

**Instrumental Architecture: Investigating the Live Music Venue as
a Process of Gathering along the Halifax Waterfront**

by

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Abstract

This thesis aims to connect live music, people, and place in Halifax by approaching the live music venue as a process of gathering. This strategy builds upon Christopher Small's concept of 'Musicking' by approaching the live music venue as an instrument. This approaches music as a process tangibly materializes through the physical experience of architecture. By drawing on Theodor Adorno's theories on mass culture, and collective consumerism this architectural strategy responds to problematic behaviours curated by existing architectural acoustic strategies, concert architecture, and event of live music. This provides a theoretical position to architecturally respond to acoustic and sensory design directly through a human and musical perspective. Three interconnected public live music venues along the Halifax Waterfront are used to explore music as a process of gathering.

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To all my fellow students and educators who helped me through my thesis and education at Dalhousie University.

Chapter 1: Introduction

Music is a Process of Gathering



Hans Scharoun, the center stage surrounded by the audience on all sides, Berlin, 1956-63

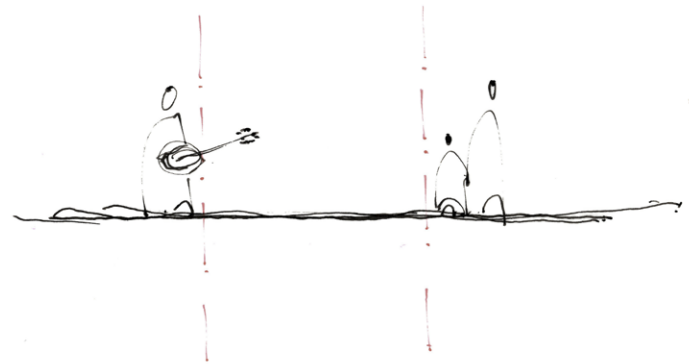
In the competition entry for the Berlin Philharmonic, Hans Scharoun described his proposed vision as:

[...] a space that is dedicated to music - in which music is performed and heard... However, it is no coincidence that, today as at all times, wherever improvised music can be heard, people gather in a circle... Music should be located at the center in spatial and visual terms. Everything else follows from thereon. (Barkhofen 2013, 6)

Inspired by Scharoun's philosophy, the following body of work aims to architecturally investigate music as a process of gathering to connect people, music, and place in Halifax, Nova Scotia.

The Live Music Venue as a Process

If music is a process of gathering, when does the event begin? Does it start with the first note? Or is it the sound of door keys leaving the house? While it is difficult to determine the boundary of a single event, it seems that understanding connections between a series of related events may be the more important task of this investigation.



Music is an experience that is created between the musician and audience

Gathering Events

Music has the ability to materialize meaningful relationships between performers: the audience, the musician, and place. Each member of the ensemble relates to time and space through their own unique perspective by inhabiting the musical performance in a different way. Similarly, urban, natural, and human events simultaneously inhabit sites. As John Cage suggests, “[...] music is not the music of the future, nor the music of the past, but simply music present with us: this moment, now, this now moment” (Cage [1961] 2013, 43). The following investigation embraces Cage’s philosophy as a practice of music. Every musical performance is a dynamic relationship emerging from a gathering of people, music, and place.

Acoustic Discourse

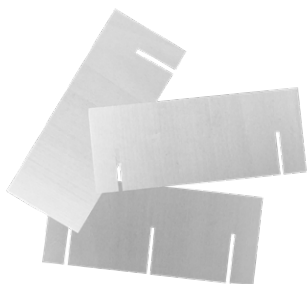
The thesis will begin with a critical investigation into the existing acoustic design practices and will be examined from an architectural, consumerist, and social perspective. This will allow the project to reposition the acoustic and experiential design of the project from a human approach.

Connections between mass music consumption and the evolution of acoustics will begin to expose its roots in commercial marketing and unsustainable practices of live music fidelity (Blessner and Salter 2009, 113-117). The study will aim to approach architectural acoustics as a tool instead of a primary driver. It will begin to question practices that are well intended, but have potentially negative consequences on the social, sensory, and architectural experience if they are left unexamined.

