*[1]

How does movement influence architecture, and in turn, how does architecture influence movement? How each human body moves in space is unique and the movement of dance expands on this idea as each dancer moves in a distinct way that is structured and styled based on their training and a choreographer's expression. As a choreographer, I am intrigued by the ability to manipulate the human body in order to create dynamic patterns and geometry. My experience with movement, as a choreographer, is seeking to inform my architectural expression. There are indeed studied parallels between dance and architecture. Where many studies have successfully developed this connection, my methodology takes a different approach to the discipline and its potential as an architectural process. These studies have become the grounding to my research-creation but in my work a metaphorical interpretation, as most are currently, is not enough. In order to understand architecture as a choreographer, the act of generating a piece of choreography was key to this research. My approach was to capture my choreography in a method that abstracted the dancers and left a trace of movement though space; a view that expands my understanding of performed movement. This generates a perspective that analyzes movement through a choreographic and architectural lens which express the nuances in the movement gestures that provoke an architecture of movement.

1. Ann Hutchinson Guest, "Dance Notation," Perspecta 26 (1990): 203, https://doi.org/doi:10.2307/1567163.2.2.

Figure 5 & 6: *ten, a work choreographed for the earthdancers.*

PERFORMATIVE ARCHITECTURE

There are many parallels between the realms of dance and architecture and through theories of performance these parallels are developed; specifically, through the work of Marvin Carlson, Richard Schechner, Erving Goffman and J.L Austin. They discuss performance as a phenomenon that extends beyond a staged work presented to an audience (commonly a play, a dance or a concert). Performance may be considered as part of any aspect of daily life, with an emphasis on the relationship between an audience (the observer of a behaviour or event) and a performer (one expressing a behaviour or completing an event). This concept, that social behaviours can, to an extent, be performed, is not a recent idea. In the Renaissance and Baroque periods, for example, the theatrical quality of daily social life served as a central subject in various plays.[2] However, it wasn't until the 20th century that theorists began exploring everyday social behaviour and activity as 'performative'.[3]

Carlson states "that our lives are structured according to repeated and socially sanctioned modes of behaviour [raising] the possibility that all human activity could potentially be considered as "performance," or at least all activity carried out with a consciousness of itself."[4] In *Performance: A Critical Introduction*, Carlson further develops his theory of performance by introducing complementary theories examining performance in the same manner. Richard Schechner, for example, is most instrumental in developing modern performance theory and exploring the relationships between practical and theoretical work in theatre and social science research.[5] Schechner contends that performance goes beyond the arts as a limiting range and expands to everyday life, such as personal interactions, rituals and politics.[6] In Schechner's studies he develops the term "restored behaviour" as a means to describe "performance". "Restored behaviour" is the idea that the behaviours that make up a "performance" are never expressed for the first time. Rather a "performance" is made up of many behaviours that are re-arranged, re-assembled and re-emphasized.[7] Erving Goffman focuses on the relationship between the audience and the performer, developing "a view of performance that owes more to context and to the dynamics of reception than to the specific activities of the performer."[8] He states that performance is an "activity of an individual which occurs during a period marked by his continuous presence before a particular set of observers and which has some influence on the observers."[9] Carlson's gathering of these theories begins to suggest that all human activity, in some manner, could be interpreted as performance.

2. Marvin Carlson, *Performance: A Critical Introduction* (Psychology Press, 1996). 34.
3. Ibid.
4. Ibid, 4.
5. Ibid, 21.
6. Cobina Gillitt, "Richard Schechner," *Asian Theatre Journal* 30, no. 2 (2013): 280, http://www.jstor.org/stable/43187262.
7. Companion Websites, December 17, 2012, *Performance Studies: An Introduction - Restored Behaviour*, https://www.youtube.com/watch?v=eTbQq5egq1c.
8. Carlson, *Performance*, 18.
9. Ibid, 37-38.

Adding to this concept, Carlson introduces philosopher J.L Austin who frames the term 'performative' in a linguistic analysis, explaining how the term refers to spoken words as well as an action associated with the words (e.g. a ship being christened). He suggests that when someone speaks 'performative' they do "not simply make a statement … but one performs an action."[10] 'Performative' in this sense is the consciousness of how one performs, the idea of saying and doing something rather than simply declaring it. This idea of 'performative' in a theoretical sense begins to frame how one views architecture as 'performative'.

In the context of architecture, we can begin to analyze and apply these theories, elaborating on how architecture becomes 'performative'. Goffman's emphasis on the relationship between the audience and the performer translates to architecture; as one could consider the architect as a choreographer and every architectural gesture a performer, while the occupants of a space are the audience. Schechner's theory that performance pertains to a wide range of activities and is considered "restored behaviour", or "twice behaved", presents architecture as "twice constructed", as architecture is the combination of physical and societal structures that form and concretize social action through tectonic form.[11] Architecture, in comparison to Austin's definition of 'performative', is thought out and executed in a way that performs the architect's ideas in built form. These relations between performance and architecture and the term 'performative' introduced in Austin's theory re-frames the static assumption of architecture to a 'performative' state; a concept explored by many architects in the second half of the 20th century.

10. Carlson, *Performance*, 60.
11. Dorita Hannah, and Omar Khan, "Introduction: Performance/Architecture," *Journal of Architectural Education* (1984-) 61, no. 4 (May 2008): 4. https://www.jstor.org/stable/40480860.

Architecture and performance are uniquely related; architecture relies on static materials to form a work, while a performance is kinetic. How do you compare two things that are perceived in two very different ways? In the 1960s architects raised the question "must architecture physically move and be explicitly mechanical in order to be seen as dynamic and performative?"[12] This was explored when architects integrated technology and built form to create an architecture that moved; for example, Ron Herron's Walking Cities series, a paper vision that created a moving city which had the ability to adapt to new environments.[13] However, 'performative' architecture has also been explored through architectural techniques such as materiality and building form which push architecture away from its static nature. For example, the design of natural and artificial light integrated into the design of a space creates shadows and contrast, which can be interpreted as 'performative'. These 'natural' techniques allow architects to set "buildings into larger movement with the cosmos and [bring] a materialized essence of temporality to the structure of otherwise static buildings."[14] 'Performative' architecture can also be seen in the way a building responds to the changing social, cultural, and technological conditions or in terms of the building's relation to the urban environment that becomes a stage for the architecture to perform.[15] 'Performative' architecture led architects to develop relationships between the static nature of architecture and the kinetic nature of performance.

This approach to framing architecture as 'performative' is evidenced in the work of Elizabeth Diller and Ricardo Scofidio. Like many architects in the 1980s, Diller & Scofidio experimented with installations which built their vocabulary and allowed them to push the idea of 'performative' architecture.[16] Blur building, for example, creates performance through the architectural composition of materials. The fog and constructed paths intersect each other in a manner that is almost choreographed, creating the appearance of an artificial cloud: "What Diller + Scofidio's undulating building exposed was the underlying friction between an architecture of performative space versus an architecture of performance originating at the intelligent surface."[17] Through this understanding of 'performative' architecture we see how architects are "considering the meticulous methods of architecture - building spaces for people to move through, act upon, and act within - as [essential] methods of performance."[18]

12. Chris Salter, "Performative Architecture," in *Entangled: Technology and the Transformation of Performance* (Cambridge, Mass.: MIT Press, 2010), 83.
13. Ibid, 94.
14. Ibid, 83.
15. Ibid, 84.
16. RoseLee Goldberg, *Performance Now*, (London; New York: Thames & Hudson, 2018), 238.
17. Salter, "Performative Architecture," 106.
18. Goldberg, *Performance Now*, 11.

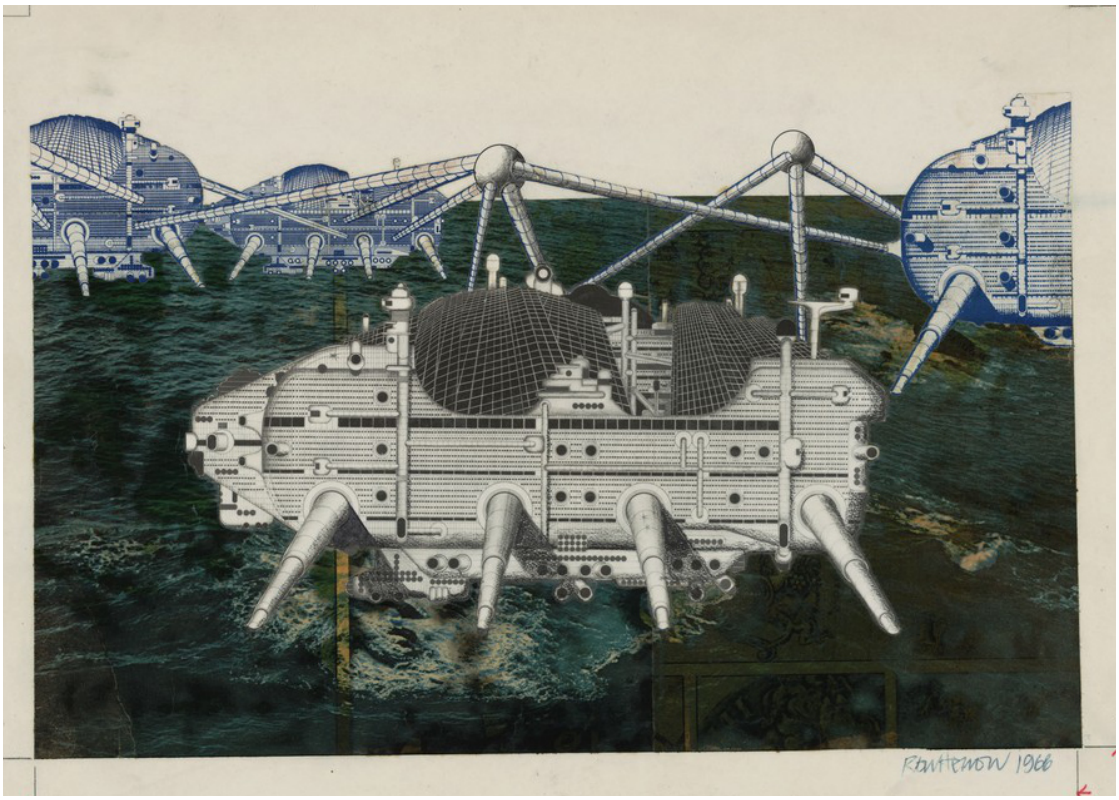


Figure 7 (top): Ron Herron's Walking City.
Figure 8 (bottom): Diller and Scofidio's Blur Building.

Bernard Tschumi is another important figure when discussing architectural performativity, although he thinks about his work in terms of experience and event rather than performance.[19] Tschumi "came to see the movement of bodies in space as important as the building, and this attention to program, event and space became central to his thinking.''[20] This led him to the concept that architecture is not simply about space and form but also about event, action and what happens in it.[21] Tschumi has a different approach for designing space. As a professor he guides his students to use tools of documentation, documenting the movement of their bodies in space rather than using traditional drawing techniques.[22] As an architect he develops architecture that performs, working with the experience of the human body in space, and how one moves through space. Tschumi thinks these concepts and experience of space are what makes architecture.[23] The Manhattan Transcripts, shown in the next figure, evidence this. Developed in the 1970's these drawings explore how Tschumi develops architecture around the relationships between space, movement and event. These architectural drawings were different from most because they were not a real project and they used unconventional techniques to represent the architect's ideas of space.[24] Beginning with photographs that aim to indicate events, Tschumi developed plans, sections and diagrams to ''outline spaces and indicated the movements of the different protagonists intruding into the architectural ''stage set''.''[25] This architectural investigation proposed to transcribe an architectural interpretation of reality and aimed to develop a method of designing architecture based on an event.[26] From this project we see that performance for Tschumi is more about architectural moves rather than physical movement in a space. These studied performance theories and concepts of 'performative' architecture have become key to understanding the theoretical parallels between dance and architecture: setting the stage for a greater investigation into a metaphorical interpretation between the two disciplines.

19. Omar Kahn, Dorita Hannah, and Bernard Tschumi, ''Performance/Architecture: An Interview with Bernard Tschumi,'' *Journal of Architectural Education (1984-)* 61, no. 4 (May 2008): 52, http://www.jstor.org.librweb.laurentian.ca/stable/40480866.
20. Sandra Kaji-O'Grady, ''The London Conceptualists: Architecture and Performance in the 1970s,'' *Journal of Architectural Education (1984-)* 61, no. 4 (n.d.): 45, http://www.jstor.org.librweb.laurentian.ca/stable/40480865.
21. ''The Manhattan Transcipts,'' *Bernard Tschumi Architects*, accessed December 11, 2019, http://www.tschumi.com/projects/18/.
22. Kahn, Hannah, and Tschumi, ''Performance/Architecture: An Interview,'' 53.
23. Ibid.
24. ''The Manhattan Transcipts.''
25. Ibid.
26. Ibid.

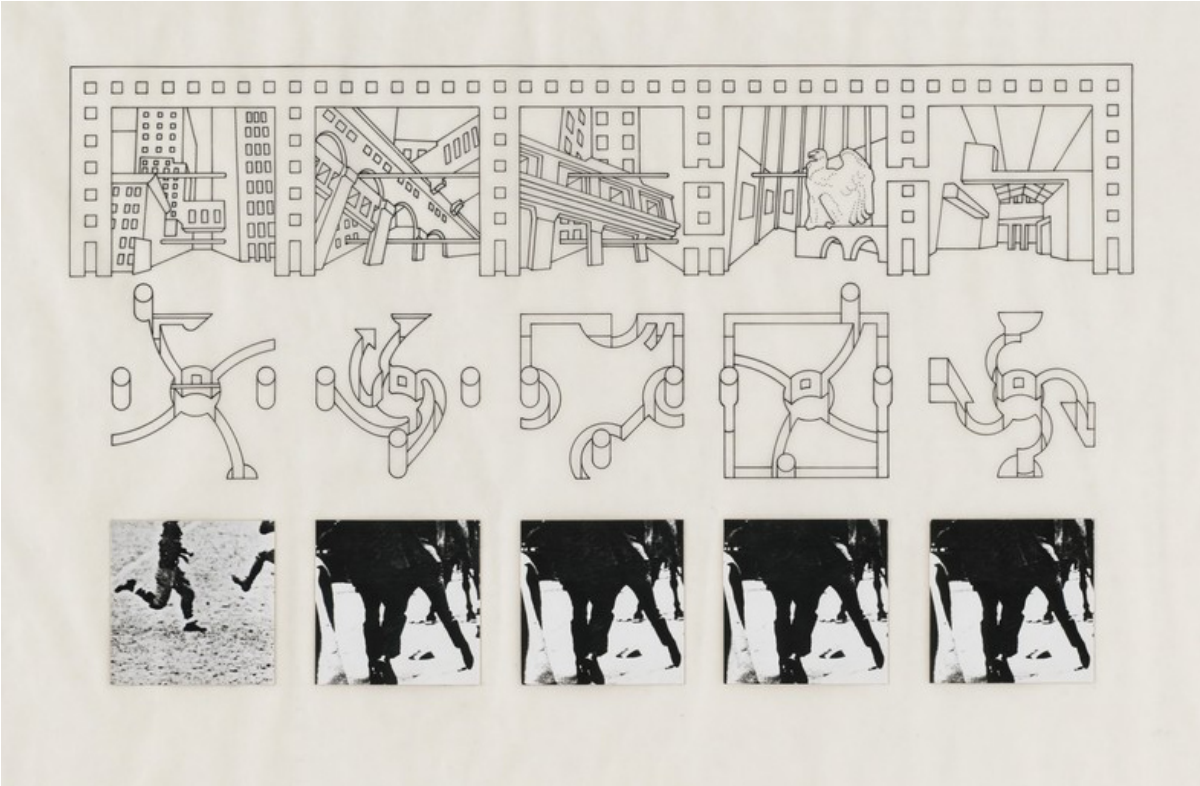


Figure 9: Bernard Tschumi's sketch taken from The Manhattan Transcripts.

MOVEMENT INSPIRED ARCHITECTURE

The relationship between dance and architecture has been explored by several architects in a variety of ways. Specifically studying the Laban Dance Centre, the Siobhan Davies Dance Studio and the Lewis Arts Complex we see three slightly different approaches that all address the way movement can generate architecture. (See appendix 1 for further studied detail). The Laban Dance Centre, designed by Herzog & de Meuron, is generated from the careful study of the abstract movement of dancers through space. The architects manipulate light, views, form and materials;[27] each gesture working to guide and provoke the movement of the users in the space.[28] Every detail of design from the circulation space to the handrails are intended to create an architecture that provokes movement. The site design also suggests movement, as the prismatic topography is shaped to create dramatic gestures in the landscape. The Siobhan Davies Dance Studio by Sarah Wigglesworth is designed based on observations of a dancers' understanding of space, playing on themes that are common to both dance and architecture.[29] The most significant architectural gesture is the ceiling design in the main studio space. This design is composed of overlapping and twisting wood beams that start to evoke the dancers' movements, replicating the weightless quality of the dancer's body.[30] Windows are integrated into the beams, activating movement through the choreography of light entering the space. The Lewis Arts Complex is a unique project where architect Steven Holl and choreographer Jessica Lang collaborated to generate a work of architecture and a piece of choreography. Together they framed the concept that became the grounding for both works. In maintaining two distinct ways of working, the choreography takes on an architectural perspective while the architecture maintains a choreographic perspective. While the architecture and the choreography may not specifically mimic one another, they are generated from the same disciplinary origins.

Each of these case studies evidences a unique approach to developing the relationship between dance and architecture. The architecture of the Laban Dance Centre works towards provoking movement through each material and ergonomic detail of design. The Siobhan Davies Dance Studio works towards representing movement by using the imagery of movement to develop the architectural gestures. Finally, the Lewis Arts Complex is an explicit collaboration between choreography and architecture addressing the process of movement and its specific implications in the practice of these two disciplines. These examples present three distinct methods of expressing the parallels between dance and architecture. Each case study presenting an architecture inspired by or that inspires movement.

27. Sam Lubell, *London 2000+: New Architecture,* (New York: Monacelli Press, 2008), 18.
28. "Laban Dance Centre," n.d. Herzog de Meuron, https://www.herzogdemeuron.com/index/projects/complete-works.html.Sam Lubell, London 2000+ : New Architecture, (New York: Monacelli Press, 2008), 18.
29. "Siobhan Davies Dance Studios," *Sarah Wigglesworth Architects*, accessed December 11, 2019, https://www.swarch.co.uk/work/siobhan-davies-dance-studios/.
30. Ibid.

Figure 10 (top): The exterior of the Laban Dance Centre, framing the prismatic landscape.

Figure 11 (bottom left): The main studio space of the Siobhan Davies Dance Studio.

Figure 12 (bottom right): Dancers performing the *Tesseracts of Time*, the choreography developed through the collaboration of Steven Holl and Jessica Lang.

CHOREOGRAPHIC INSPIRATION

Rudolf Laban

From the vantage of choreography, the work of Rudolf Laban, Oskar Schlemmer and William Forsythe becomes intriguing. These choreographers experiment with the geometry of dance and have found unique ways to express movement, creating work that, from my perspective, appears architectural.

Rudolf Laban outlines principles of movement by studying and modelling human movement patterns and expression. To understand this relation, Laban uses five solid shapes: the tetrahedron, the cube, the octahedron, the icosahedron and the dodecahedron. The corners of these shapes are used to reference points when mapping movement pathways, creating symmetry and harmonic operations in the body. These models of the dancer make a kind of geometrical dance-architecture which creates a meaningful language of dance as opposed to a random expression of gestures.[31] This method of tracing the body results in a geometrical space that imposes a rhythmic structure on the flowing curves of the bodies in motion.[32] From this thinking Laban developed two means of analyzing movement: the outer movement, or the geometric placement of the body, and the inner movement, or the energy in space. Laban describes the outer movement as "kinespheric" movements representing the body in space. Movement in this environment can be given numerical values; for example, bodily angles, steps, distances and other discrete measurements.[33] He developed the idea of a vertical axis for the body surrounded by a kinesphere, a three-dimensional cube marked by 27 points; as the body moves, the axis tilts and rotates the kinesphere moving with it.[34] This exploration of the body led to the development of his notation system, Labanotation, a geometric method of notation that takes an abstract approach to representing the body in space. Laban also studied the inner movements, the mental and emotional factors which drive the movement of dance, described as the dynamosphere.[35] In comparing the two models of understanding human movement, the kinesphere has a singular centre at the centre of the body. The dynamosphere is the opposite, it is not singular and does not correspond with the centre of the body. If two dancers were analyzed using this movement model, the kinesphere would suggest that their movement is seen as two separate entities but in the dynamosphere the movements can be seen to connect and interact with each other.[36]

31. Nicolas Salazar Sutil, "Laban's Choreosophical Model: Movement Visualization Analysis and the Graphic Media Approach to Dance Studies," *Dance Research: The Journal of the Society for Dance Research* 30, no. 2 (n.d.): 149, https://www.jstor.org/stable/23326531.
32. Ibid.
33. Ibid, 153.
34. Steven Spier, "Engendering and composing movement: William Forsythe and the Ballett Frankfurt," *The Journal of Architecture* 3, no 2 (1998): 138, doi: 10.1080/136023698374251.
35. Sutil, "Laban's Choreosophical Model," 153.
36. Ibid, 154

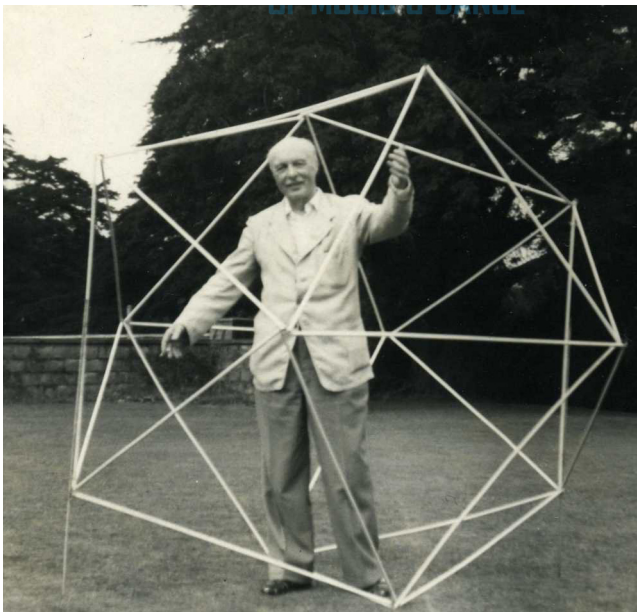


Figure 13 (top): Rudolf Laban standing in an icosahedron.
Figure 14 (bottom): Movement of a dancer in the an icosahedron.