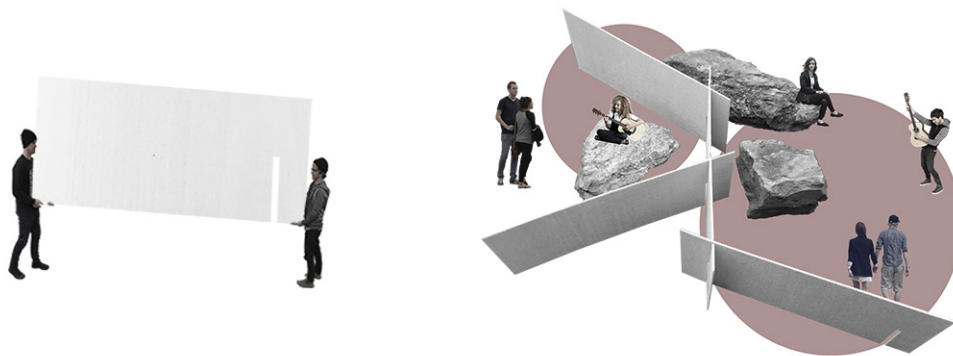
The fetishization of the acoustic clarity has also materialized a restrictive practice of listening amongst the audience. As a result, the audience's role is to perform silence due to the sensitivity of the hall; active listening indirectly transforms into preoccupied hearing (Parcell 2012, 4). The false ability control of silence begins to lead to unattainable performance expectations (Cage [1961] 2013, 8) (Carpenter and McLuhan 1960, 67). As a result, this thesis will aim to reactivate the musical experience from the musicians' and audience's perspective.

The Instrument

This thesis will critically reconsider the role of the live music venue in the process of gathering. It will investigate architecture as a mediator between performers: people, musicians, and place. Building upon Christopher Small's concept of 'Musicking', music will be explored as an active process instead of a concept (Small 1998, 8). As a process, the architecture therefore becomes an experiential instrument that provides opportunities for diverse performances.



Architecture as an instrument



The parti venue materializes a relationship between predicted and unpredicted actions in direct response to place through the performance of the instrument

Furthermore, by approaching the architecture as an instrument, the concept brings together relationships between predicted and unpredicted events. Through this process, the ensemble of performers can begin to play architecture as a musical performance of place.

The Human Experience of Music

The human body produces, manipulates and perceives sound. Music is a process of translating the displacement that occurs between the source, ear, and brain. As a result, music exists as a mental representation within the human mind (Levitin 2007, 22). An investigation into the body as an instrument that produces, resonates, and processes will inform the primary architectural form of the project. Frequencies that are perceived by the body and produced by musical instruments will be analyzed in order to direct the material choices of the various venue conditions and surroundings. This human approach to acoustic design will provide a sensory tool kit in order to connect gathering and place.

Halifax as a Live Music Venue

The city of Halifax is home to one of the leading music scenes in Eastern Canada (Music Canada 2017, 13). The city contains a diverse range of musicians, festivals, and publicly accessible sites. Specifically, the Halifax boardwalk is a public highway that connects the local and tourist populations to the historic urban waterfront.