Oskar Schlemmer

Oskar Schlemmer is known for his interpretations of space and his stage work for ballet and theatre, his experience of space is through the whole body.[37] Schlemmer is not a trained dancer, which makes his work quite interesting as it becomes more architectural than choreographic. His work was the first of its kind to explore abstraction in dance.[38] By creating geometry with the human body and costumes, he transforms the dancers into architecture which emphasize or change the body's identity.[39] Schlemmer worked with a method that presented the idea that the human body could only be transformed through four basic methods of abstraction: the laws of the surrounding cubic space, functional laws of the human body in its relationship to space, laws of motion of the human body in space, and abstracted forms of the human body.[40] In 1922 Schlemmer choreographed the *Triadisches Ballett*, a ballet that drew inspiration from the simplicity of the Bauhaus movement. Through the geometric costumes and robotic movements, Schlemmer represented a new way of dancing.[41] The costumes were made to be simple and would restrict the dancers' movements.[42] The ballet was organized into three parts, each demonstrating different geometric shapes, colours and moods. Each part used a different method of costuming and movement to represent Schlemmer's choreographic design.[43] Schlemmer's understanding of movement focused on the geometry of the body, finding a relationship between the organic and mechanical laws in dance, he explored how dance becomes architecture.

37. Oskar Schlemmer, Laszlo Moholy-Nagy, and Farkas Molnár, *The Theatre of the Bauhaus*, edited by Walter Gropius and Arthur S. Wensinger, Translated by Arthur S. Wensinger, (Middletown, Connecticut: Wesleyan University Press, 1961), 8.
38. Susanne Lahusen, "Oskar Schlemmer: Mechanical Ballets?" *Dance Research: The Journal of the Society for Dance Research* 4, no 2 (1986): 65, http://www.jstor.org.librweb.laurentian.ca/stable/1290727.
39. Schlemmer, Moholy-Nagy, and Molnár, *The Theatre of the Bauhaus*, 25.
40. Lahusen, "Oskar Schlemmer: Mechanical Ballets?" 72-73.
41. A Great Big Story, *Bauhaus Ballet: A Dance of Geometry*, 2018, https://www.grandtourofmodernism.com/magazine/the-bauhaus/100-jahre-bauhaus/the-centenary-in-the-media/ballet-a-la-bauhaus/.
42. Ibid.
43. Ibid.

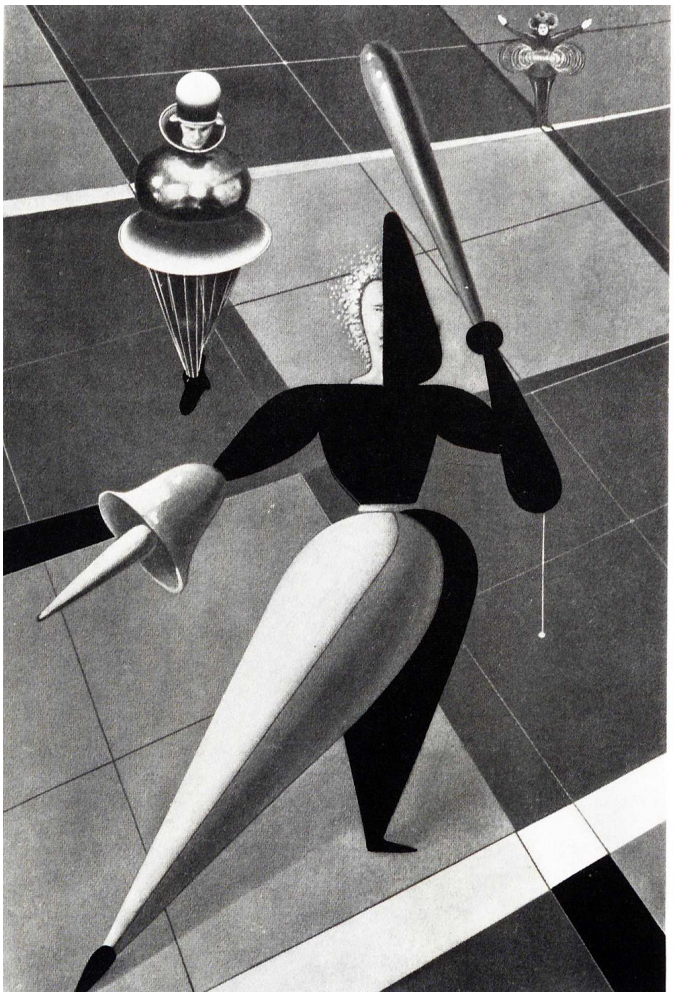


Figure 15 (top): Oskar Schlemmer's drawing of the characters of the Triadisches Ballett.

Figure 16 (bottom): Photograph of Oskar Schlemmer's costumes for the Ballett.

William Forsythe

As William Forsythe creates his own style of choreography he has explored Laban's geometric construct.[44] Working with ballet dancers and object installations, he develops unique and unfamiliar forms and shapes to create his language of choreography. He uses ballet and ballet dancers as the base point for his creative expressions; he sees ballet as a point of departure, a body of knowledge, not an ideology.[45] He has developed his language of dance by finding ways to use what his dancers already know. "A ballet dancer is trained to imagine lines, planes, and vectors in order always to know precisely where he or she is in three-dimensional space."[46] Dancers are trained to think about geometry; they are trained to match lines and forms in space. Using this skill, Forsythe begins to imagine lines in space that could be bent, tossed or distorted.[47] He trains his dancers to think of dance in terms of geometry, picturing the trajectories and trails either left behind or implied by their movements in space.[48] Forsythe also works with object installations in which he experiments with bringing his ideas of choreography to objects. For example, "Black Flags", the choreography of two robotic arms, two flags and the air which work together to create a narration only possible with these three components. This choreography embraces technology, as Forsythe expresses his choreography to the robot programmer who then translates these verbal commands into software commands.[49] The geometric grounding in Forsythe's choreographic exploration of movement through dancers and objects hints at work that could be considered architectural, similar to the work of Laban and Schlemmer. Each choreographer has developed their own movement analysis, studying the movement of dancers in space. Their work generates a unique geometry that from my perspective, creates movement that appears architectural.

44. Steven Spier, "Dancing and Drawing, Choreography and Architecture," *The Journal of Architecture* 10, no. 4 (n.d.): 354. https://doi-org.librweb.laurentian.ca/10.1080/13602360500285401.
45. Spier, "Engendering and composing movement," 136.
46. Ibid.
47. William Forsythe & Paul Kaiser, "Dance Geometry," *Performance Research* 4, no 2 (1999): 64, DOI: 10.1080/13528165.1999.10871671.
48. Ibid.
49. William Forsythe, *Gagosian William Forsythe - Choreographic Object*, 2017, https://www.williamforsythe.com/videos.html.

Figure 17 (top): William Forsythe's Ballet *Steptext*.
Figure 18 (bottom): William Forsythe's Black Flags Object Installation.

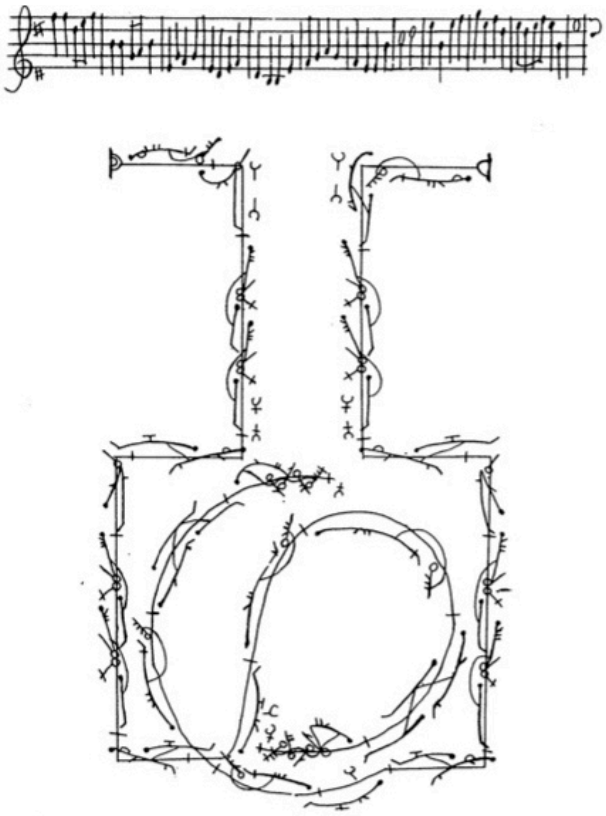
NOTATION OF MOVEMENT

Notation

Drawing and notation are at the core of an architectural process and as I look to develop an architecture influenced by movement both drawing and notation have become an integral part of this study. I began with the study of dance notation systems and their methods of communicating movement, however, these systems are quite technical and rigid, they do not fully express the real dynamics of dance. In the search to branch away from the technical vocabulary of dance notation and communicate the dynamics of choreographed performance the idea of abstract notation becomes fundamental, suggesting a form of notation that is more open for interpretation. In this instance, music notation becomes a good example, where a score that is quite technical could become abstract in its interpretation. Finally, this research in notation has led back to the choreographers studied who have each taken to drawing as a means of understanding the movement of the human body through space. This research in notation is integral as I transition into my study of choreographed movement.

In comparing notation of dance and architecture they both contain geometric qualities; both are complex but use different styles of communication to translate gestures from two-dimensions to three and vise versa. In the context of dance notation there are many different styles, each successfully presenting the technical aspects of three-dimensional movement in a two-dimensional space. Developed in the 17th century, the oldest recorded system of dance notation is the Beauchamp-Feuillet System which documented court and ballroom dances. The symmetrical patterns of travel between male and female dancers are emphasized in this system, with different symbols indicating movement gestures and style placed along the indicated paths of travel.[50] Jumping forward in history the 19th and 20th century saw the development of several other notional styles. For example, Friedrich Albert Zorn's System of Notation and Sutton Movement & Shorthand which both use stick figures situated with a bar of music to represent movement (refer to appendix 1 for images).[51] The Benesh System of notation developed by Rudolf Benesh worked to eliminate redundancies by using dash symbols to indicate movement, which are situated on a music bar which represents the body.[52] In doing this, his "technique is based on the fact that each form of dance has its own style and technique, and for most purposes it is reasonable to assume that the reader is familiar with this style and technique."[53] Hence his system was kept simple indicating only the basics of movement (refer to appendix 1 for image). The final system of notation studied was developed by Rudolf Laban, the Labanotation system. This system is quite different in comparison to other systems, it is more abstract. Reading from the bottom up, the movement for each part of the body is represented by geometric symbols which indicate the direction of movement, the length of the symbols

50. Wendy Hilton, *Dance of Court & Theatre: The French Noble Style 1690-1725*, edited by Caroline Gaynor, (New Jersey: Princeton Book Company, 1981), 3.
51. Guest, "Dance Notation," 209.
52. Hall, "Benesh Notation and Ethnochoreology," 188. Fernau Hall, "Benesh Notation and Ethnochoreology," *Ethnomusicology* 11, no. 2 (1967): 188, doi:10.2307/849817.
53. Ibid.



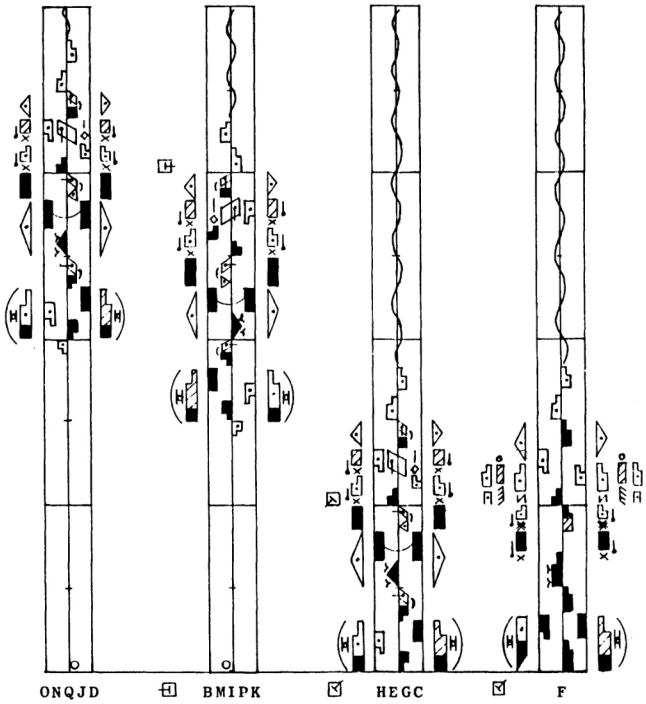
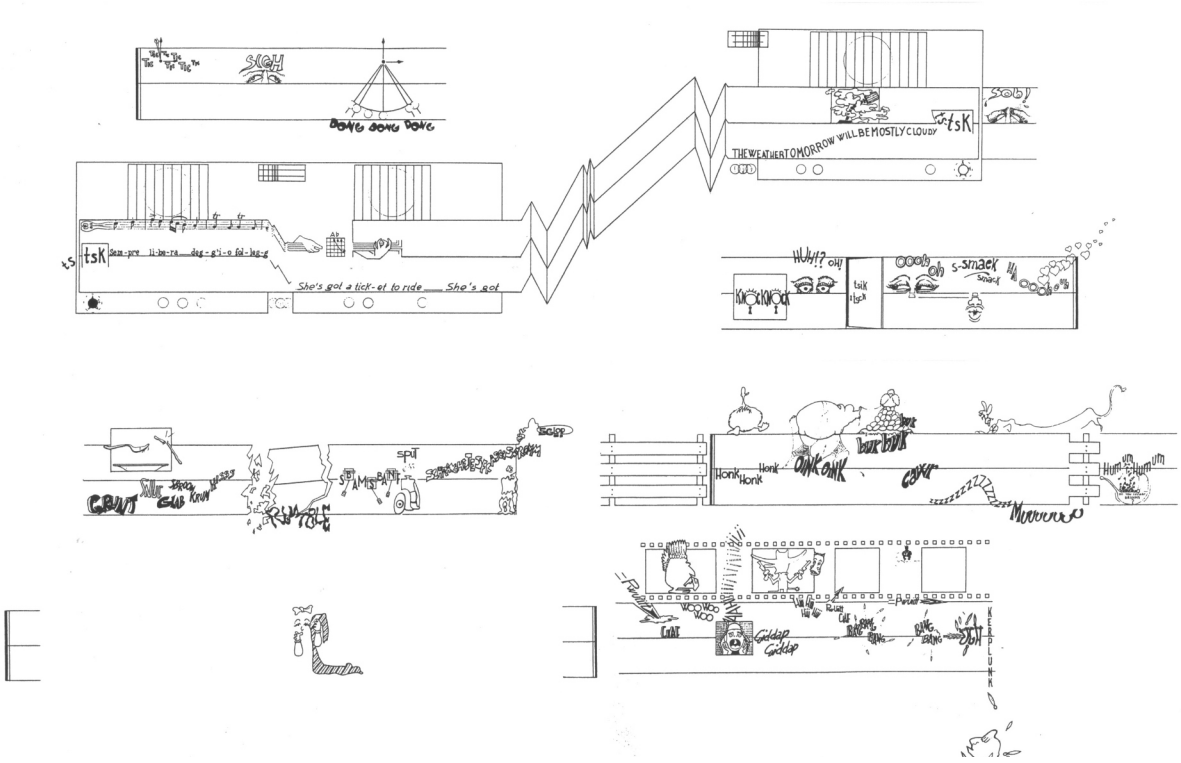


Figure 19 (top): Beauchamp-Feuillet system of notation.
Figure 20 (bottom): Labanotation, dance notation system.

indicate the rhythm and duration (the longer the symbol the slower the movement).[54] While first appearing to be abstract, dance notation "designs are readily recognized by those who have learned to read them, just as patterns created by musical notes are readily recognized by musicians."[55]

While notation in both architecture and dance appear to be static and technical it also has the capacity to become abstract and start to suggest movement. Abstract music notation becomes a good example. Generally, music notation is linear and rigid as it communicates precise instructions to a musician. However, many composers have taken a more graphic approach to writing scores, using abstract symbols, images and text to convey meaning to the performers. This modern graphic notation is open, can offer flexibility, and allows the performer to interpret the composer's ideas.[56] Two of the many different approaches to communicating abstract music scores are shown here. The first is a vocal score, the comic illustrations are used to inform the sounds the vocalist is meant to express. The second is a piece of a whole score and allows for interpreted freedom.[57] These abstract approaches to notation illustrate how something that is generally perceived as static and technical can become abstract.

54. Guest, "Dance Notation," 211.
55. Ibid.
56. "The Art of Visualizing Music," n.d, *David Hall*, accessed November 1, 2019, http://davidhall.io/visualising-music-graphic-scores/.
57. Ibid.



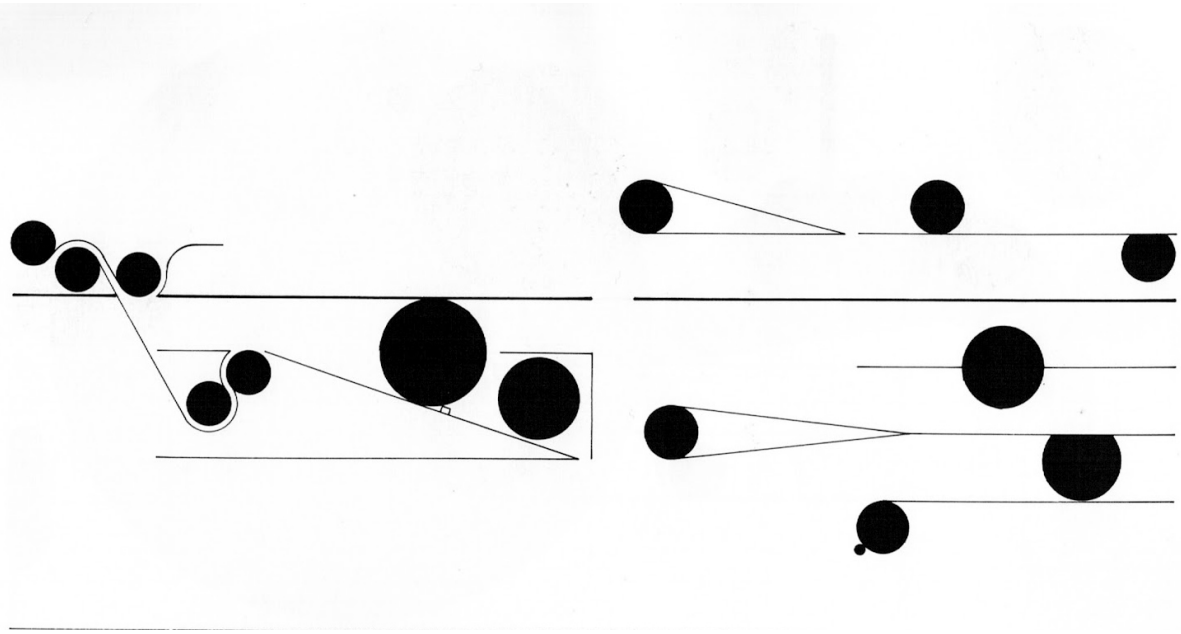


Figure 21 (top): Comic Vocal Score.
Figure 22 (bottom): Graphic Music Score.

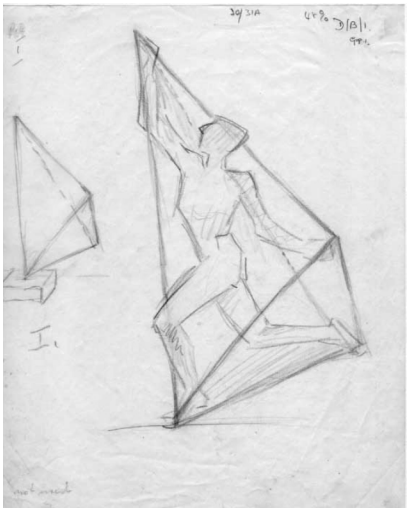
DRAWING AND CHOREOGRAPHY

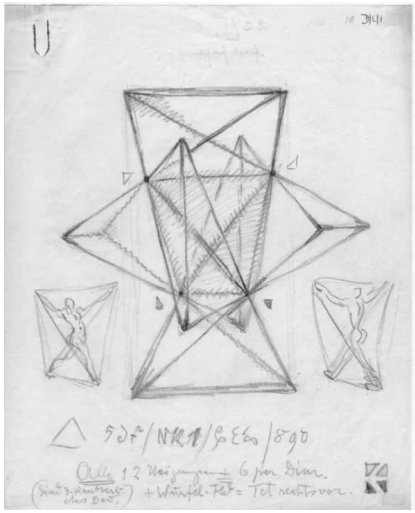
Each of the choreographers introduced (Rudolf Laban, Oskar Schlemmer and William Forsythe) have developed methods of exploring dance and the geometry of the human body through drawing. In Laban's analysis of movement he developed a graphic approach to choreography using drawing, diagrams, graphs, photography, 3D modelling and cinema.[58] Through this approach he expressed inner movements of energy in space and outer movements of the geometric placement of the body through two-dimensional modes of communication. The relationship between the body's range of motion and the types of designs a dancer can trace in the surrounding space are also explored.[59] For Laban, drawing and kinetographic inscription "serve the purpose of analytical examination and recording of movement, in order to be able to extract from a random flux of movement a series of basic units within which to construct ordered sequences and patterns."[60] In the following drawings, Laban's exploration of a dancer's movement is visualized as he connects the different parts of the body to develop a geometrical understanding. This visual construction of the body is key to his development of Labanotation.[61]

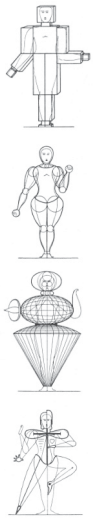
Similar to Laban, Oskar Schlemmer developed his understanding of movement through graphic representation, drawing his methods of transforming the human body into geometry. The selection of drawings shown here represent the ways in which his work can be seen as both architectural and geometric. He draws his four basic methods of abstraction to transform the human body: the laws of the surrounding cubic space, functional laws of the human body in its relationship to space, laws of motion of the human body in space, and abstracted forms of the human body.[62] He also draws the three types of costuming for each part of the *Triadisches Ballett*. The geometric quality of the costuming, which is evident in the drawings, further emphasizes how Schlemmer transforms the dancer into geometry.