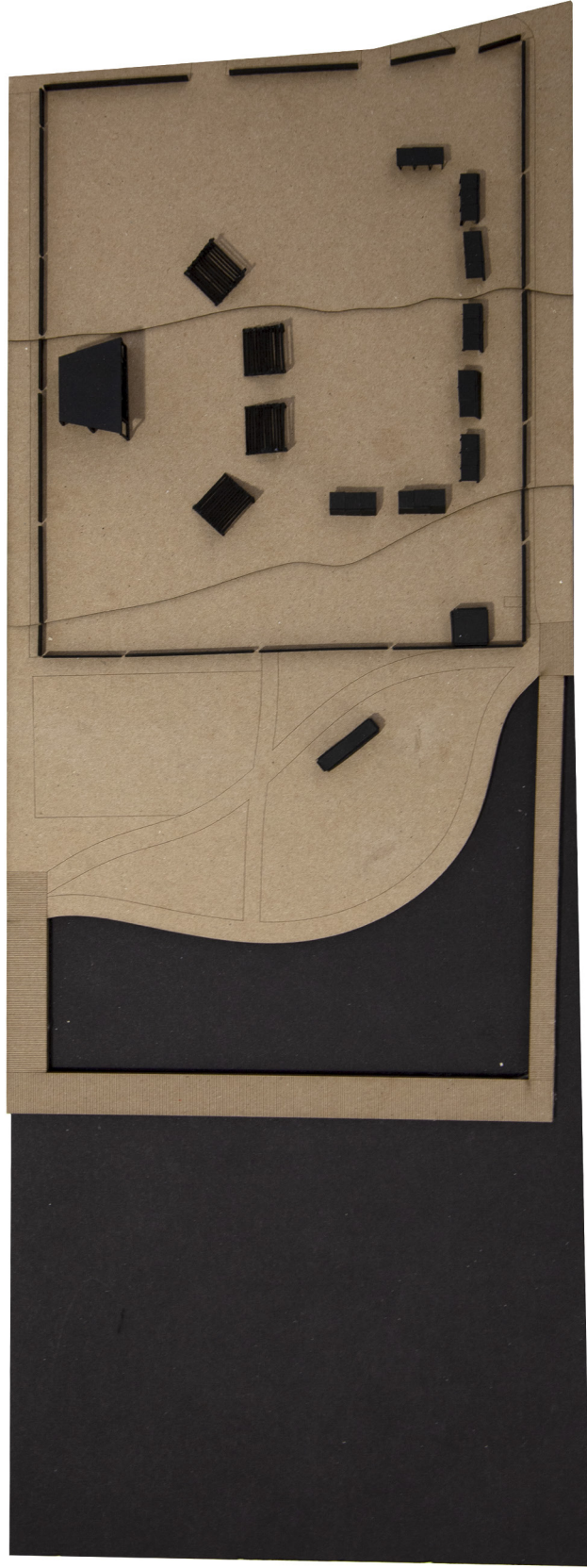
The chosen site currently hosts a large variety of public events and festivals during the summer months. It remains the primary location of the Halifax Jazz Festival which hosts a large range of international and local musicians. Typical to

most festivals, the current infrastructure utilizes temporary staging, lighting, tents, and fencing.

The current site consists of a portion of the boardwalk pathway, a series of temporary tourist structures, and a large parking lot. The site commands a beautiful view of Dartmouth, Georges Island, McNabs Island, Pier 21, and the Atlantic Ocean. Despite its unique location, the site is rarely inhabited due to the lack of program, consistent development, and navigational clarity. It acts primarily as



Diagram illustrating the site location in downtown Halifax (base map from Halifax Open Data 2019)



Site model of the existing Halifax Jazz Festival stage and seating setup which occupies the entire existing parking lot



This waterfront site hosts a wide range of events that occur and overlap over a diverse range of time, such as the annual Halifax Jazz Fest.

a circulation path along the boardwalk for tourists and a parking lot for locals.

Due to its historic significance in Halifax, the unique waterfront access, and connection to the public boardwalk, this site is an ideal candidate to architecturally investigate the live music venue as a public performance of place. The current lack of program and infrastructure will provide an opportunity for an established and accessible music venue along the Halifax waterfront that can also support the thriving tourist area (Cruise Halifax 2020).

'Gathering' In Public Venues

Building upon previous travel research experience, this project will investigate the concert hall and touring live music venues as processes of gathering. It will draw upon case studies such as: the Berlin Philharmonic by Hans Scharoun, and the Elb Philharmonie by Herzog & de Meuron. Each project will help inform the following architectural programmatic and experiential strategy with both positive and critical lessons. The case studies will also

help materialize some of the challenging discourses facing the contemporary live music venue as a public building.

Performing Place

The architectural project will use three types of venues to provide a diverse range of public musical experiences. A multi-use outdoor venue on the inhabitable roof will provide an opportunity for public agency by offering the highest level of transparency. The second venue will be an exterior venue that will host the annual Jazz Festival. This exterior venue will provide the opportunity to restrict the designated area of the event without the use of borders or walls in order to maintain a high level of public access. The third venue is a concert hall that dwells within the center of the public lobby of the building.

The architectural and sensory relationships between these three interconnected venues will materialize the architectural performance and experience of the site. As a result, music as a process through three different forms will directly guide and encourage the processes of gathering.

Chapter 2: 'Musicking' as a Process

This chapter will explore music as a process through a piece of music by the pianist and composer Nils Frahm called *The Shooting* (2015). It will also explore Christopher Small's concept of 'Musicking' to construct the theoretical foundation for the architectural translation.