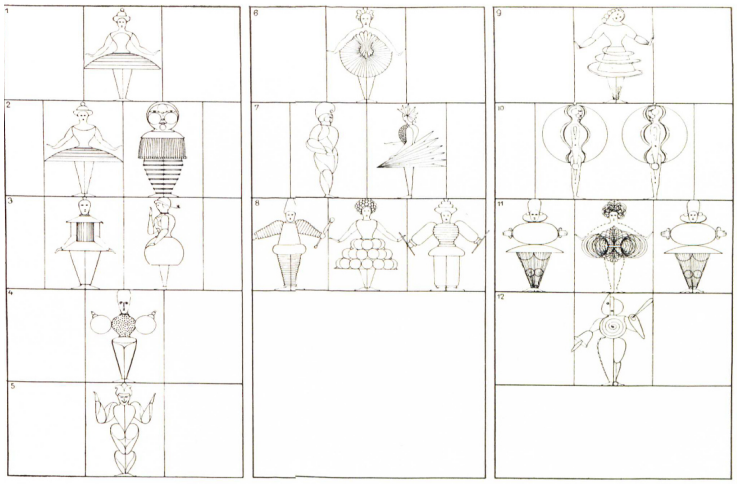
William Forsythe has also experimented with creating drawings to understand movement. In comparison to Laban and Schlemmer, Forsythe's drawings are more abstract. They do not necessarily show a dancer in space, but the composition of the intersecting lines starts to express movement. His sketch books are "filled with geometric drawings - intersecting geometric fragments, projection and spatial layering, and notes on mathematical and geometric processes."[63] His two drawings shown here start to demonstrate this abstract geometric exploration of movement. The first drawing represents "The Loss of Small Detail", one of his choreographic works. The second represents "The Books of Groningen", a choreographed object installation.

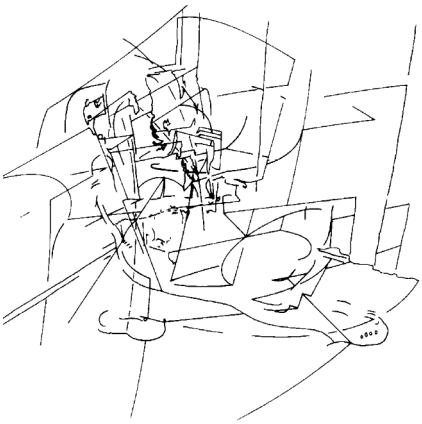
58. Sutil, "Laban's Choreosophical Model," 160.
59. Ibid.
60. Ibid, 148.
61. Spier, "Dancing and Drawing," 354.
62. Lahusen, "Oskar Schlemmer: Mechanical Ballets?" 72-73.
63. Spier, "Dancing and Drawing," 356.











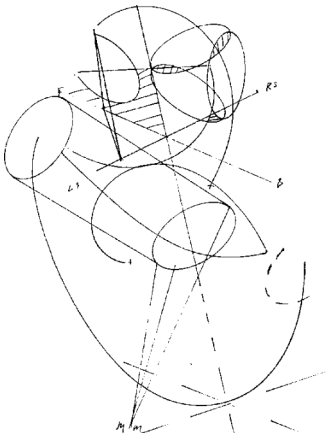


Figure 23 & 24 (top left and right): Rudolf Laban's sketches to explore movement.
Figure 25, 26, 27 & 28 (middle left (top to bottom)): Schlemmer's four methods of abstracting the body
Figure 29 (middle right): Schlemmer's sketch of the costuming for the Triadisches Ballett.
Figure 30 (bottom left): Forsythe's sketch of his choreography The Loss of Small Detail.
Figure 31 (bottom right): Forsythe's sketch of his choreographic object The Books of Groningen.

This final drawing example differs from the others. Rather than exploring movement through drawing, William Forsythe developed a choreographic work inspired by Daniel Libeskind's *End Spac*e drawings. Forsythe and Libeskind never actually collaborated but their interests created similarities in their works. When Forsythe first saw the *End Spac*e drawings in an exhibition his ballet *Enemy in the Figur*e was already created but he saw in the drawings what he was trying to do with his ballet.[64] He then used Libeskind's drawings to create his ballet *Limb's Theorem*. For this ballet Forsythe used two improvisational techniques: DAT time and room writing, which worked with Libeskind's drawings directly as dancers translated the two-dimensional drawing into performance.[65] In this process, dancers were given one of the *End Spac*e drawings and were asked to translate it into movements. The timing of the movement was determined by the manner and speed in which they "read" the drawing.[66] Each dancer's interpretation of the drawings was different, leading to the development of different movements for each individual. As a choreographer Forsythe understands his responsibility to:

> *"set the limits for improvisation and to make the different elements that the dancers generate cohere into a performance, just as Libeskind's drawings are coherent though made up of fragments. Forsythe's most profound connection to Libeskind is not in the formal vocabulary but in starting with geometry and drawing, from which they subsequently devise similar methods."*[67]

Libeskind's drawings are highly personal, improvised and operate within a strict order similar to the dancer's translation of the material into movement.[68] These methods of translating movement from three-dimensions to two and vice versa developed by Laban, Schlemmer and Forsythe start to inform how one can begin to take an abstracted approach to representing movement though notation.

64. Spier, "Dancing and Drawing," 352.
65. Ibid, 358.
66. Ibid.
67. Ibid, 361
68. Ibid, 359.

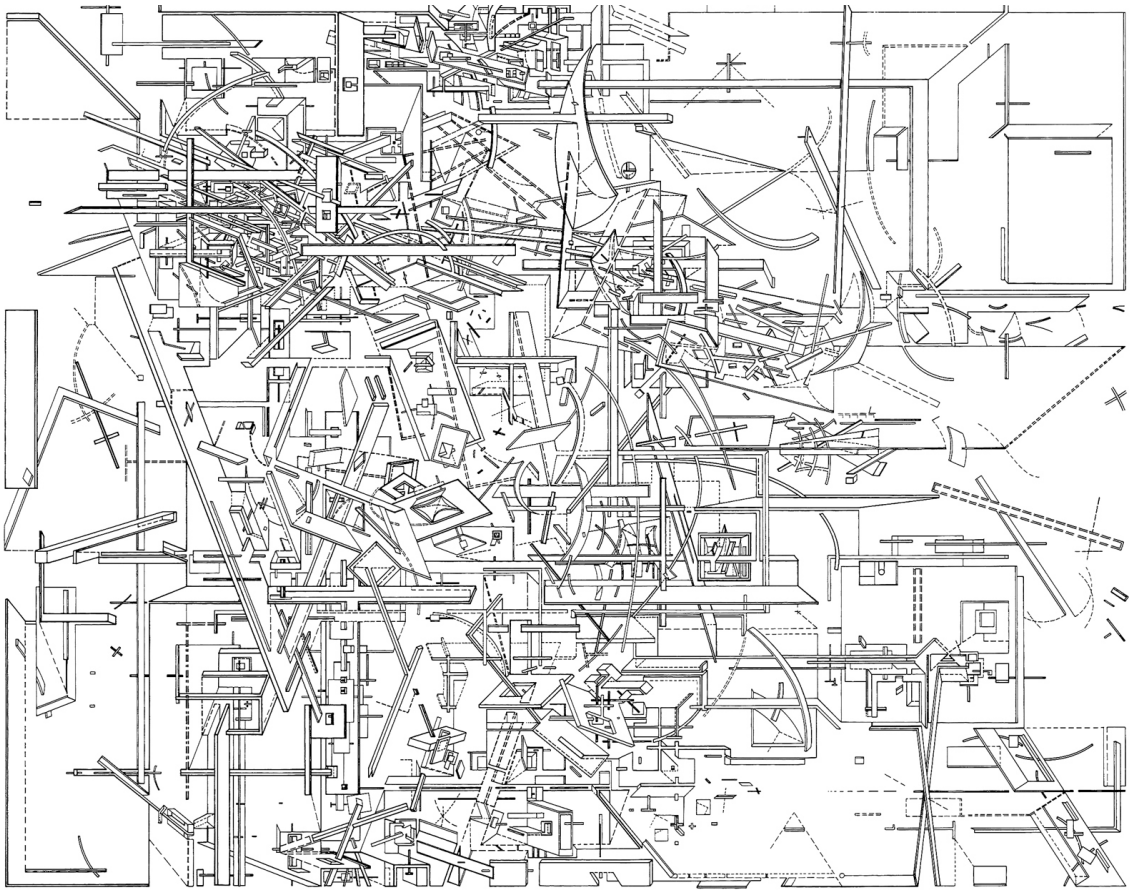


Figure 32 (top): Daniel Libeskind's drawing *Little Universe*.
Figure 33 (bottom left): William Forsythe's ballet *Limb's Theorem*.
Figure 34 (bottom right): William Forsythe's ballet *Limb's Theorem*.

RESEARCH CONCLUSION

In order to understand how movement can influence architecture this research seeks to understand the parallels between dance and architecture. Through the studied theories of performance we understand that performance is more than a staged work, but rather any aspect of daily life, with an emphasis on the relationship between an audience and a performer. These theories suggest parallels between performance and architecture framing how architecture becomes 'performative'. For example, through the physical movement of a building and the environmental and architectural gestures that generate a 'performative' quality. This research evidences the theoretical parallels between dance and architecture and sets the stage for a greater investigation into the metaphorical interpretation between the two disciplines. The three case studies introduced (the Laban Dance Centre, the Siobhan Davies Dance Studio and the Lewis Arts Complex) present three distinct methods of expressing the parallels between dance and architecture and while these methods are successful, a further investigation in movement as a choreographer is critical to my process. The work of choreographers Rudolf Laban, Oskar Schlemmer and William Forsythe became intriguing as each experiment with the geometry of dance and have found unique ways to express movement, creating work that, from my perspective, appears architectural. They each explored movement through three-dimensional and two-dimensional methods; physically dancing and drawing movement. These studies inspired how a research-creation method was necessary to pursue my investigation. With drawing and notation at the core of an architectural process a notational method which could translate the movement of dance from three-dimensions to two became the core of my movement research.

PART 2: INVESTIGATING CHOREOGRAPHED MOVEMENT

Figure 35: *Opposition, both dancers with light grid along body.*

CHOREOGRAPHY

Stepping into my role as a choreographer I searched to develop my own method of understanding the movement of dance, exploring the geometry of the body through the creation of a piece of choreography. Each individual choreographer has their own approach to creating a piece of choreography. I work with a piece of music allowing the rhythm and tempo to work with the movement to generate the dance. After years of choreographing in this manner I took a different approach for this thesis: eliminating the sound, I allowed the movement of the body to inform the choreography. Each gesture of the body determined the flux of movement through space that together created the work. Using my language and knowledge of dance I created geometry with the dancers' body. I also explored levels, choreographing movement in different elevations of space. Working in a duet style, with two dancers, allowed the formation of both an individual yet collaborative geometry, pushing the spatial arrangement. A relationship is developed between the two dancers, a mental and physical connection that enhances the work. Timing became an important layer to the physical connection between the two dancers as the movement of each individual had to be completed in consideration of the other dancer. Even more importantly, the geometric patterning of the movement provoked the five movement phrases; *Mirror*, *Push and Pull*, *Symmetry*, *Current* and *Opposition*. Each phrase was named based on the choreographed movement of the dancers. This choreography became the grounding for my notational exploration as I developed a method of translating the complexity of three-dimensional movement into a two-dimensional space.

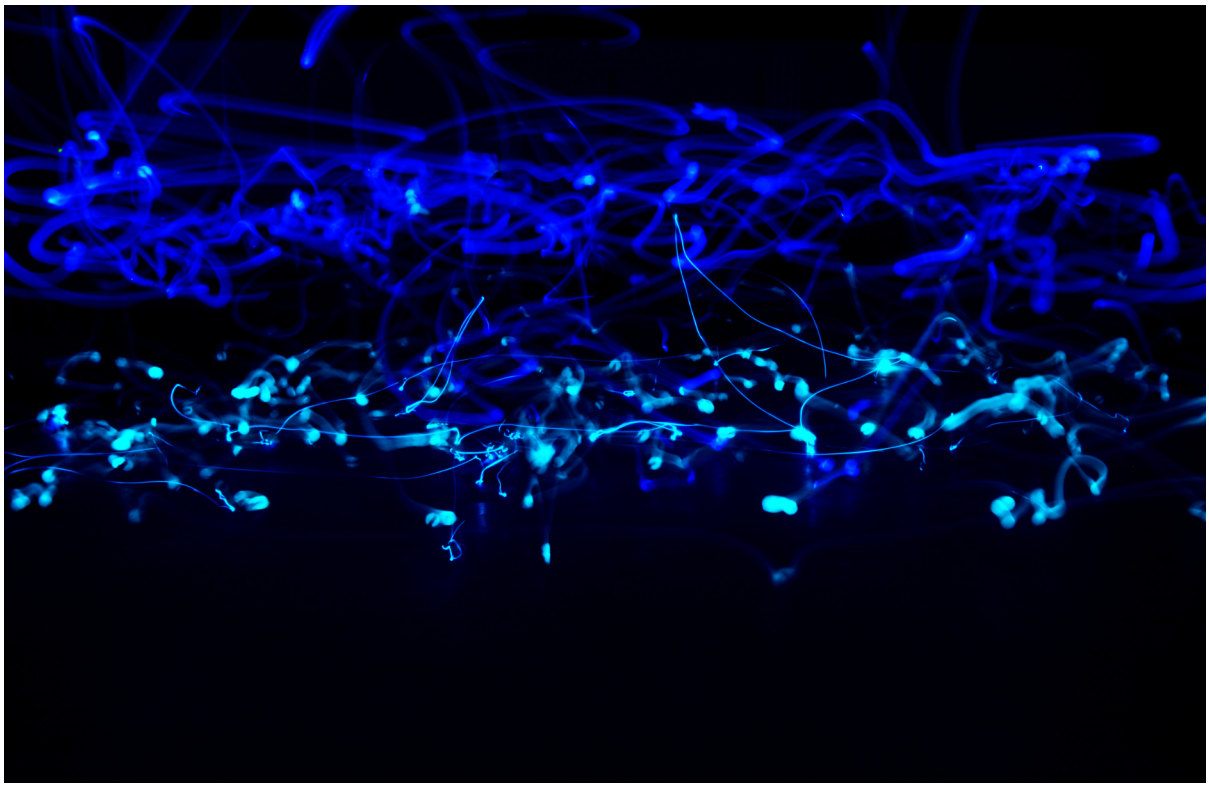



Figure 36 (top left): *Mirror* performed by April and Sara Machum.
Figure 37 (top right): *Push and Pull* performed by April and Sara Machum.
Figure 38 (bottom left: *Symmetry* performed by April and Sara Machum.
Figure 39 (bottom right): *Current* performed by April and Sara Machum.

ENCAPSULATING MOVEMENT

Through this movement research, I developed a method of notating choreography as a way to develop a new understanding of movement. This notation became an abstract representation of movement through space as I looked to capture my choreography in a way that would inform architectural gestures. While technical dance notation seeks to communicate steps, in my notation the gestures comes first; the notation is a result of the movement. It is not about the anticipation but rather purely understanding the movement. This process involved photographing my choreography by placing light markers on the dancer's body and taking the photos with long exposure. I experimented with two light techniques: single light points on the dancer's wrists and ankles and a light grid along the entire body. Both methods captured the movement of the dancers, but each exhibited a different level of detail, presenting different perspectives of the choreography. This method extracted the dancers and left the traces of movement through space, a view that speaks to a potential spatiality.

This translation of movement from three-dimensions to two was an important step in my research. In observing and analyzing the movement through these photographs I began to notice nuances in the choreography which add another layer of complexity to the movement. These nuances are unique to each of the five movement phrases, but they also speak to the piece as a whole, as well they emphasize the different layers of the relationship that exists between the two dancers. The nuances make clear the real aspect of a performed piece as opposed to the "planned": they highlight the imprecise details that exist in human movement. It is in these nuances where I see potential architectural strategies. The following pages introduce each of these movement phrases, describing the choreography and the nuances of movement.



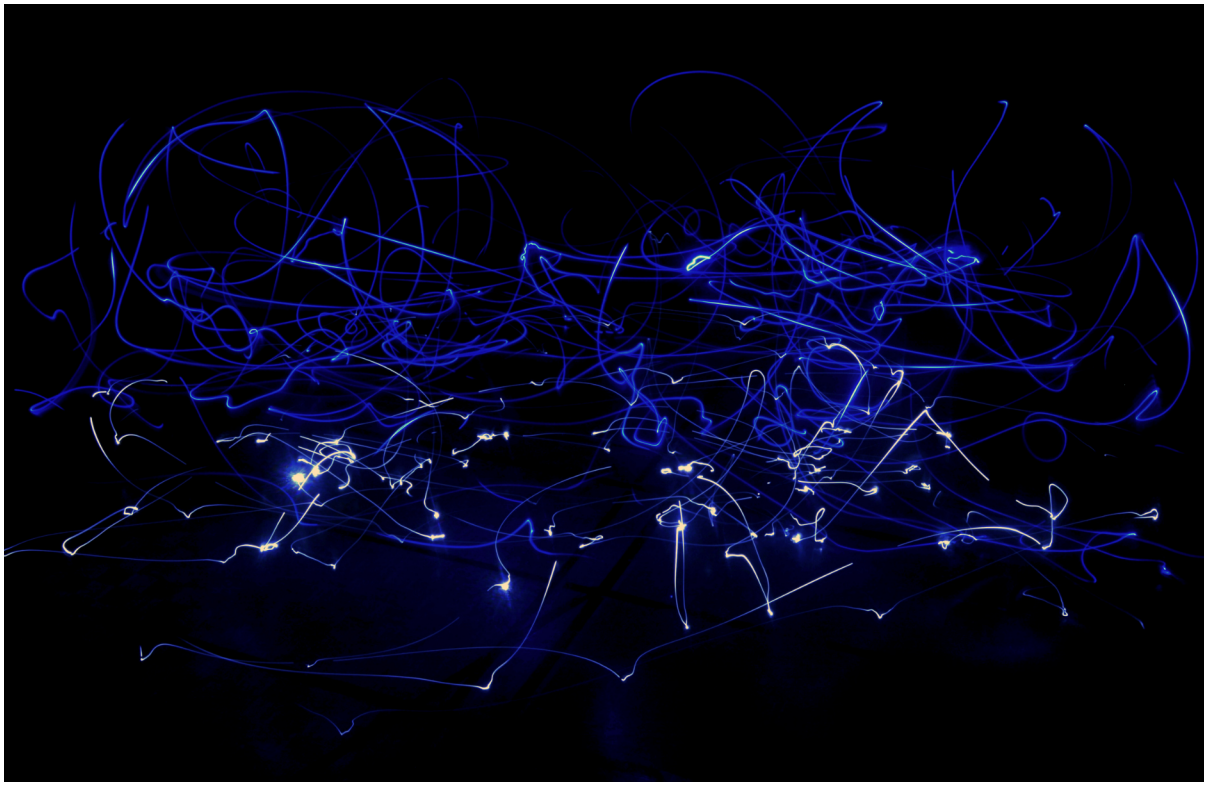


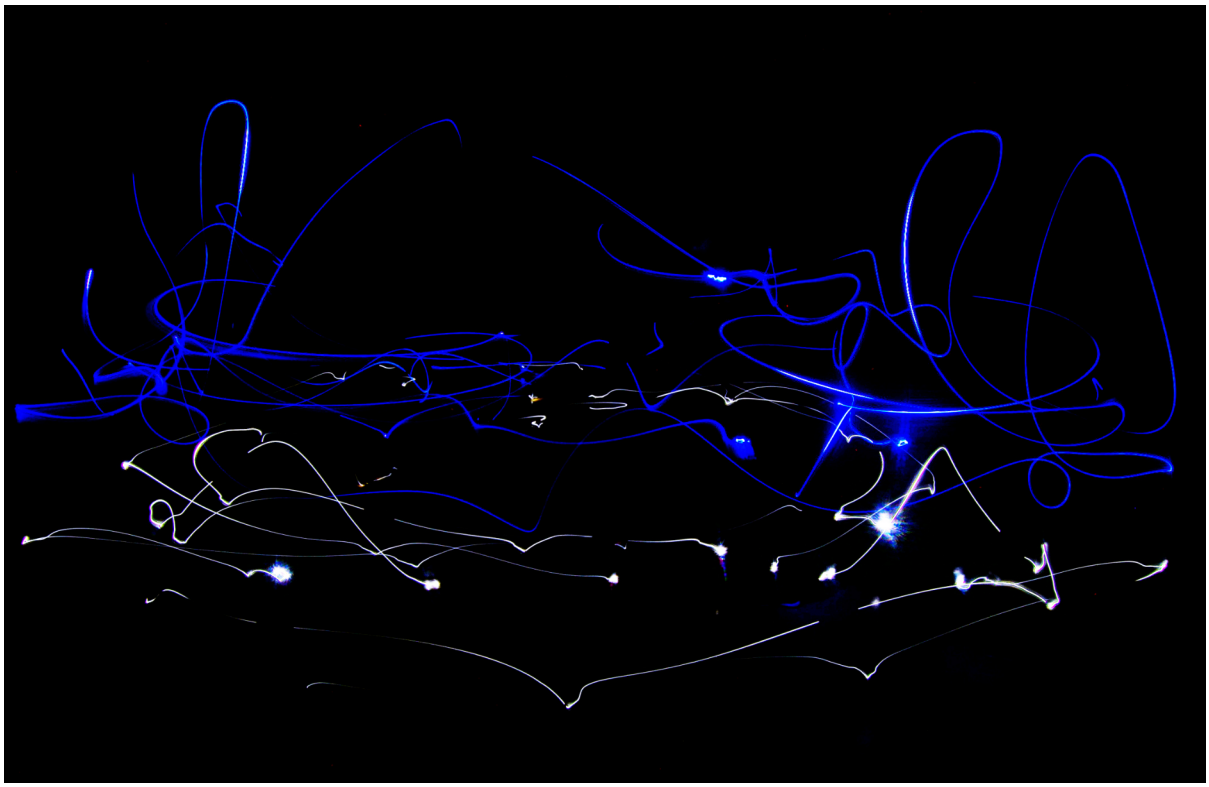
Figure 40 & 41: All movement phrases, both dancers with light points on wrists and ankles.

Mirror

The choreography of *Mirror* is two dancers mirroring each other's movement through space. A closer look at the photographic evidence suggests a nuance to this phrase: the two traces of light on either side of the page are not an exact mirror. Despite our assumption, the mirrored movement is not an exact replication, the two dancers will never be in complete unison. But why does this variation exist? In one respect the two dancers are of different heights (and no two people are of the exact same proportions) thus an exact mirrored movement could never be achieved. As well, no two people move in the exact same way, hence there will always be slight variations to any movement completed. For example, when performing the movement if there was a slight turn in the wrist, the light on that wrist would be captured differently, presenting two movements that may be the same in intention but appear slightly different in their execution. These small details of difference may not always be clear to the untrained eye. However, when seen in the still images these variations in the mirrored movement become visible.

In order to achieve any similarity, there does however need to be a relationship between the two dancers. This relationship is varied with different scenarios. For example, the movements of two dancers who have a strong personal relationship tend to be more similar than two dancers who have no connection outside of the choreography. When working with a group of dancers the dynamics of the group plays a key role in the performance of the choreography.

These nuances of the choreographed movement have implications on the architectural gestures. The variations that exist in the choreography present a unique aspect to the movement, adding a layer of complexity that makes the choreography intriguing. The intention is the geometric idealization, but the execution is in the real world and the choreography can only be an adjusted attempt to arrive at the idealization. In the translation to architecture these nuances of the choreography can inform the architectural gestures tectonically and abstractly, creating variations and relationships in the architecture that seek to inform movement in space.



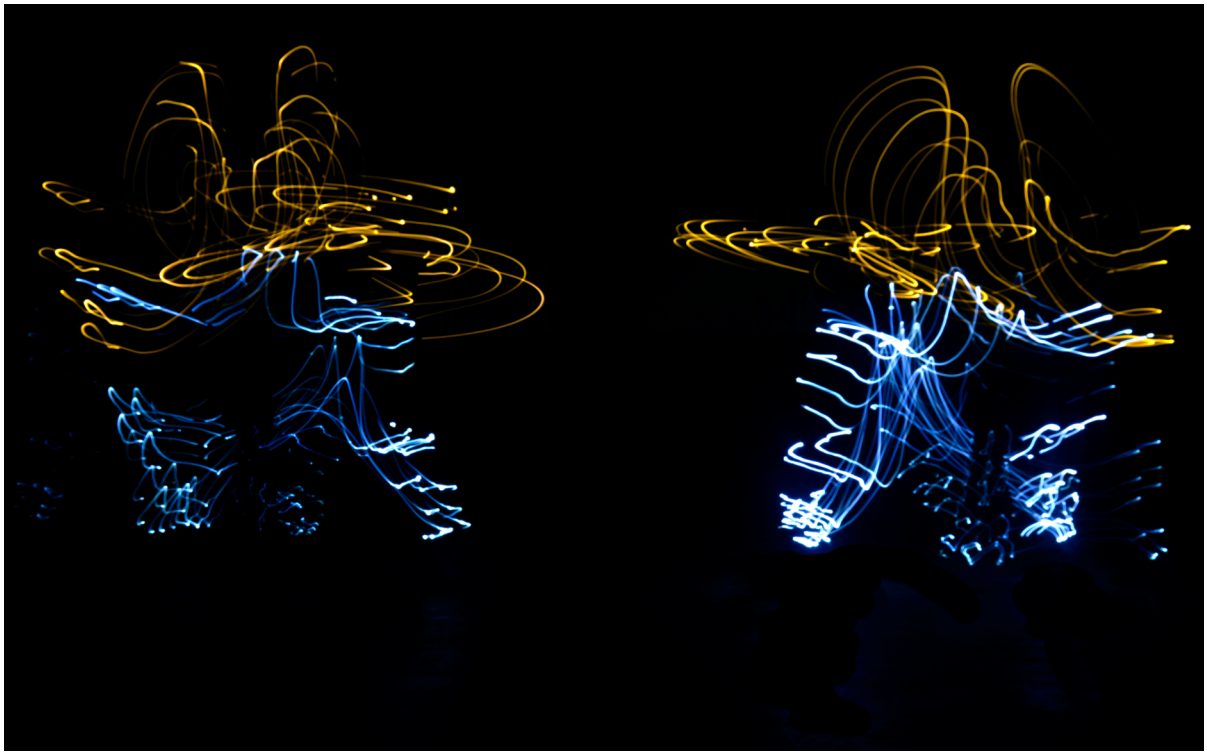


Figure 42 (top): *Mirror and run, both dancers with light points on wrists and ankles.*
Figure 43 (bottom): *Mirror, both dancers with light grid along body.*

Push and Pull

Push and Pull refers to the push and pull of the dancers' bodies through space. Looking to the gestures of this movement phrase several nuances begin to speak architecturally. The two dancers continuously have a physical connection to each other that promotes a structural reliance on one another as their arms and legs work to create a geometry that expands and collapses their bodies in space. This connection that is built through the movement has several implications. For example, there is a connection within the body, when one part pushes or pulls another must follow. That other part may be the other dancer following the movement of the first or it may be the movement of the arms reacting to the movement of the legs. In any instance, there must always be a physical connection of two movements not unlike the structural principles of tension and compression. Architecturally this builds a connection within the design as there must always be two or more parts pushing or pulling as one. This suggests a condition where the structure must maintain a connection in the geometric conditions as the form is altered.

The balance maintained by the dancers is another important aspect to the movement of *Push and Pull*. While maintaining their connection the dancers must find their balance, keeping themselves grounded in the floor as they resist gravity to keep themselves stable. The physical connection of the two dancers adds another challenge to maintaining their balance, as the dancers are not only resisting gravity to find their stability but they have to compensate for each other and think about the connections between them. In order to achieve this stability in the body the dancer's weight must shift depending on where the arms or legs are placed in space. A dancer is trained to understand the shift that must happen in their body to maintain balance. They are trained to find their balance by altering the kinetic energy within their body to keep themselves from falling over. At the end of this phrase the dancers break their connection and collapse their bodies as they fall out of the movement catching themselves as they hit the floor and flow into the next movement phrase. Most of the movement happens in space, or above the floor, this is where most of the light traces are visible. Closer to the floor there is less light proving that while the movement in space is complex the support is minimal. When the push and pull of the body through space occurs the dancer's balance must be maintained. In the translation to architecture a similar condition occurs. As the building form starts to push and pull the balance in the structure must be maintained.

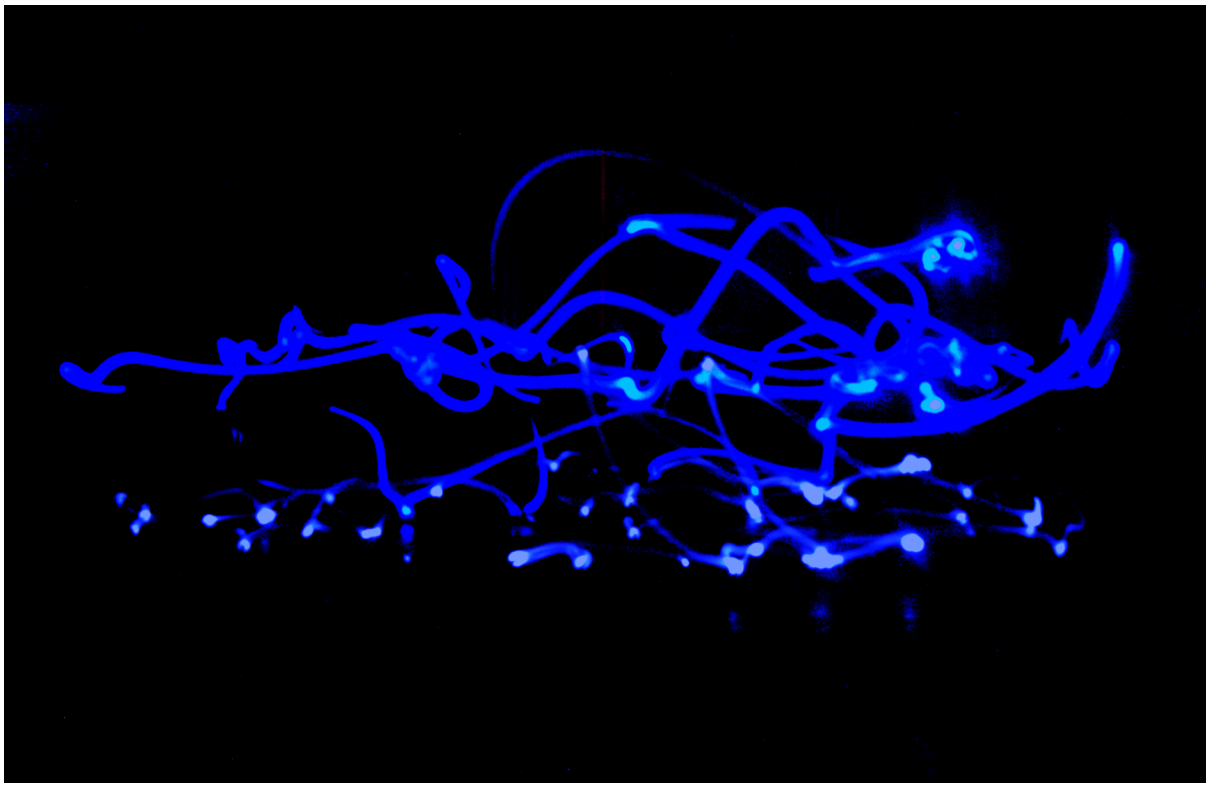


Figure 44 (top): *Push and Pull, both dancers with light points on wrists and ankles.*
Figure 45 (bottom): *Run and Push and Pull, both dancers with light grid along body.*

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Symmetry

The movement of the two dancers in this phrase is intended to be symmetrical but slight variations in the body create a symmetry that is not precise. The movement relies on the connection, both physical and mental, the two dancers have with one another. This phrase is very similar to *Mirror* but minor differences in the movement present separate nuances. In *Symmetry* the dancers are striving to be exactly the same, while in *Mirror* there are slight variations to the movement as the directions of travel and focus for the two dancers is opposite. Another aspect is that the mirrored movement requires two parts, or two dancers, to create the effect, while *Symmetry* could become a series of parts, or multiple dancers, who are all completing the same movements. In studying the photographs of Symmetry and comparing them to *Mirror* it becomes intriguing. The movements of the two dancers in *Mirror* are noticeably different, however, in *Symmetry* the similarities between the two dancers are closer. Perhaps this becomes a result of the two dancers being able to mimic each others movements as opposed to mirroring them. The nuances of *Symmetry* present a geometric condition that speaks architecturally, generating conditions in which a series of parts develop a relationship between one another. When a gesture is imposed on one part it creates a reaction in which a similar gesture is generated in the other parts, constantly maintaining the relationship in the architecture.

Another aspect of the choreography which is not captured through the photographs is time and in dance the timing of movement plays a key role to the quality of the performed choreography. Within *Symmetry* the dancers strive to find unity in the timing of their movements. However, this precise timing may never be achieved, if they are off by even the slightest moment the result is no longer symmetrical.

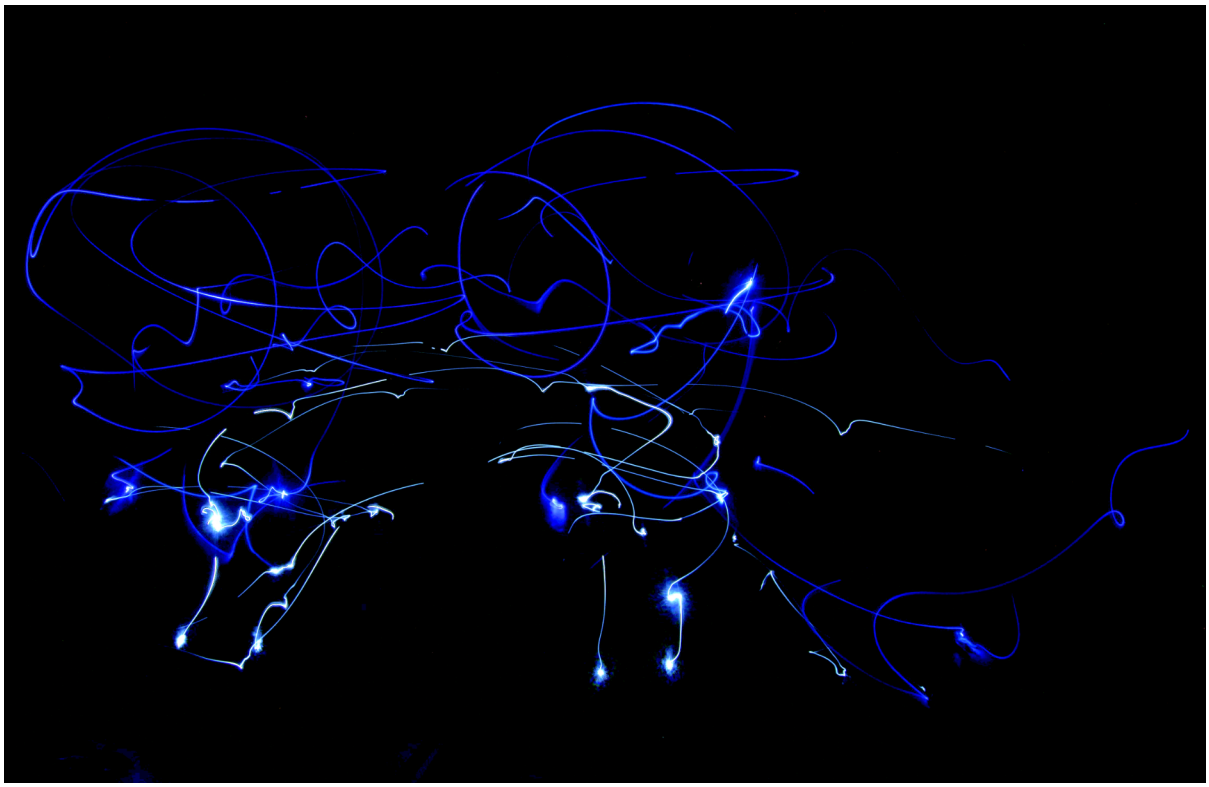
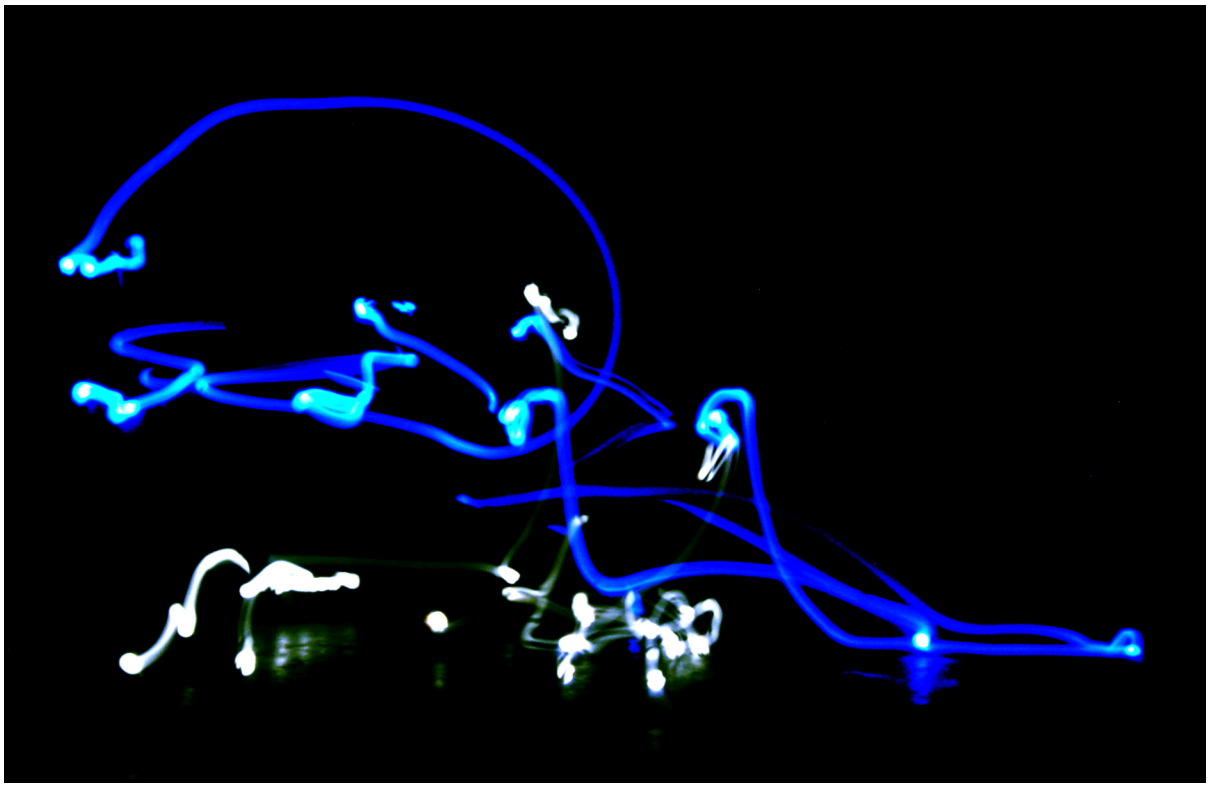


Figure 46 (top): *Run and Symmetry, both dancers with light points on wrists and ankles.*
Figure 47 (bottom): *Run and Symmetry, both dancers with light grid along body.*

Current

This movement phrase is informed by the dancer's energy. The energy in space that is not visible but felt by the dancers as they move through the choreography. Even when the dancers are standing still, they continuously create an energy that fills the space as they anticipate movement. Through this flux of movement, a unique relationship between the two dancers is presented. As one dancer transitions from one position to the next, the energy they create informs the movement of the other dancer causing a movement reaction in space, almost a ripple effect. For example, as one dancer shifts their weight from an upright position, into a lunge, the energy created pushes the other dancer to slide out. This flow of the dancer's movement through space is smooth and constant, never static, creating an environment which makes them want to move. When analyzing the photos, one can start to recognize this energy as the lines of movement sweep across the page.

Architecturally, *Current* speaks to the energy of a space: The visible and invisible energy that is generated through the architectural gestures. These gestures work to promote the movement of people through space creating a flux of movement though a building. *Current* also speaks to the gestures of generating a work of architecture. Similar to the choreography, the act of generating one architectural gesture can cause a reaction in space that informs a similar gesture in the building to occur, creating an energy in the building that builds the relationship of the architecture.