'Musicking' and the Performance

A process of gathering ultimately leads to a gathering 'in' place. People, place, and events therefore all have a part to play in the public performance of a live music experience. This strategy is inspired in part by Christopher Small's notion of 'musicking'. Small's concept aims to reconsider the nature and power of music by suggesting that "the meaning of music lies not in objects, not in musical works at all, but in action, in what people do" (Small 1998, 8). By approaching music as a verb the architectural experience can be perceived as a process over time in space: an active exploration of social, architectural, and sensory relationships. As a performance, this thesis will approach this process through a performance of an architectural instrument.

Christopher argues that "to play is to change the context of communication, to lift it temporarily from the context of everyday in order to explore the implications of a relationship"(Small 1998, 63). *The Shooting* illustrates this concept beautifully from a musical perspective (Frahm 2015). The piece celebrates and uses the mechanical operation of the piano hammers as an accompaniment to the melody and chords. While most recordings would edit out these 'noises', Frahm brings the mechanical performance of the instrument directly into the artistic performance. This



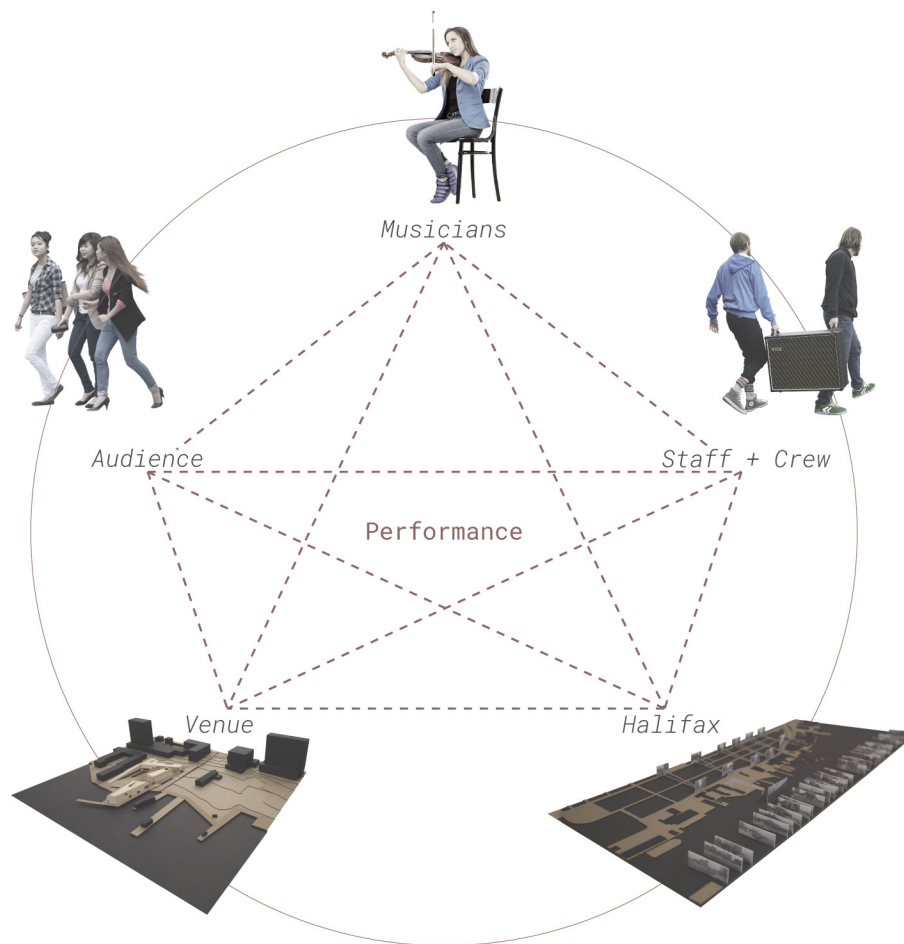
Mechanical operation of a piano key and hammer against a string

choice directly illustrates Small's observation that music is a materialization of relationships: bringing processes and performers together to produce expressive meaning.

Small's observation also suggests that the instrument and the performance are conceptually dependant but operationally independent. Following this position, the process of performing guides the potential relationships between each member of the ensemble. As illustrated on the following page, these members are people, place and music. The process aims to synthesize the characteristics each performer brings to the performance by applying each to their own unique strengths through relationships. This thesis therefore aims to 'explore the implications' of these relationships through the architectural instrument of the live music venue.