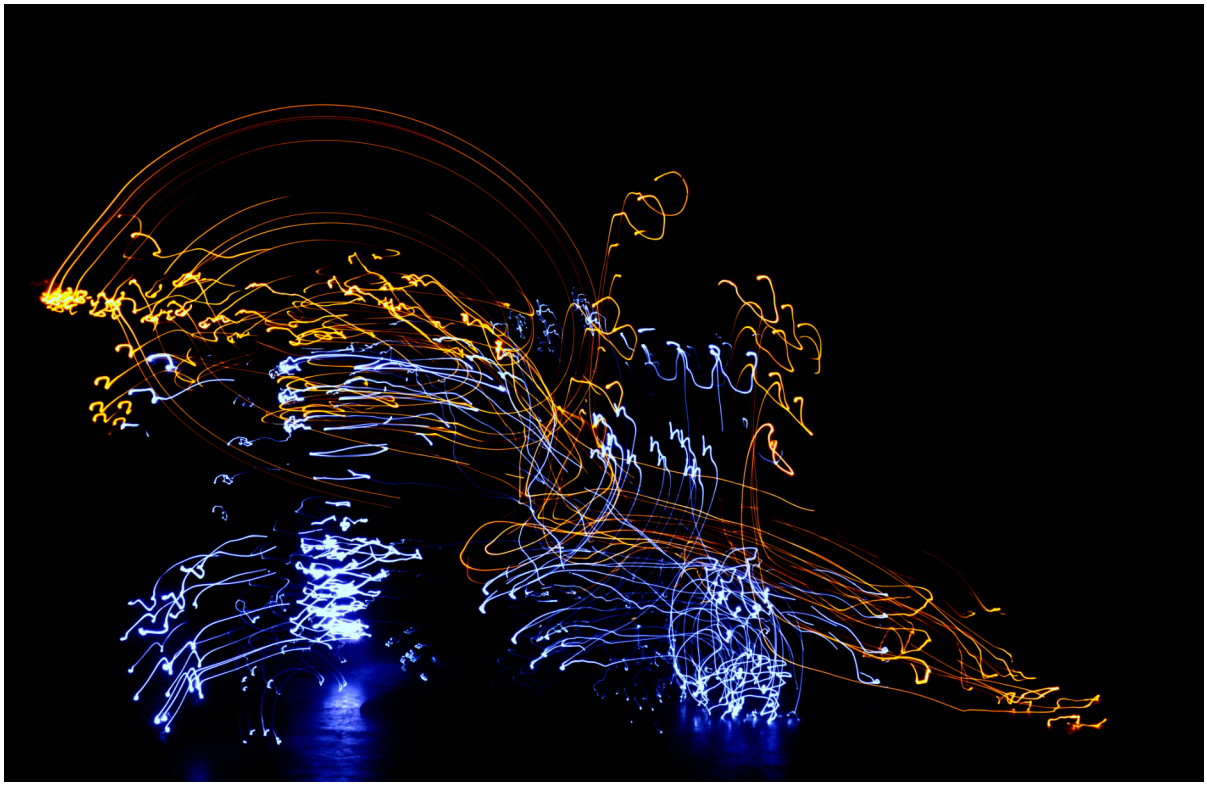


Figure 48 (top): *Current, both dancers with light points on wrists and ankles.*
Figure 49 (bottom): *Current, both dancers with light grid along body.*

Opposition

This movement phrase presents two different arrangements of choreography where each dancer performs two separate movements based on the same choreographic groundings, creating a sequence that is similar but opposite for each dancer. The variations that exist are based on the arrangement of the steps as well as how the gestures are performed, as each dancer presents movement performed with slight variation. When one is observing this choreography the movements of the two dancers may not look exactly the same. However, when we start to observe the choreography in the photographs we notice similarities between the two dancers as we observe the traces of movement that are left on the page. As each dancer performs opposite movements, they end the phase in mirrored positions.

The aspect of time is key to this movement phrase; however, this cannot be captured through the photos but we can begin to speak to this nuance. The photos present two similar movements through space performed by each dancer. However, in the sense of the performed choreography the two opposite arrangements of movement create a unique connection between the two dancers as their movements start to play off one another. Similar movements completed at different moments bring the two dancers to similar endings. In the case of architecture the nuances of *Opposition* can be translated through two main aspects, arrangement and variation. Two spaces or architectural elements, which are similar, can be approached in two opposite ways through the arrangements or variations of the space.

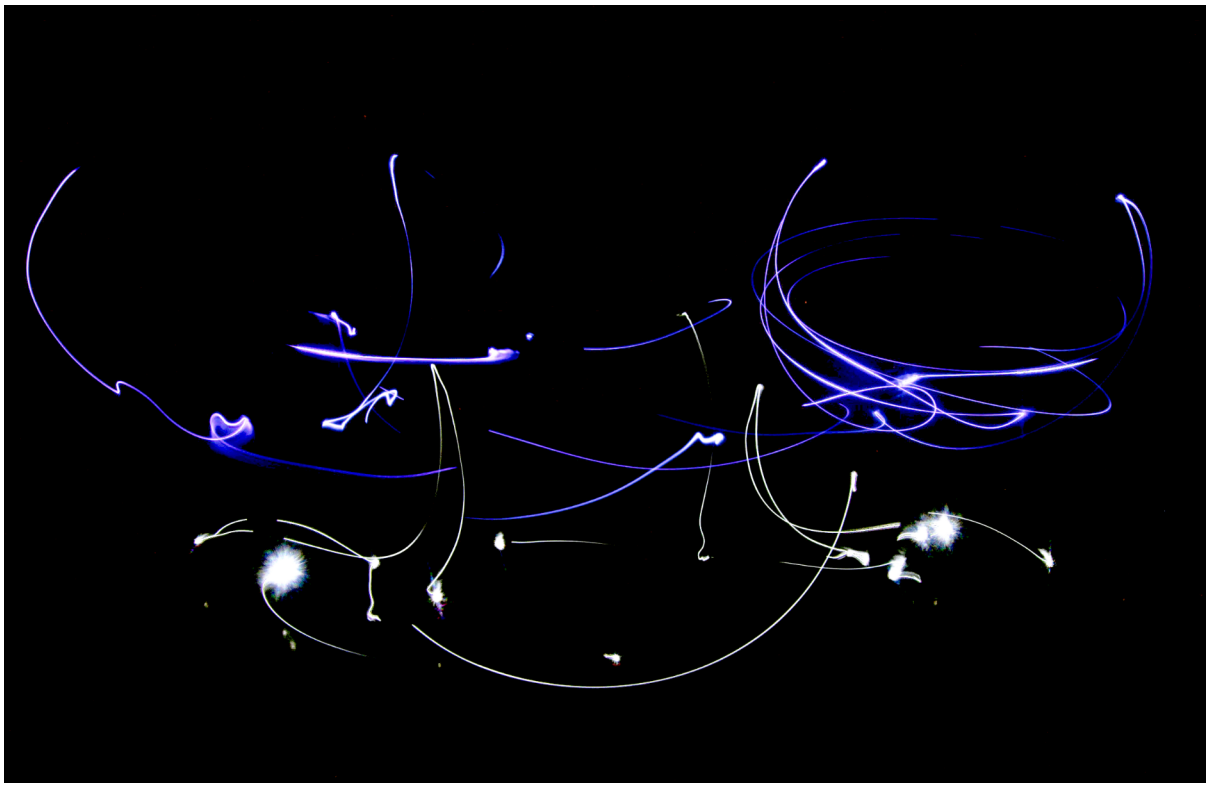


Figure 50 (top): *Opposition, both dancers with light points on wrists and ankles.*
Figure 51 (bottom): *Opposition, both dancers with light grid along body.*

PART 3: DESIGN

Figure 52: *Current and Opposition, both dancers with light points on wrists and ankles.*

SUDBURY MOVEMENT CENTRE: DESIGN INTENTIONS

The Site

In approaching the architectural design, I am brought back to my thesis question; how does movement influence architecture and in turn how does architecture influence movement? With my research development setting the stage for my design work it is my movement analysis, understanding the nuances of the choreography, where I have employed an architectural process. It becomes the nuances of the performed gestures that inform the architectural gestures, generating a design approach that further explores the connections between my choreography and architectural design.

The proposed building will become a space for movement, (all movement including Tai Chi classes, movement workshops, or wheelchair dance classes) with a specific focus on designing a theatre space for dance. In approaching the site selection, the City of Greater Sudbury is the starting point. In the last few years, the visual, musical and theatrical arts have thrived in the community while dance has not seen the same development and recognition. The dance community in this city is healthy yet lacks a platform to promote movement, I propose that this platform be situated in the downtown core. With the Sudbury Theatre Center site as the location for design, the proposed building will sit on the opposite side of the site and a relationship will be developed between the existing theatre and the proposed building. The site design will play a key role in attracting the audience to the building as the exterior becomes a performance for the entire community. As stated by Carlson, "The meaning involved in such matters as location and exterior decoration are of course available to all members of a community, whether they attend the theatre or not."[69]

While maintaining the Sudbury Theatre Centre, STC, my centre for movement will be situated on the opposite side of the site. This will allow the existing and proposed buildings to work and evolve in conjunction with each other, preserving the historic value of the theatre as well as revitalizing the experience. My site strategy will involve relocating parking off the site which will be accommodated by several offsite parking lots within the area. Before developing a site design, it is important to understand the programming of the building as the site will become a direct reflection of the space.

69. Marvin Carlson, *Places of Performance: The Semiotics of Theatre Architecture*, (Conell University, 1989), 128.

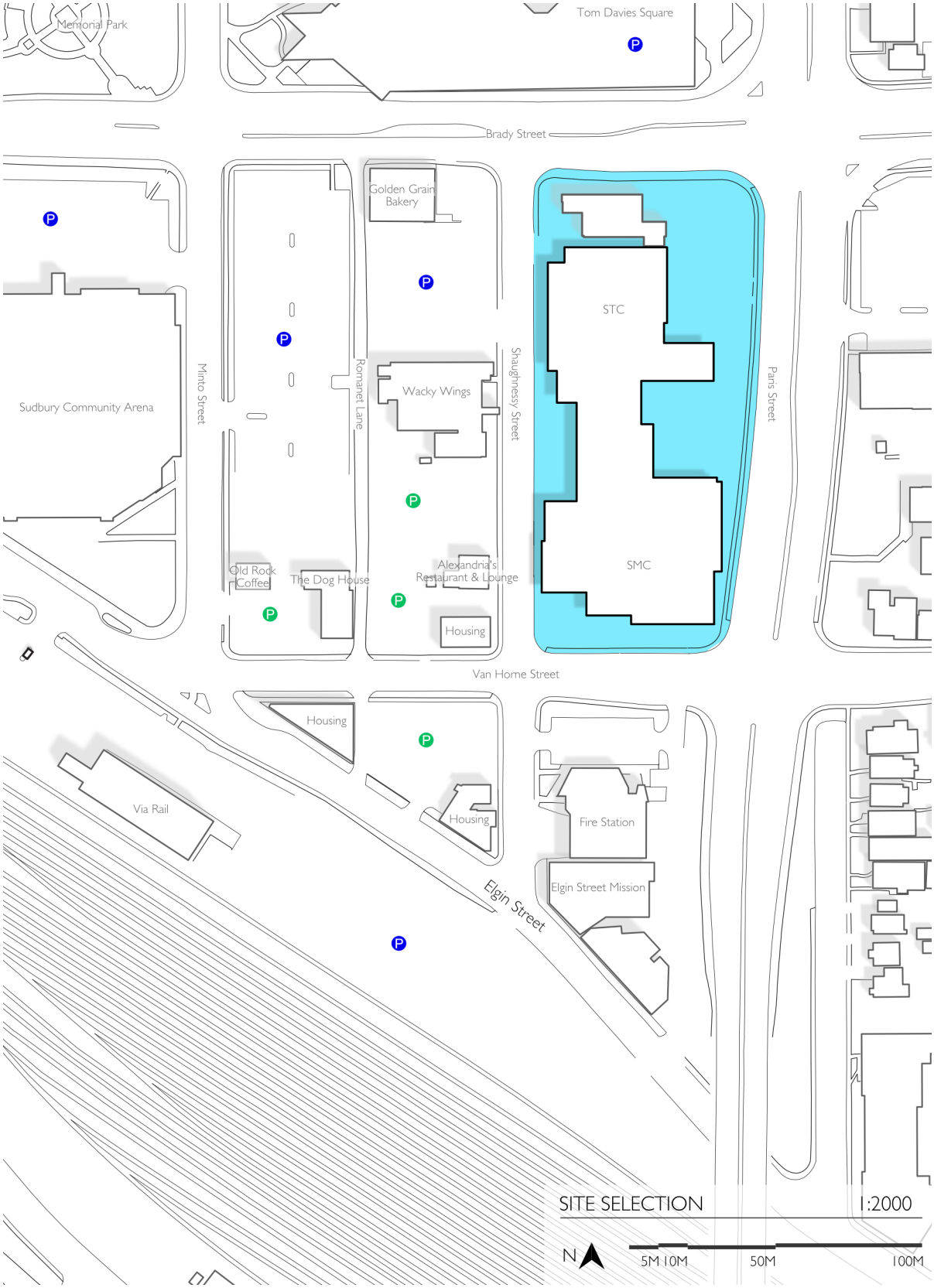


Figure 53: Site Map.

Sudbury Movement Centre: Program Intentions

With movement as the central concept for design this evokes the questions of how does the architecture of the space become a reflection of the program? How does one create an immersive experience for the audience through the architecture of the site, the lobby and the theatre space? As movement is the architectural priority, I am led to the design of the Sudbury Movement Centre, SMC, the programming of this space is about movement with the main programmatic element being a performance space for dance. Often choreographers enjoy the challenge and find benefits to working in unique performance environments. Considering this, the theatre will become an adaptable performance space with the ability to change for different performances, transforming the stage and audience space into anything the choreographer chooses or the performance requires. This would also provide an environment that becomes a community space for movement, creating a space that accommodates modern dance performance, Tai Chi classes, or dance specific workshops: any program that puts an emphasis on movement. This transformative space will allow the choreographer or user to determine the configuration of the space. While the design of the theatre is a key element of design I have also put an emphasis on the public interfaces such as the site and the lobby, the spaces that are dedicated to creating an immersive experience for the audience, from the moment they arrive until after they leave. This theatre will become an expanded space for movement beyond the specific program, branching out from the theatre into the lobby and onto the site.

As the SMC will be situated in relation to the existing STC, the parallels between the two spaces will become a driving factor in the design. These parallels are developed with the choreography in mind, the two dancers maintain and build a relationship through the performed gestures. For example, a connection is built through *Mirror* and *Symmetry* where the two dancers have to physically and mentally understand each other's movements as they move in similar ways. As well, *Current* demonstrates a relationship based on the actions and reactions of the energy in space. Each of the movement phrases layer the relationship between the two dancers, enriching their connection. Understanding this relationship in the choreography gives a new perspective on how an architectural relationship between the STC and the SMC can be developed, informing and challenging their connection physically, socially and theoretically. Rather than working as two separate spaces on one site, the two buildings will play and react off each other, creating a communication between them that will enrich the entire site into an entire complex dedicated to movement.

SHARED PUBLIC SPACES The spaces dedicated to the audience's experience from the moment they arrive. The spaces that are shared between the STC and the SMC

Vestibule
Ticket Sales/Admin Office
Coat Room
Lobby

STC PUBLIC SPACES The spaces the have transformed the experience of the STC to reflect the architectural intentions.

Lounge
Roof Top Garden

STC PERFORMER'S SPACES The space that have transformed the performer's experience of the STC.

Rehearsal Space
Performer's Lounge

SMC PUBLIC SPACES The spaces dedicated to enhancing the audience's experience before they enter the SMC theatre.

Upper Lobby
Lounge
Washrooms

SMC PERFORMANCE AREAS The spaces that have the ability to change based on the requirements of the performance.

Audience Seating
Stage (including wing space)
Control Room (Lighting, Sound & Stage Manager)

PERFORMER'S SPACE The backstage support spaces for the performers that will have the ability to switch programatically into community spaces.

Dressing Room (3) and lounge
Rehearsal Space 1
Rehearsal Space 2
Adaptable Lounge

STAGE SUPPORT and SERVICES Spaces dedicated to production support.

Loading
Backstage Storage
Backstage Restrooms (2)
Exterior Storage

Figure 54: Program table for the Sudbury Movement Centre.

SUDBURY MOVEMENT CENTRE: DESIGN

The relationship between the two buildings, the STC and the SMC, has become a driving factor in many aspects of design, first, in generating the program requirements of the space. Using the STC as a case study the programmatic spaces were mirrored in order to understand the spatial relationship of the two buildings on the site. Drawing from the nuances of *Mirror*, it is understood that a choreographed mirror is not an exact replication, thus the two buildings present similar but slightly different spatial arrangements. As the architecture develops, the relationship between the two buildings evolve and the spatial programming shifts, altering the spaces within the STC and the SMC as well as developing shared spaces between the two buildings.

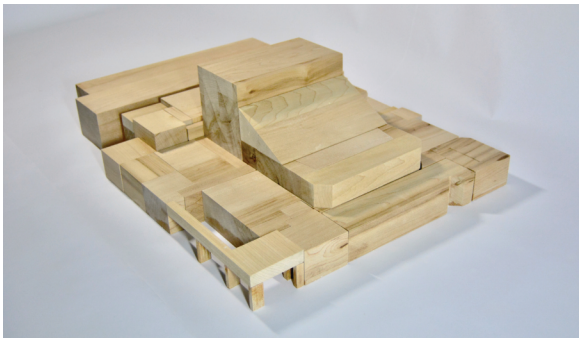
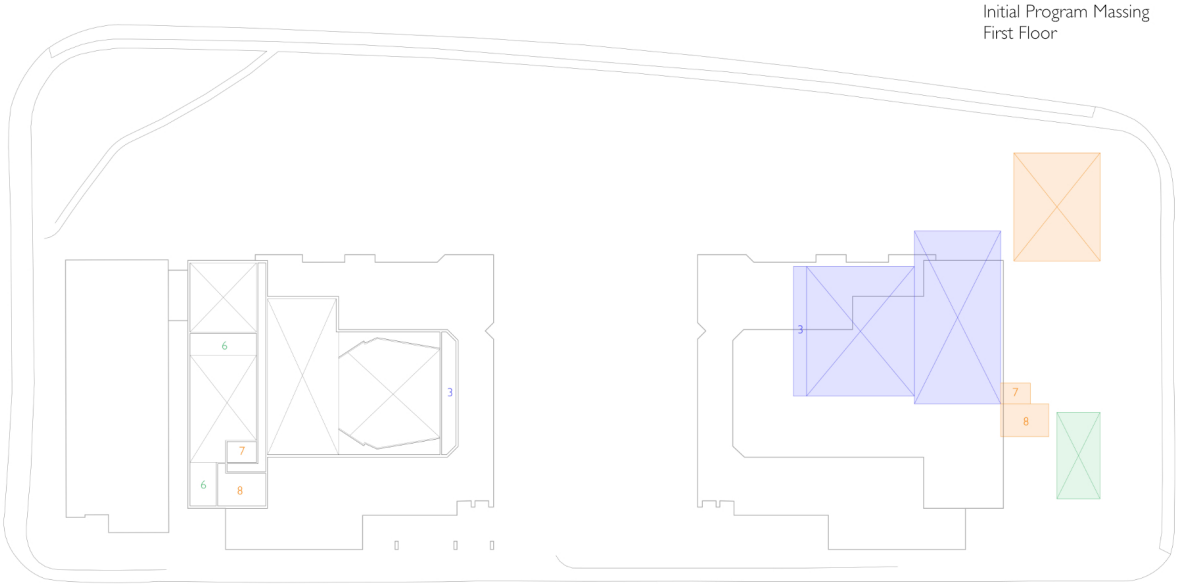


Figure 55 (left): Massing model of the STC.
Figure 56 (right): Massing model of the SMC.
Figure 57 (next page): Initial program drawing of the STC and SMC.

Initial Program Massing
First Floor



N 5M 10M 20M

Initial Program Massing
Second Floor

Sudbury Theatre Centre

Public Space
1 Vestibule
2 Ticket Sales
3 Lobby
4 Coat Check
5 Washrooms
6 Lounge
7 Bar
8 Storage

Performance Areas
1 Audience Seating
2 Stage
3 Control Room

Performer's Space
1 Dressing Rooms
2 Green Room (Backstage Lounge)
3 Stage Door Security (Stage Manager)
4 Costumes
5 Rehearsal
6 Wardrobe
7 Tech Storage
8 Prop and Design

Stage Support and Services
1 Office
2 Building Services
3 Janitor
4 Backstage Washroom
5 Loading
6 Storage
7 Transformer
8 Shop

Sudbury Movement Centre

Public Space
1 Vestibule
2 Ticket Sales
3 Lobby
4 Coat Check
5 Washrooms
6 Lounge
7 Bar
8 Storage

Performance Areas
1 Audience Seating
2 Stage
3 Control Room

Performer's Space
1 Dressing Rooms
2 Green Room (Backstage Lounge)
3 Stage Door Security
4 Costumes
5 Rehearsal
6 Wardrobe
7 Tech Storage
8 Prop and Design

Stage Support and Services
1 Office
2 Building Services
3 Janitor
4 Backstage Washroom
5 Loading
6 Storage

The design of the Sudbury Movement Centre puts the emphasis on movement, provoking movement and informing movement. Whether a performer or an audience member the movement of the users through and experience of the space are a driving factor in the design. With a focus on creating a movement through space this imposes a condition where all circulation spaces must become accessible. For example, with each architectural gesture that suggests a change in floor elevation both ramps and stairs are incorporated to enhance the experience of the space for all users.

In arriving to the building as a performer, a separate entrance takes the performers into the backstage space, the dressing rooms and lounge area. In creating an inviting and positive environment for the performers, the space is filled with natural light through windows that connect the exterior and the backstage area, creating a connection that is not typically developed in a performance space. On the opposite side of the building another lounge space provides an adaptable backstage space, becoming a meeting space, a lounge, a hang out, a warmup room, or storage. Moving through the backstage area, the users approach the two rehearsal rooms and the stage. By incorporating two rehearsal spaces the building provides ample space for different movement activities. This generates a building that becomes more than a place for a finished performance but a space that is always filled with movement, a theatre where active creation and development occurs. Through several gestures, these spaces enhance the relationship between the general public and the performers, becoming spaces of inclusion where one can watch a performance or become involved in movement activities. Each of the rehearsal spaces are filled with natural light as they too open up to the site with transparent and semi transparent windows. This creates movement through the shadows and colouring of light entering the space. As well, it provides different views into the space as people on the site are presented with silhouettes of the dancers within.

Figure 58 : View of the performers lounge in the SMC.
Figure 59: View of rehearsal space one in the SMC.

With an emphasis on creating an adaptive environment the rehearsal rooms and stage walls are constructed out of folding and sliding partitions which allow the space to open into an entire space for movement: an adaptive environment that creates many performance platforms. This concept of designing an adaptive space continues as we transition into the theatre. Designed as a black box style, this theatre provides almost a blank canvas, giving the opportunity for the choreographer to choose how they present the space. The audience seating will also become adaptable as the seats will have the ability to fold down into the floor, creating either bleacher style seating or theatre style seating. Again, giving the user the choice but not full control on how they present the space.