Gesture

Music is a primarily aural experience and expression. While it is not impossible to express musical characteristics and events verbally, words often falls short of describing a musical experience. One way to consider this event is through a concept of ritual. Small suggests that while the



Establishing Relationships

Live music as a materialization of relationships produced through performance

musical experience can be perceived as both a sacred and secular process, these categorizations distract from an underlying process of gesture. He argues “no matter what form the ritual takes, to take part in it is to take part in an act that uses the language of gesture to explore, affirm, and celebrate one’s concepts of ideal relationships” (Small 1998, 98). Gesture becomes a process of communication that is not dependant of words. The value in Small’s perspective is that processes of movement, non-verbal communication, and action help us learn about our relationships to each

other, place and music. This process operates at multiple scales simultaneously as shown in the following diagram. The pursuit of ritual as an process of learning about relationships allows music to become more than air molecules and emotions. It is a processes of learning to be in relationship with our body, our community, and place. It frames human activity at the musical, social, and body level. The architecture therefore is meant to support, facilitate, and celebrate these interactions.



Interaction



Exploration

Social



Community



Amplified



Acoustic

Music



Informal



Listening



Touch

Human



Movement

Gesture

Live music as a materialization of relationships produced through performance

Redefining Performance

'Musicking' is therefore the opportunity to partake in social communion. It encourages curiosity, exploration, and interaction between the architectural instrument and the performance. Small's powerful concept positions the experience of music through a collaborative and inclusive understanding of gathering. By approaching the design of a live music venue through this concept, the venue can be designed for human relationships at every scale of habitation: the urban, the site, the building, and the body. From this position the live music venue becomes instrumental in facilitating, not determining, the materialization of relationships.

Nils Frahm and Christopher Small offer a practiced but poorly understood definition of performance. By approaching the musical experience through relationships and gesture, the audience and musician become dependant on each other in a constructive relationship. Performance becomes a celebration of a process. This allows the quality of each event to be determined by people. Acoustic design, architectural form, and programmatic development all become secondary to the primary human process of 'musicking'.

Chapter 3: Acoustic Discourse

Sound plays an important part of the human experience of music; however, it is only one part of a larger performance. The following constructive discussion will aim to position the thesis within the current industry approaches and practices of acoustic design. A critical consideration of the history, visual dominance, and experiential repercussions of acoustic design will help clarify the technical context this thesis will inhabit in the following chapters.

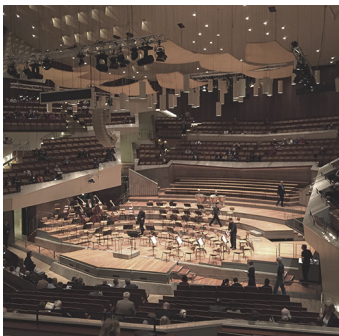
The Acoustic Family Tree

The architectural fetishization of acoustics in concert halls has deep connections to the commercial development of recorded sound. As Blesser and Salter suggest, the invention of the radio transmission provided an ability to reach a much larger audience. For the first time in history, millions of listeners, often living outside urban centers, had the opportunity to hear professional musicians within the comfort of their own home. Driven by the commercial potential of mass music consumption, the increased accessibility of music in daily life began producing an educated listening audience. The revolutionary recording and acoustic innovations during the early twentieth century provided the ability to accurately replay sound for the first time in human history. Audiences began to expect higher and higher fidelity (hi-fi) recordings and were able to immediately compare recorded performances of the same piece within a single night. Despite initial concerns from the professional music organizations, the distribution and ability to replay sound in the home increased the popularity of live music and venues.

The pursuit of hi-fi recording simultaneously created an entire field of engineering dedicated to capturing, mixing, and reproducing recorded and live musical performances. The recording studio provided a laboratory for professional musicians, engineers, and commercial broadcasters to refine the craft of reproducing and selling music. In collaboration with Public Radio, classical concerts were broadcast across North America.

As technology and fidelity expectations increased, classical music concerts began to be recorded in larger studios to avoid noise from the audience. The strong cultural institution of classical music in the early twentieth century, in combination with the commercial investment of the recorded music industry, associated live acoustic space with classical music from the very beginning. Blesser and Salter continue by suggesting that the need for studio recorded and mass distributed popular music was suited more to songs containing lyrics which connected with a larger market of the population (Blesser and Salter 2009, 113-117). These two practices laid the capitalist foundation for the music consumption competition that continues to persist between recorded and live music.