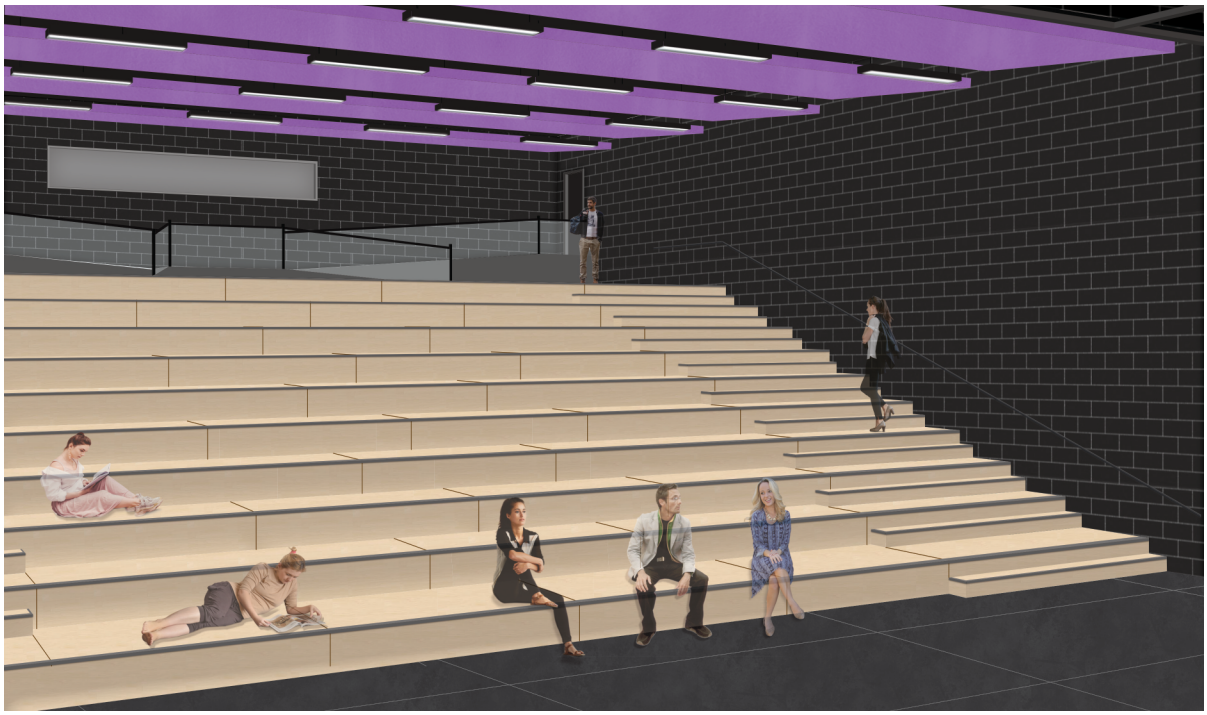


Figure 60 (top): View in the SMC theatre towards the audience.
Figure 61 (bottom): View in the SMC theatre towards the stage.

With movement as the architectural priority, creating views to movement has become a key feature to the design. As the rehearsal and theatre spaces adapt with the folding and sliding partitions different spatial layouts create different perspectives, suggesting different views of movement that could be created through the architectural layout of the space. The lower hall presents another set of views to movement. Situated in-front of the theatre the hall is glazed with transparent and semitransparent windows that create views between the interior and exterior. When the wall between the theatre and this hall is open it creates views from the audience seating to the site, adding a layer of movement to a performance in the space. As well as enhancing views to movement the design of this hall puts an emphasis on movement, becoming a circulation space, a warm up space or opening to become part of the performance space. Moving up to the second floor and into the public space the architectural gestures of creating views to movement remains a driving factor of design. Circulating the second floor, windows fill the facade, creating many different views onto the site, further developing the connection between the site and the interior. Integrated into the circulation space are windows that look into the rehearsal spaces below. These openings present a unique set of views to movement, immersing the audience into the experience of movement before the performance starts.

Figure 62 (top): View from the SMC second floor circulation space looking into rehearsal space one.
Figure 63 (bottom): View in SMC lower hall opened up to the theatre.

In enhancing the relationship between the STC and the SMC many of the gestures of generating a new architecture have impacted the architecture of the existing building. Currently the STC provides minimal spaces for both the performers and the audience. In addressing the experience of the performers, a second rehearsal space has been integrated on the second floor. This rehearsal space could be used for any type of movement, a rehearsal space for the current show, a warm up space for performers, or a space for movement classes or workshops. Situated beside this new rehearsal space is a second performers lounge which becomes adaptable in the programming but is dedicated to providing additional room for movement. This space opens up onto the new garden roof creating a connection between the back stage space and the exterior. Mirroring my architectural intentions of the SMC onto the STC through these small gestures enhance the experience for the performers and audience members of the existing theatre.

Figure 64 (top): View of the STC lounge.
Figure 65 (bottom): View of the SMC lounge.

The lounge space presents another parallel between the STC and the SMC. Expanding and reorienting the lounge space in the STC changes the experience of the space. Currently the lounge is closed and unwelcoming. The new lounge is open and connects itself to the exterior with glazing that surrounds the facade. A symmetrical space is presented on the second floor of the SMC as it too opens itself onto the site. Both spaces present two opposite views to the exterior but they both create a welcoming atmosphere. Each architectural gesture that is made to one space is made to the other, constantly creating a connection between the two. Layering to this concept of symmetry between the two buildings a rooftop garden is integrated into both spaces, becoming a secondary summer lounge and an additional performance platform. Unique exterior paths circulate both performers and audience members up to these rooftop gardens.

Figure 66 (top): View of the STC rooftop garden.
Figure 67 (bottom): View of the SMC rooftop garden.

Finally we move into the lobby, the space that first welcomes the audience to the theatre. The lobby creates an energetic atmosphere that makes the audience feel welcome and excited about the performance they are about to view. The architectural gesture of connecting the two theatres with the lobby enhances the relationship between the STC and the SMC. The lobby becomes a shared space and a shared experience. Every architectural gesture in this space works to inform and provoke the movement of the user. The grand staircase is one of the most iconic architectural gestures in a theatre and in my design, I have taken a slightly different approach to this idea. The staircase becomes both a circulation space and seating area. Stairs, ramps and bleacher style seating are integrated together to create a unique environment that is accessible by all users. The incorporation of seats allows the opportunity for smaller performances to happen in the lobby. Different elevations in the floor start to generate a unique movement in the space as different paths of travel are created through both ramps and stairs to accommodate the floor elevation change. A geometric patterning is integrated into the floor through which the floor becomes concave and convex. These gestures start to suggest a more interactive connection between the users and the architecture. The entire facade of the lobby is constructed of curtain walls which builds on the concept of views to movement as the interior and exterior spaces are open to one another. Users on the inside have views to movement on the site and user on the site have views into the lobby.

Transitioning onto the site, the design of the landscape becomes a direct reflection of both the programming and design of the Sudbury Movement Centre. In the choreography it is understood that there is a relationship between the two dancers and each choreographed gesture relies on this relationship. The site and building become a metaphor for this relationship, a communication between the two is developed as they work together and play off one another. After developing the design of the SMC the gestures of the site design became a reflection of the Centre. Different elements of the building have been pushed and pulled informing the change in topography on the site. Through the landscaping geometric topography is introduced to the site which pushes and pulls the terrain to suggest movement as users are able to interact with the landscape. Reflecting the lobby, bleacher style seats are also integrated into the site. Furthering the idea of movement on the site, another platform for movement is integrated into the design. This platform becomes a stage in the summer months and a skating rink in the winter.

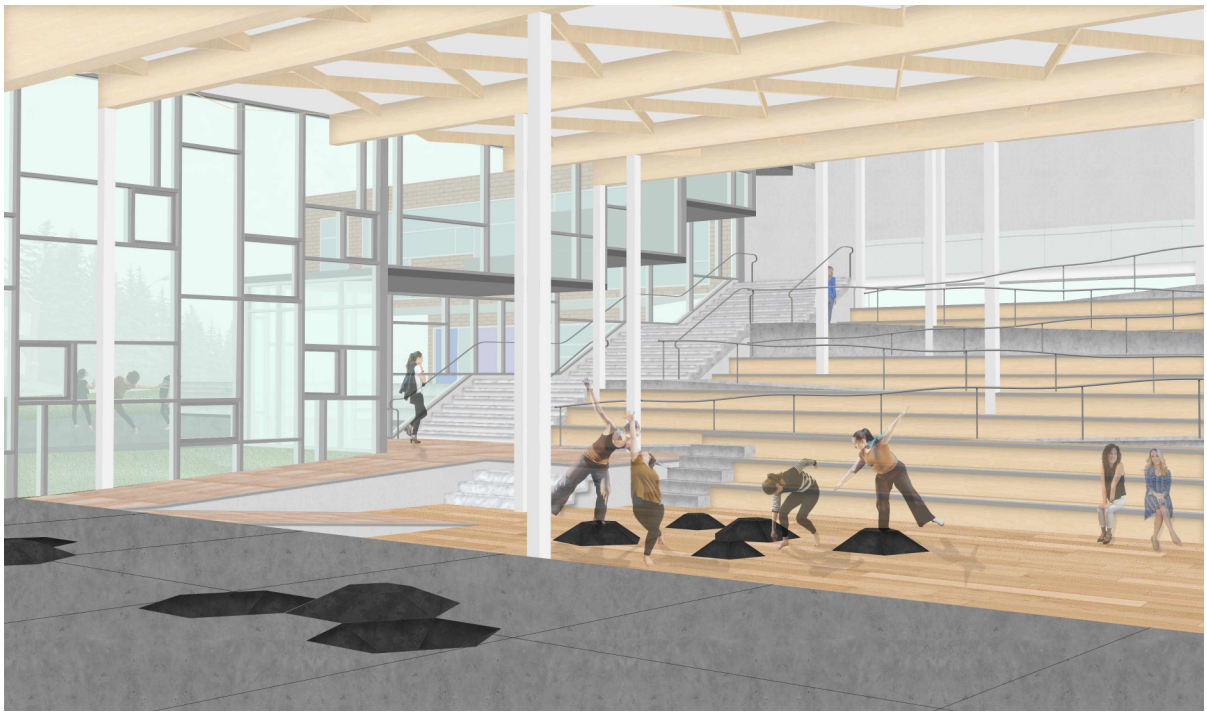
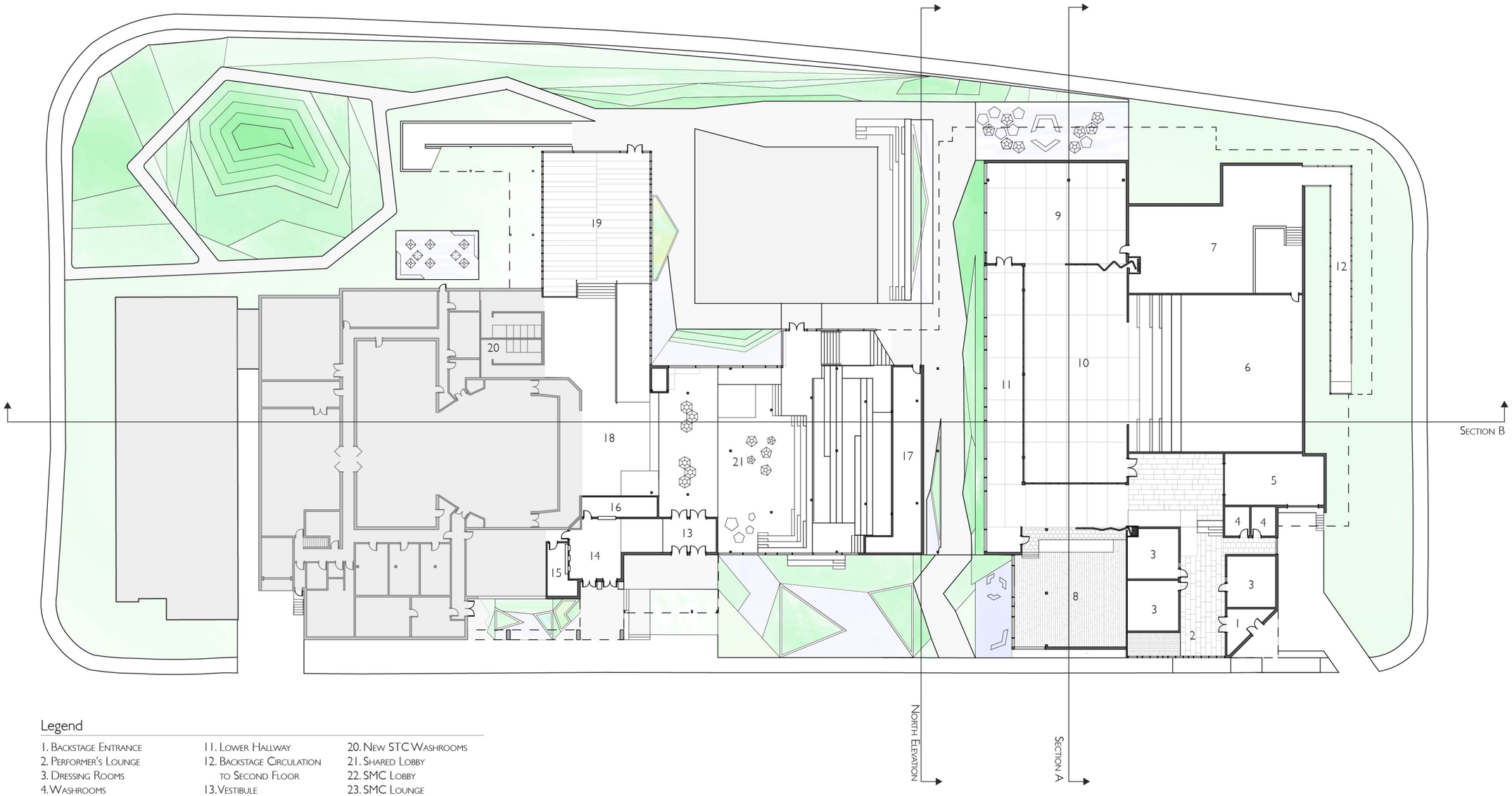


Figure 68 (top): View of the lobby.
Figure 69 (bottom): View of the exterior performance platform, situated beside Paris Street



Legend

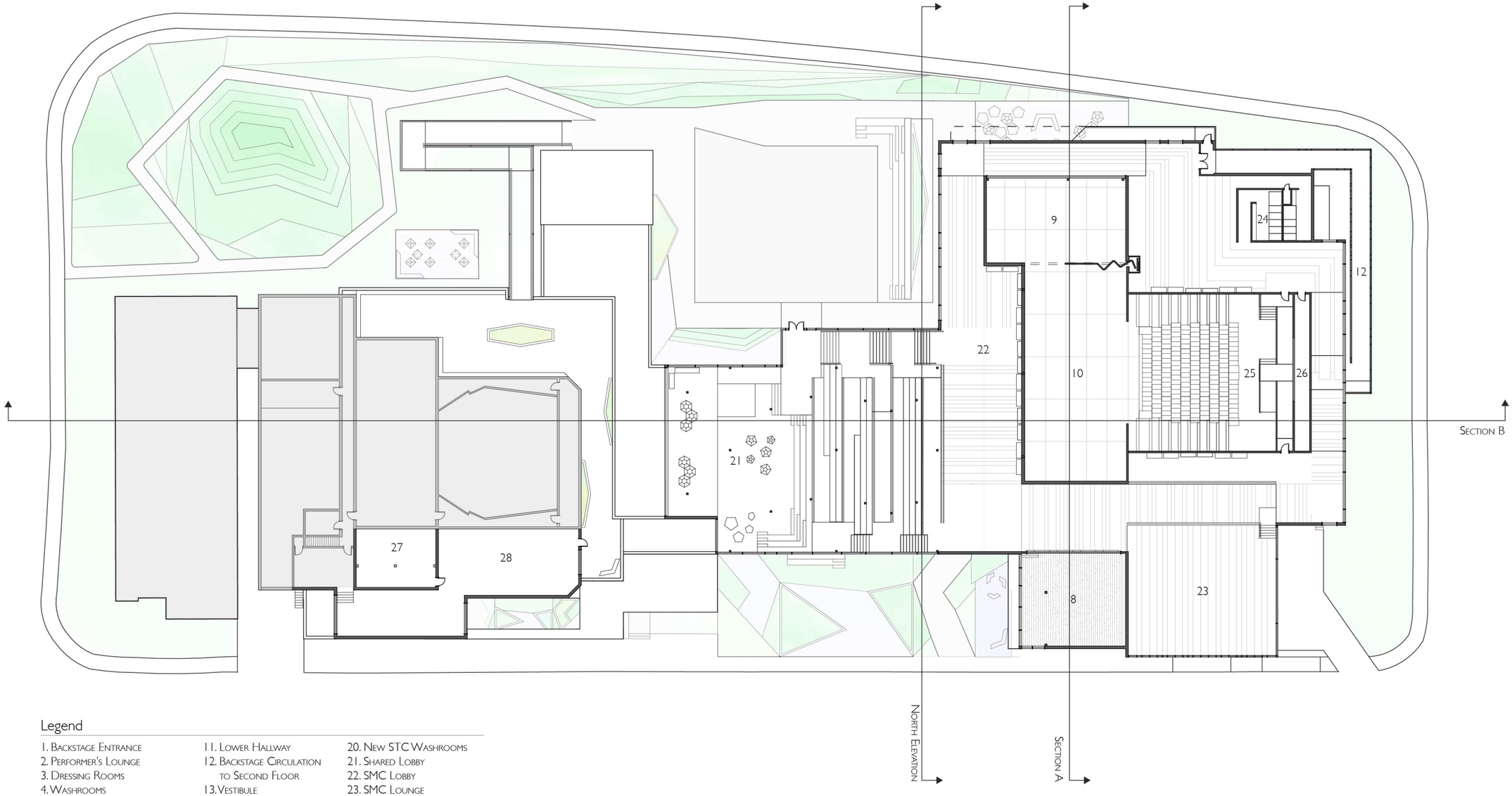
1. Backstage Entrance
2. Performer's Lounge
3. Dressing Rooms
4. Washrooms
5. Loading
6. Storage
7. Multipurpose Backstage Space
8. Rehearsal Room One
9. Rehearsal Room Two
10. Stage
11. Lower Hallway
12. Backstage Circulation to Second Floor
13. Vestibule
14. Box Office
15. Box Office and Admin
16. Coat Check
17. Outside Storage
18. STC Lobby
19. STC Lounge
20. New STC Washrooms
21. Shared Lobby
22. SMC Lobby
23. SMC Lounge
24. Washrooms
25. Theatre
26. Control Room
27. STC New Rehearsal Space
28. STC New Multipurpose Backstage Space

MAIN FLOOR PLAN 1:500

N

5M 10M 20M

Figure 70 : Main Floor Plan.



Legend

1. Backstage Entrance
2. Performer's Lounge
3. Dressing Rooms
4. Washrooms
5. Loading
6. Storage
7. Multipurpose Backstage Space
8. Rehearsal Room One
9. Rehearsal Room Two
10. Stage
11. Lower Hallway
12. Backstage Circulation to Second Floor
13. Vestibule
14. Box Office
15. Box Office and Admin
16. Coat Check
17. Outside Storage
18. STC Lobby
19. STC Lounge
20. New STC Washrooms
21. Shared Lobby
22. SMC Lobby
23. SMC Lounge
24. Washrooms
25. Theatre
26. Control Room
27. STC New Rehearsal Space
28. STC New Multipurpose Backstage Space

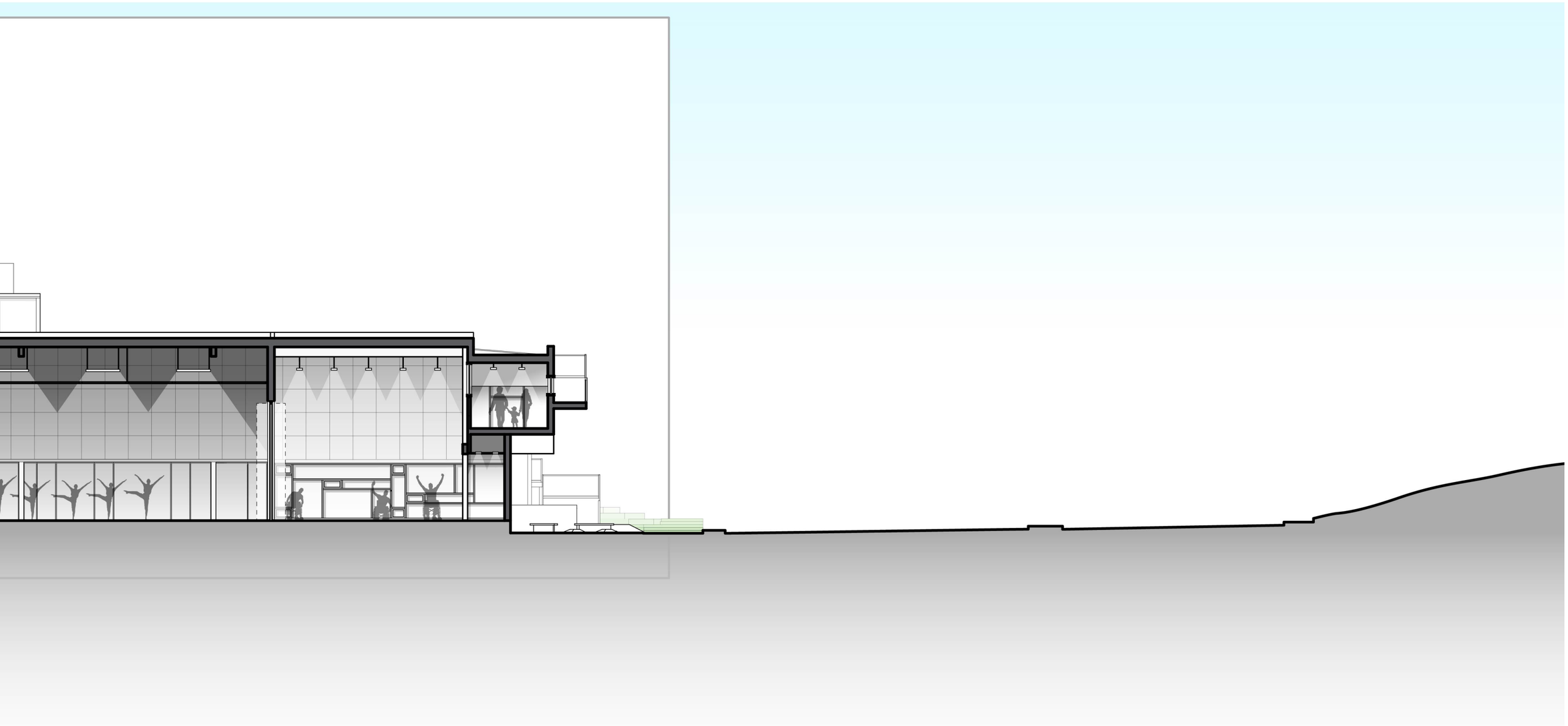
SECOND FLOOR PLAN 1:500

N

5M 10M 20M

Figure 71 : Second Floor Plan.

Figure 72 : Section A.



SECTION A 1:200

1M 5M 10M 20M

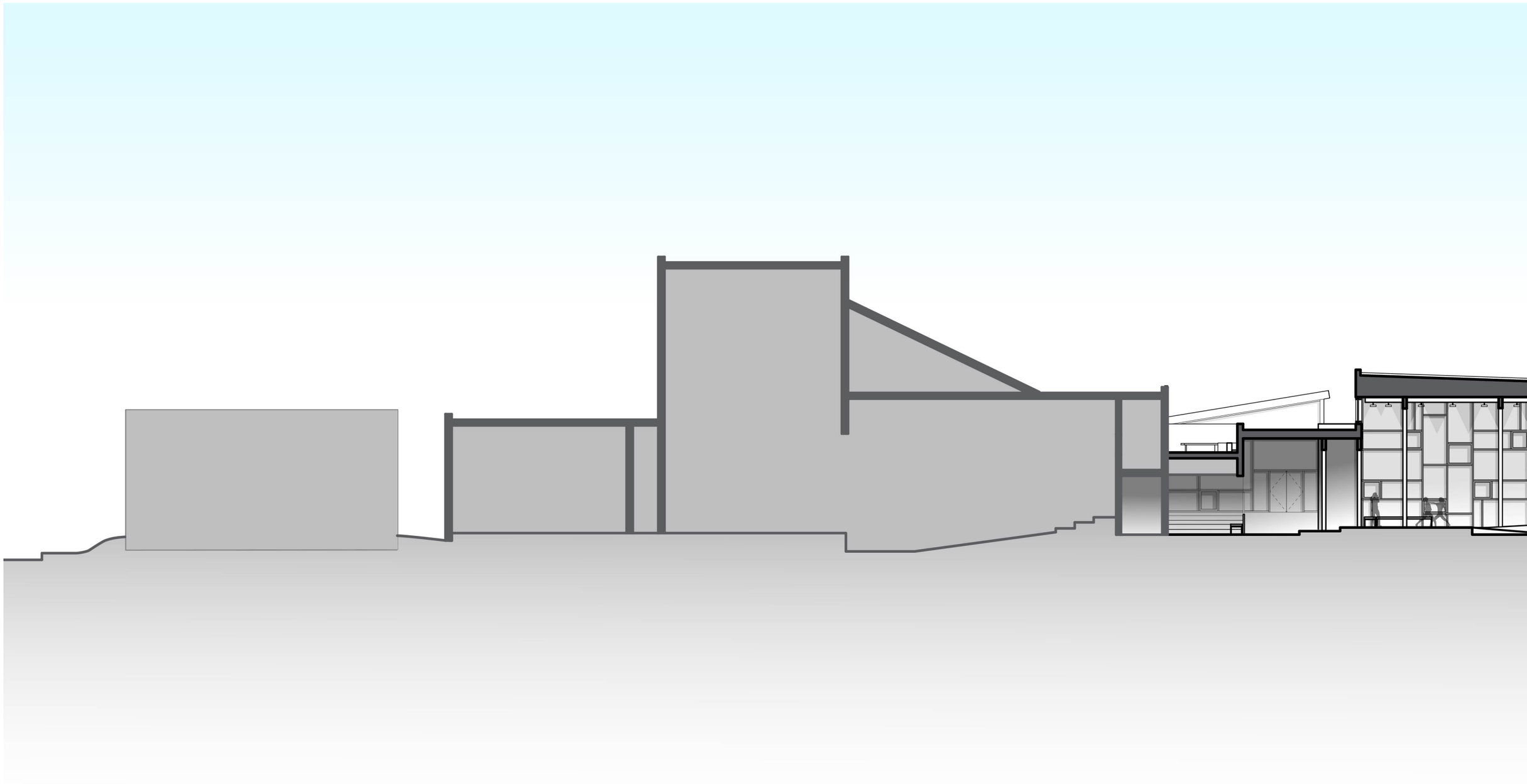
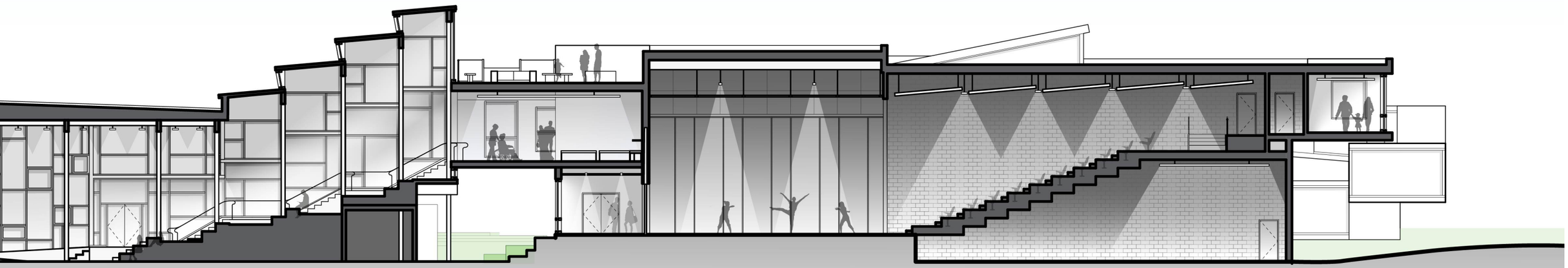


Figure 73 : Section B.



SECTION B 1:200

1M 5M 10M 20M

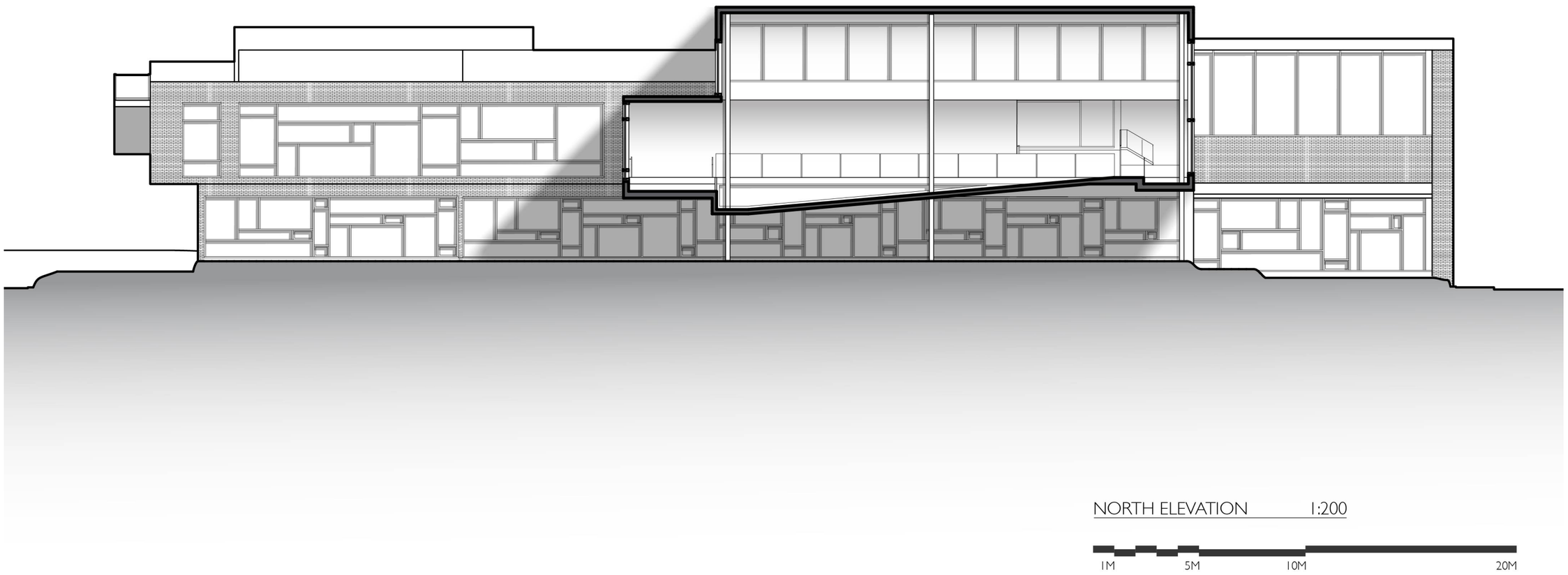


Figure 74 : North Elevation.

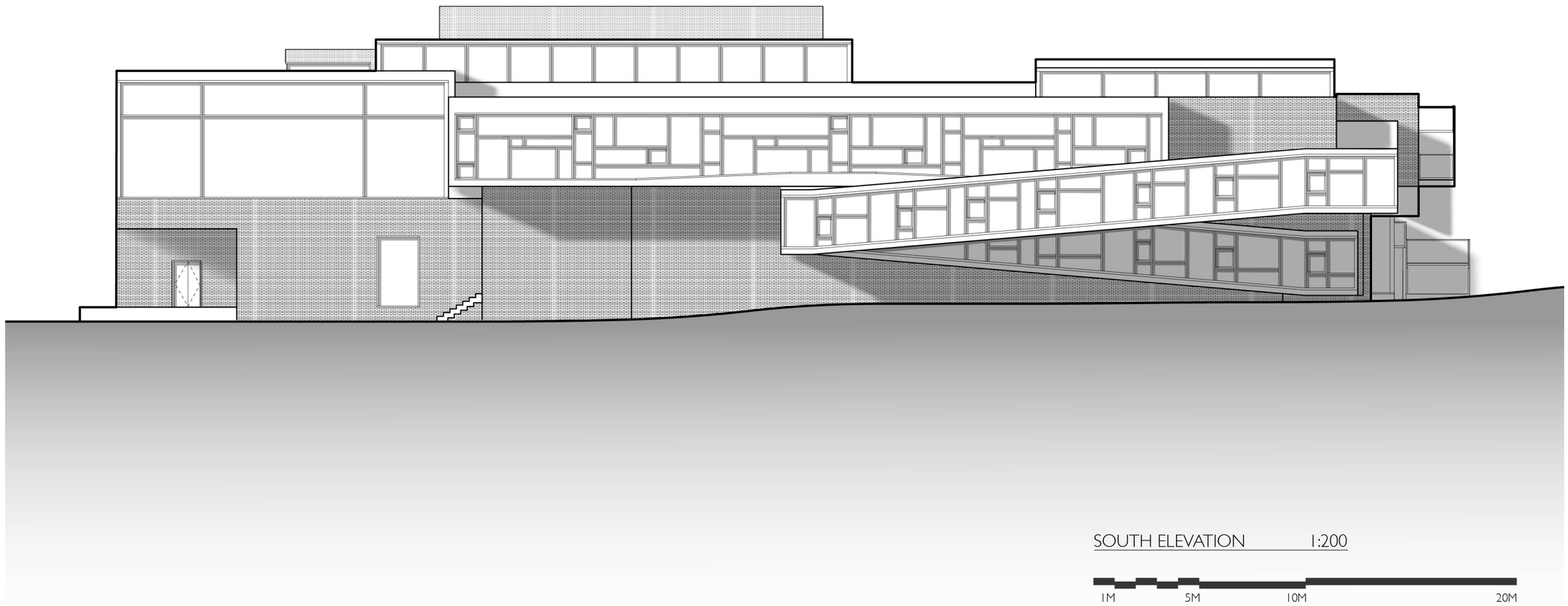


Figure 75 : South Elevation.

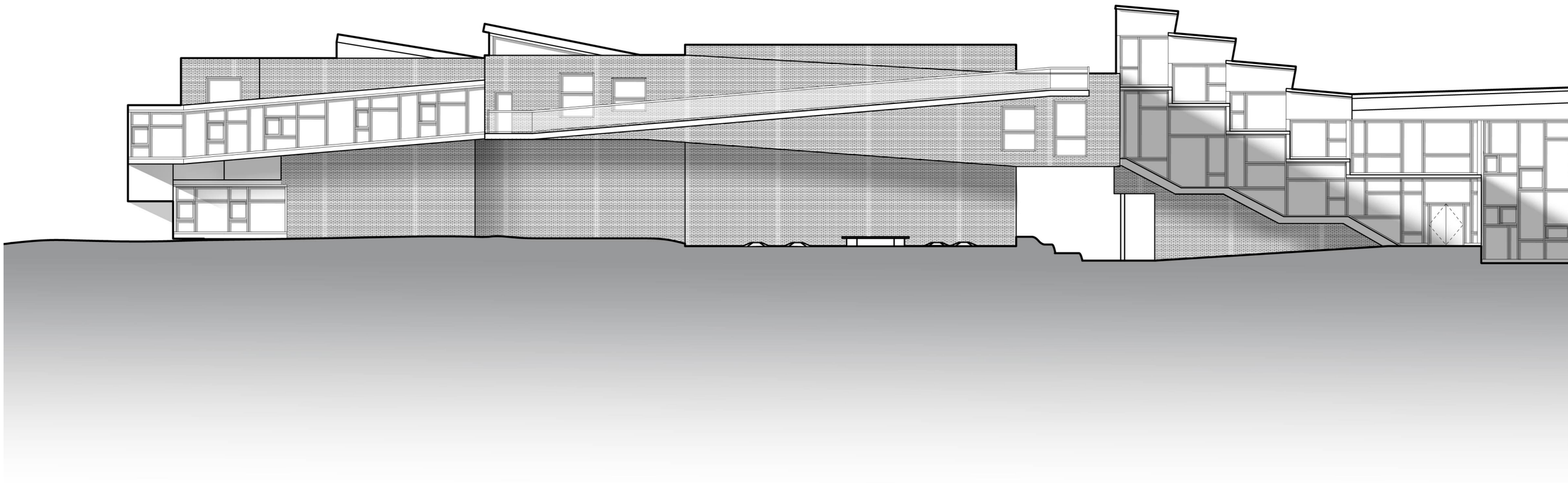
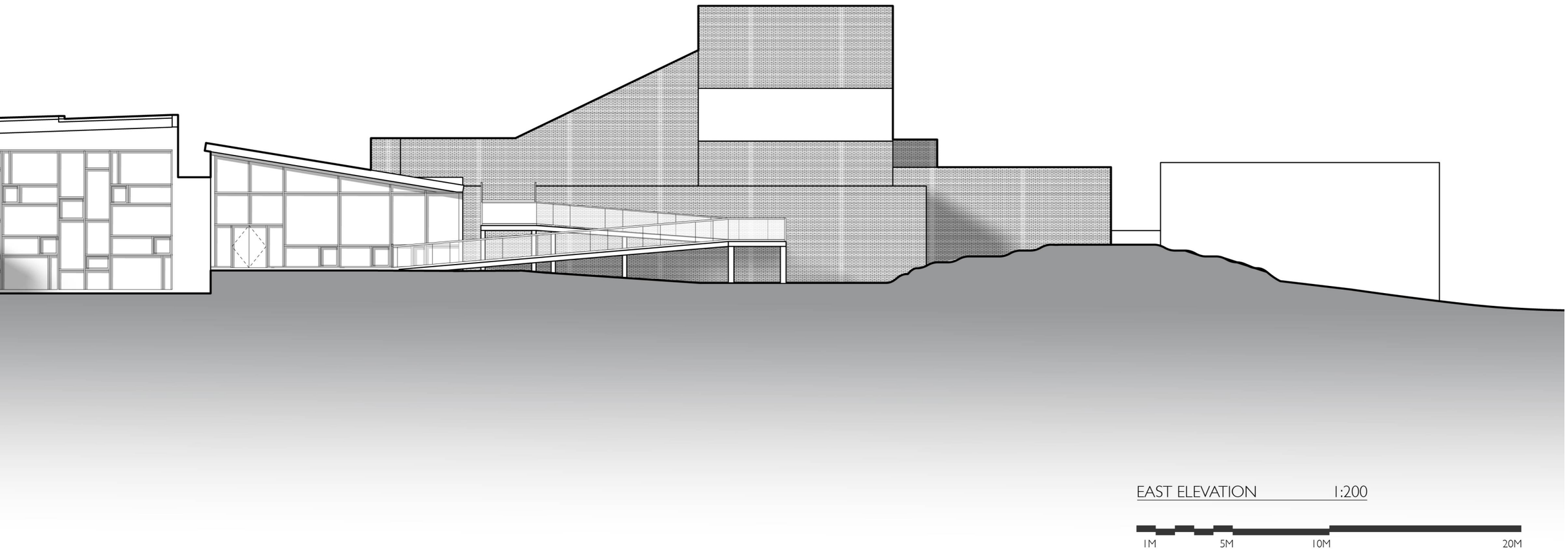


Figure 76 : East Elevation.



EAST ELEVATION 1:200

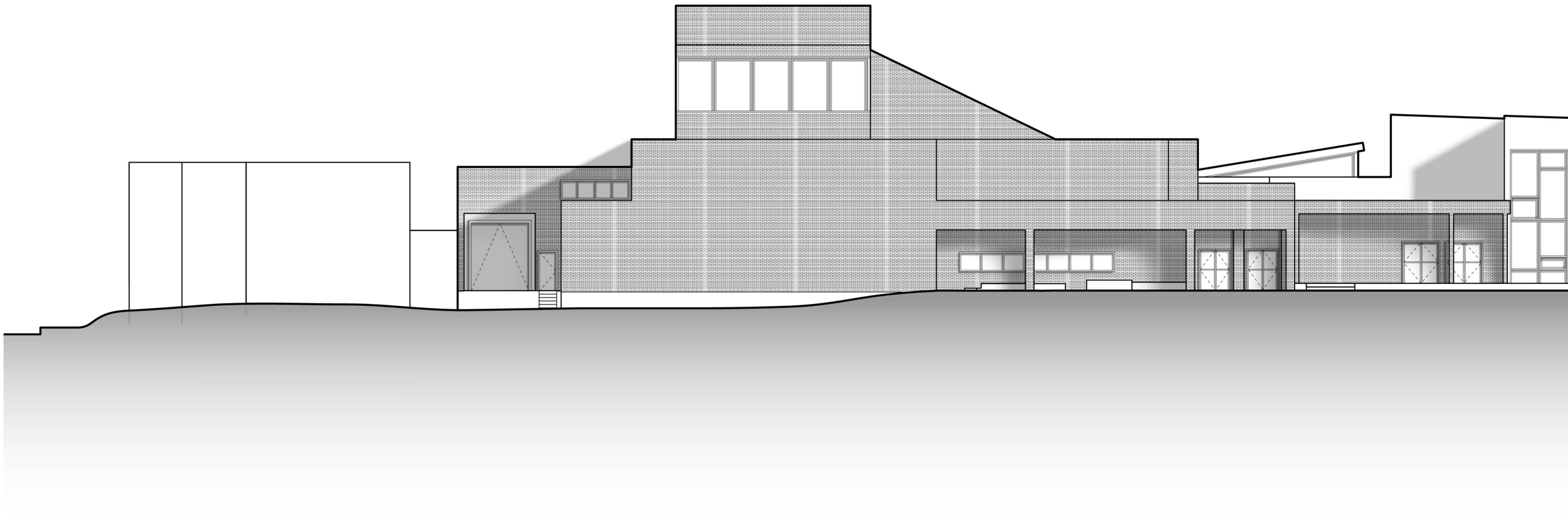
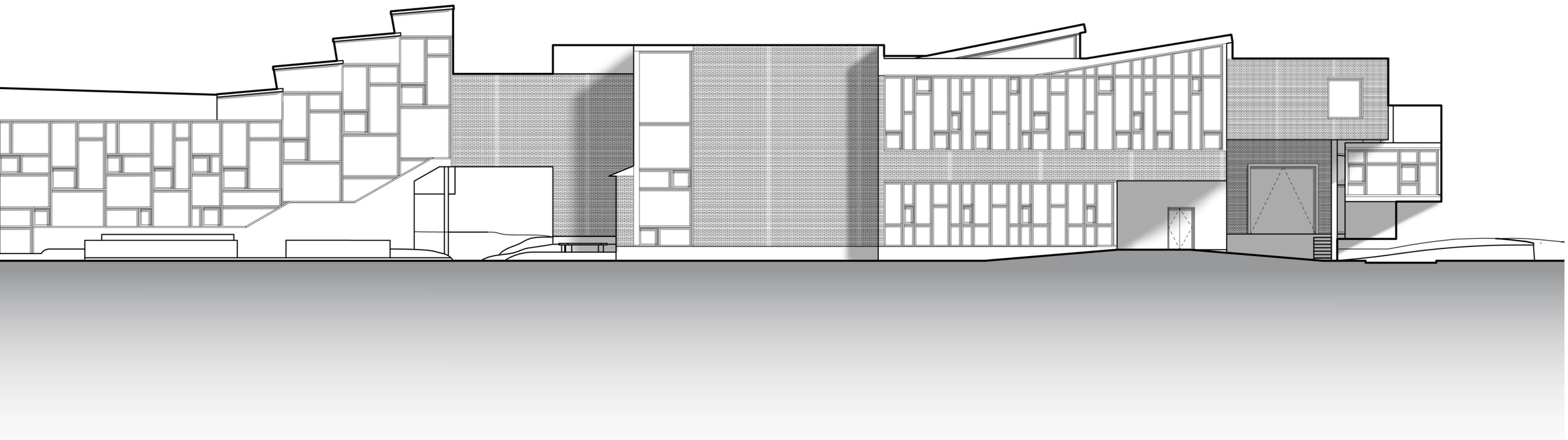


Figure 77 : West Elevation.



WEST ELEVATION 1:200

1M 5M 10M 20M

GESTURAL PROCESS

The design of my building was informed by a choreographic approach where the movement of my choreography informed the architecture. This led to a massing exploration in which different architectural gestures generated the building form. These architectural gestures were informed by the nuances of the choreographed gestures. Similar to my process as a choreographer, each architectural move, while not always having an exact meaning, works together to form a final composition. The architectural interpretations of the choreographed gestures have had implications on both the new architecture and the existing theatre: enhancing the relationship between the STC and the SMC.

Mirror, the first movement phrase of the choreography became the first architectural gesture. The SMC becomes a mirror of the STC but similar to the choreography the mirrored architecture presents a slight variation between the two buildings. Gesture two adds an element of *Symmetry* between the two buildings, the lobby space: a shared space which establishes a physical connection between the two theatres. Gesture three presents the first of many gestures where the architectural elements are pushed and pulled in space. The choreography of *Push and Pull* presents a nuance to the movement, when one part of the body pushes, or pulls, another must follow. This reaction of movement suggests that when one element of the architecture is pushed or pulled another must follow. Gesture four becomes an example of *Current*, in the choreography, the energy of performing one gesture informs the movement of another. A moment of torque is created in the roof of the lobby which creates a reaction in the floor as the entire mass angles up. Gesture five presents another example of *Push and Pull*: as one side of the lobby mass pushes in the other extremity pulls out. In this gesture the symmetry that exists in the structure that wraps around the lobby is altered and we begin to see an asymmetrical composition that starts to inform the structural elements of the final design. Through gesture six, several gestures inform the massing. The auditorium and stage are rotated ninety degrees, presenting an element of *Symmetry* that become a slightly varied replication of the STC. This has implications on the STC, furthering the symmetry between the two spaces. This rotation leaves an imprint on the site, situating a mass below the lifted structure becoming part of the building form. An element of *Push and Pull* is applied in this gesture, presenting another variation in the massing. With each of these gestures the architecture starts to take shape informing the composition of the final building.

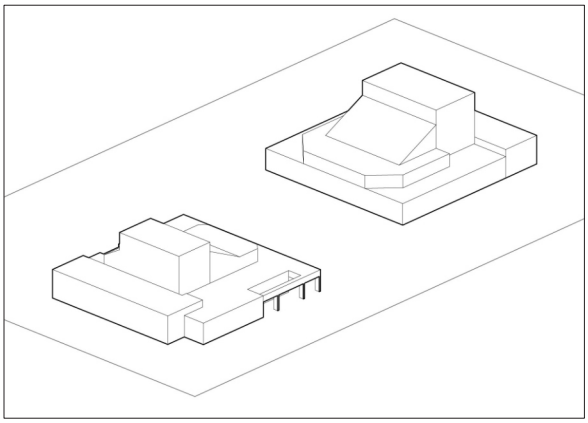
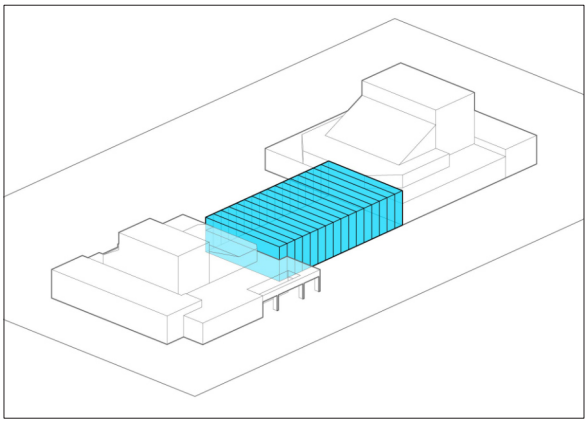
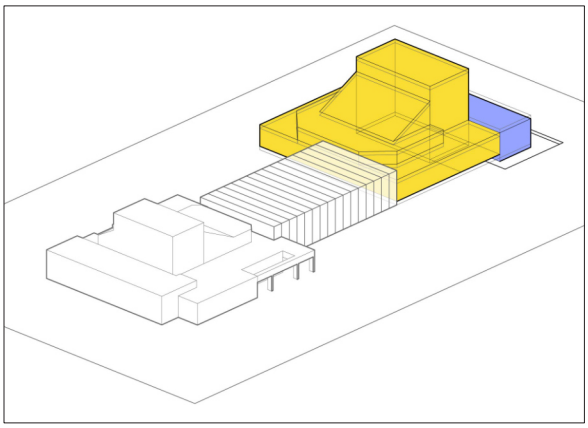
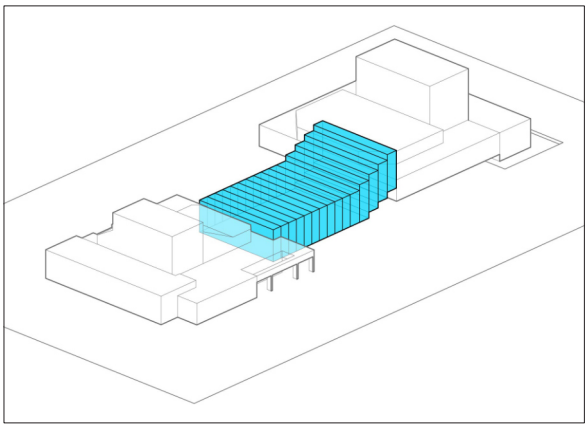
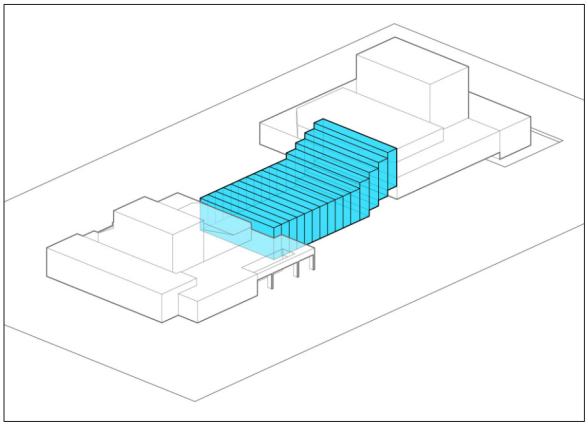
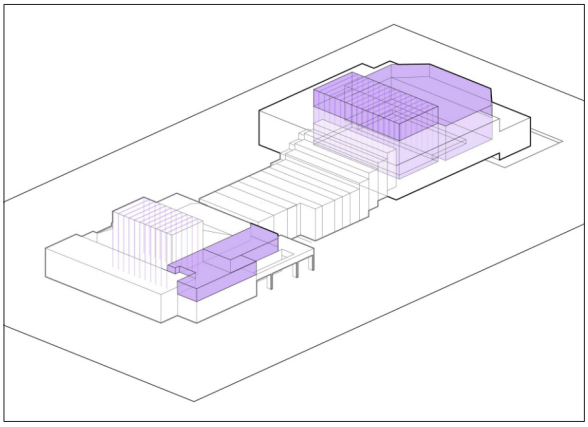
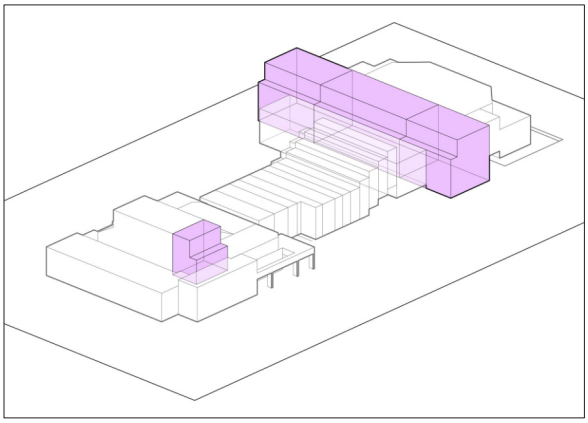
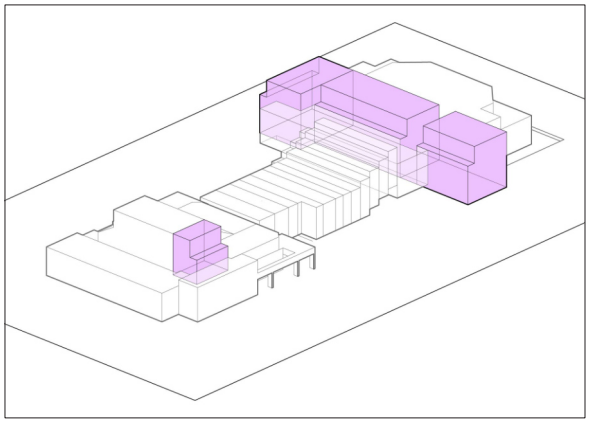
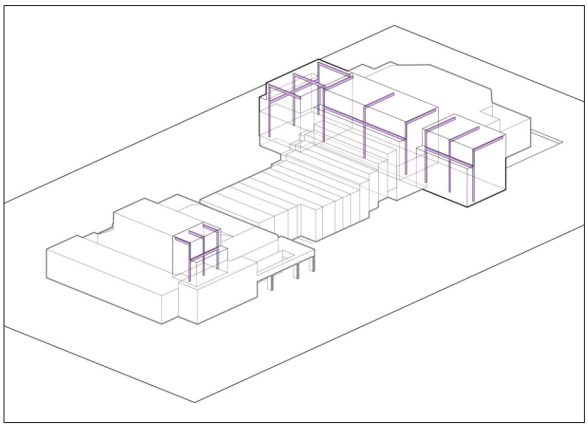







Figure 78 (top left): Gesture One, *Mirror.*
Figure 79 (top right): Gesture Two, *Symmetry.*
Figure 80 (middle left): Gesture Three, *Push and Pull.*
Figure 81 (middle right): Gesture Four, *Mirror & Current.*
Figure 82 (bottom left): Gesture Five, *Push and Pull.*
Figure 83 (bottom right): Gesture Six, *Symmetry & Push and Pull.*

As I began to translate the gestures of choreography to architecture the difference between *Mirror* and *Symmetry* becomes key. *Mirror* requires two parts to create the effect where *Symmetry* could become a series of parts repeated in similar or slightly altered scenarios. The gesture of adding a rehearsal space is important programmatically and based on the requirement of the space to become a space for movement two rehearsal spaces in the SMC and an additional space for movement in the STC are incorporated. The rehearsal space has a direct relationship to the stage, each space centred around availing a space for movement. This relationship is built through the massing gestures of the four spaces and because these four elements are working in symmetry when an architectural gesture is imposed on one of the masses, a similar gesture must be applied to the others. This is demonstrated through gestures seven to ten. Gesture seven indicates the placement of these masses, in order to create variation, the masses are rotated and shifted (gesture eight). Gesture nine and ten further emphasize the implication of *Symmetry* as structure and materiality are applied to the space.







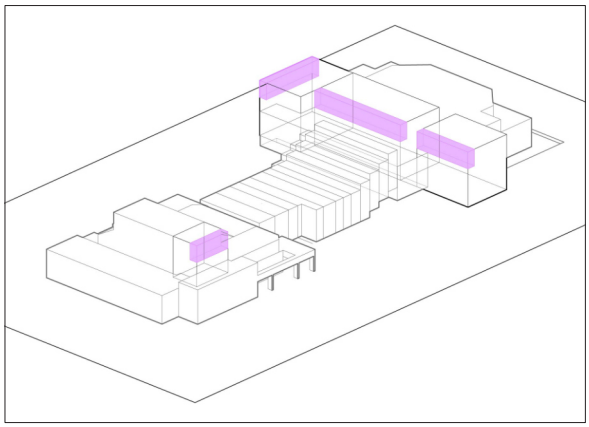
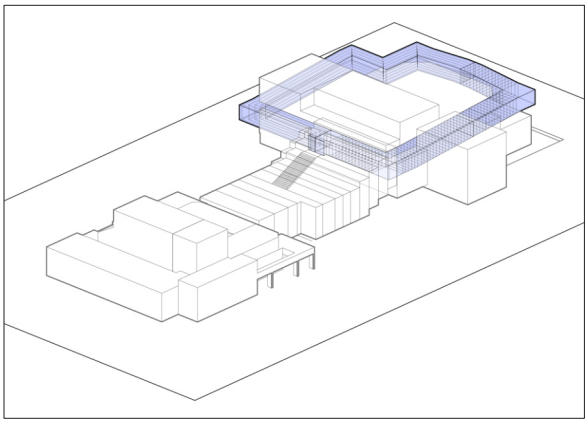
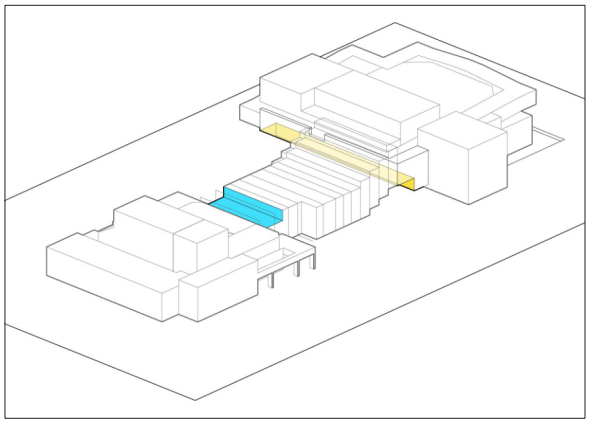


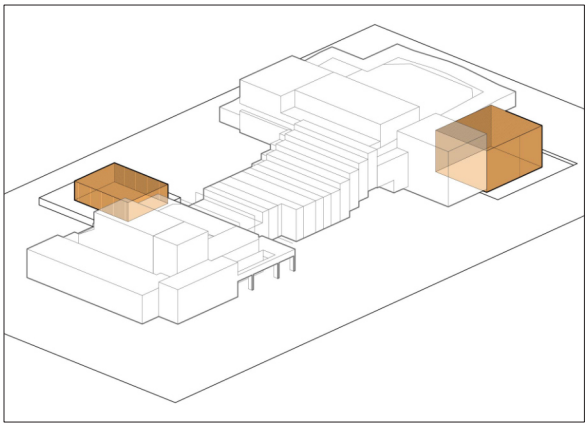
Figure 83 (top left): Gesture Seven, *Symmetry*.
Figure 85 (top right): Gesture Eight, *Symmetry*.
Figure 86 (bottom left): Gesture Nine, *Symmetry*.
Figure 87 (bottom right): Gesture Ten, *Symmetry*.

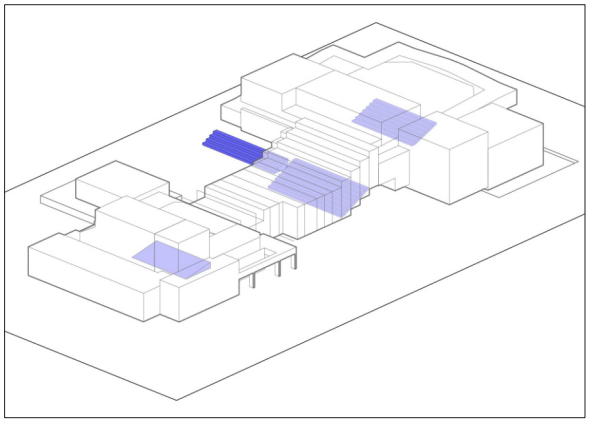
Gesture eleven demonstrates an element of *Opposition* where two separate paths of travel circulate users to the same destination, the theatre space. These two opposing paths of travel are represented through two opposite patterns which suggest the patterning of detailed elements such as lighting and flooring. Gesture twelve pushes and pulls the building mass, presenting a variation in the architecture that further develops the complexity of the building section. In continuing to add volumes to the space gesture thirteen adds an element that appears in both the STC and the SMC, the lounge, a mass that becomes both symmetrical and opposite: similar programs developed for the two opposite buildings. These masses are placed on two different elevations which inform the site design, pushing and pulling the topography. As the building mass develops through these choreographic gestures the final building form starts to take shape. These gestures are the first steps in implying details of design and are further developed through the formal design of the space.

Through gesture fourteen the audience seating is developed; this becomes an element of *Symmetry*. Using the STC seating as a generator, the seats are oriented in the same direction, but each presents a slightly different arrangement, angle and finish. Jumping back to the design of the lobby, the element of symmetry between the two buildings, the materiality of the space starts to take shape through gesture fifteen. By pulling the massing apart the structure becomes open, allowing views through the entire space, this implies a transparent facade. The structural elements that wrap around the mass inform the column and beam placement within the space. Each gesture made to the massing has informed the architecture of the space, generating the final form of the building.









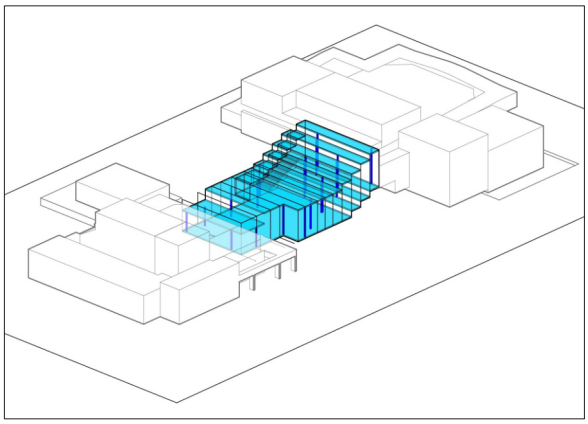


Figure 88 (top left): Gesture Eleven, *Opposition.*
Figure 89 (top right): Gesture Twelve, *Push and Pull.*
Figure 90 (middle left): Gesture Thirteen, *Opposition & Symmetry.*
Figure 91 (middle right): Gesture Fourteen, *Symmetry.*
Figure 92 (bottom): Gesture Fifteen, *Push and Pull.*

PART FOUR: CONCLUSION

Figure 93: *Symmetry, both dancers with light points on wrists and ankles.*

CONCLUSION

> *Both choreography and architecture "are visual art forms based on three-dimensional design. Both create vocabularies in space in order to express or communicate. Both are highly collaborative: in architecture there is the marriage of site and structure, in choreography music and movement."*[70]

This thesis demonstrates a process that draws the parallels between dance and architecture. As evidenced through my research, many theorists and practitioners have developed the parallels between these two disciplines, however, my work attempts to take this question beyond the metaphorical interpretation. I have examined the implications regarding the actual act of moving, choreographing and performing as a mechanism for developing an architecture inspired by movement.

The theories of performance studied in this thesis have expanded on the idea of what could be considered "performative". These theories suggest that performance is more than a staged work presented in front of an audience, but rather manifests as any aspect of daily life. It is this critical understanding of performance that holds the potential of translating movement to architectural work. If one could consider the architect acting as a choreographer, then every architectural gesture would be implied as a performer. This understanding opens a new perspective to how one could approach the design of a building. Rather than designing solely with a traditional architectural approach, we could consider designing a building in a similar way to designing and performing a work of choreography. A choreographer builds a performance through each danced gesture, and comparably, an architectural work is shaped by each gesture applied by the architect. In the Sudbury Movement Centre this 'performative' approach is used to develop the tectonic gestures of the space, and their implications as a choreography.

With movement as the core of this thesis, the act of generating movement became essential. This necessitated a deeper understanding of my own practice as a choreographer and its potential translation to my practice as an architect. In a similar manner to the choreographers that I studied here (Rudolf Laban, Oskar Schlemmer and William Forsythe) who worked to develop their own understanding of dance, I developed my own method that generated a new understanding of performed movement. This method became a process of translating the complexity of three-dimensional movement to two-dimensions by photographing the dance in a way that abstracted the dancers and captured the traces of movement through space. While dance notation typically seeks to inform movement, in my method the gestures come first; the notation becomes a result of the performance. These photographs generated a new perspective of performed movement, a perspective that made clear nuances of the choreography.

70. Leslie, Armstrong and Roger Morgan, *Space for Dance: An Architectural Design Guide,* (Publishing Centre for Cultural Resources), 1984, https://archive.org/details/spacefordancearc00arms/page /188.https://archive.org/details/spacefordancearc00arms/page/188. 6.

Nuance exposes the imperfect qualities to dance, the flaws in the gestures that add a layer of complexity to the movement. As choreography works towards an idealized geometry, the execution can only be an adjusted attempt to arrive at the idealization, and nuance is revealed in the imperfections. In a similar way, architecture can develop a richness through nuances, as the idealized geometry is altered and the result of the execution stands out in the detail. My architectural gestures were generated by the movement phrases (Mirror, Push and Pull, Symmetry, Current and Opposition) developed during the research portion of the thesis. With each move made, the nuances of the choreography were made apparent. Thereby, creating variations and relationships in the architecture, all while generating an environment that seeks to inform movement of users in the space. The Sudbury Movement Centre was conceived as a compliment to the existing Sudbury Theatre Centre. Drawing from the nuances of the choreographic relationship between the two dancers, the architectural gestures of design were developed between the two theatres, enhancing, adjusting and modifying the experience of the existing theatre into an entire complex dedicated to movement.

The practices of choreography and architecture have unique processes for developing, designing and executing a work. This thesis bridges the two disciplines as I have generated a process which draws from choreography to develop an architectural design. As an architect, this process shifts an idealized geometry to celebrate the nuances of design. This generates a 'performative' quality to architecture that treats the tectonic gestures as performers, to work towards an architectural performance. As a choreographer I have come to understand the imperfections of performed movement, using this knowledge to push the boundaries of dance to develop choreography with an architectural interpretation. Working as a choreographer and an architect this thesis enhances the common ideas of movement in the two disciplines as I have developed an architecture inspired by movement.