A great number of high fidelity concert halls were built in the mid-twentieth century. The famous Berlin Philharmonic was constructed in this era and remains the model concert hall in the world for the architectural and musical communities to this day. The financial and commercially unsustainable pursuit of acoustic fidelity in concert halls contributed to the birth of electronically produced reverb in the 1960's and 70's. This meant that music could be digitally produced without the need for physical space for the first time in human history. The technology also provided the ability to



Hans Scharoun, the Berlin Philharmonic Orchestra remains the top performing orchestra in the music world, Berlin, 1956-63

sound engineer spaces that were not originally designed for acoustics. As a result, any concert hall can be recorded and digitally programmed based on its reverberation time. This allows the engineer to bypass the need to physically record the music in the hall (Blessner and Salter 2009, 113-117).

While the acoustic fidelity plays an important role in the experience of live music, it must be clear that this subjective musical evaluation has deep roots to commercially driven listening practices. The determination of acoustic success or failure must be understood in relation to more than just sound. For example, a terrible musician can make an acoustically successful space sound horrible. From this perspective, acoustics is actually a much deeper responsive dialogue between people, sound and space. This is a major reason why the authority of acoustic driven design in contemporary concert halls has to be seriously considered.

The Shape of Sound

Acoustic design from an architectural perspective is rooted in relationships between geometry, materials, and construction. These elements traditionally form the foundation for designing, analyzing, and constructing a concert hall. This process and traditional approach to design is a useful strategy for architects and engineers to help visualize the future space, sound, and material relationships. Despite its communicative power, this visual approach to sound is an abstraction that connects physical geometry to the predicted movement of sound in space. Therefore acoustic design from one perspective could be the containment, perimeter, and edge of sound.

Auditory space has no point of favoured focus. It's a sphere without fixed boundaries, space made by the thing itself, not space containing the thing. It is not pictorial space, boxed

in, but dynamic, always in flux, creating its own dimensions moment by moment. It has no fixed boundary. (Carpenter and McLuhan 1960, 67)

While visual approaches to acoustic design are important, McLuhan and Carpenter expose an architectural tendency to design for acoustics primarily through visual means. This geometric objectification of sound is understandable due to the complex nature and movement of sound but limits acoustic design within visual language. While visualization is a helpful tool, it constructs an incomplete picture.



Herzog & de Meuron,
edge conditions of custom
acoustic CNC wall panels
in the Elb Philharmonie,
Hamburg, 2007-2017

Sound in reality is simultaneously experienced through multiple senses. The acoustic wall panels used in the main concert hall in the Elb Philharmonie illustrates acoustic design that activates a variety of senses. The custom CNC panels are sculpted to visually articulate the hall's required sound reflections as they shift throughout the interior volume. The depth and size of the sculpted cuts connect the movement of sound to the interior geometry through haptic experience. The panels cover the entire hall and encourage the audience to touch and feel the literal sculpting of sound.



Herzog & de Meuron, Elb Philharmonie hall constructed with
thousands of custom acoustic CNC panels, Hamburg, 2007-
2017

The critical differentiation between sound *moving* in space and sound *reflecting* in space allows for an interdependent relationship between the subjective and objective experience of sound: the relationship between music and architecture respectively. Despite the industry's advanced understanding of acoustic design, there will always be elements that cannot be accounted for. Inconsistencies in both environmental and human performances have always been part of the experience of music. John Cage beautifully repositions the benefit of this potential acoustic fault by stating, "there is no such thing as an empty space or an empty time. There is always something to see, something to hear. In fact, try as we may to make silence, we cannot" (Cage [1961] 2013, 8).

By embracing the inevitable nature of sounds, Cage's philosophy inverts the role of acoustics. Instead of filtering sound, the event becomes the coming together of sound and music on equal terms in space. Music and its performance therefore become a process of learning to perform and inhabit sounds within space: the same way a musician becomes familiar with an instrument over a lifetime of practice and experience. This is why acoustics must be approached beyond visual strategies within architecture.

Chapter 4: Processes of Gathering

The following discussion explores a positioning of the architectural strategy. This will be achieved through a personal experience of Hans Scharoun's Berlin Philharmonic. It will also explore Christopher Small's concept of 'musicking' as it relates to the active role of the musical experience.

Reconsidering the Live Music Venue

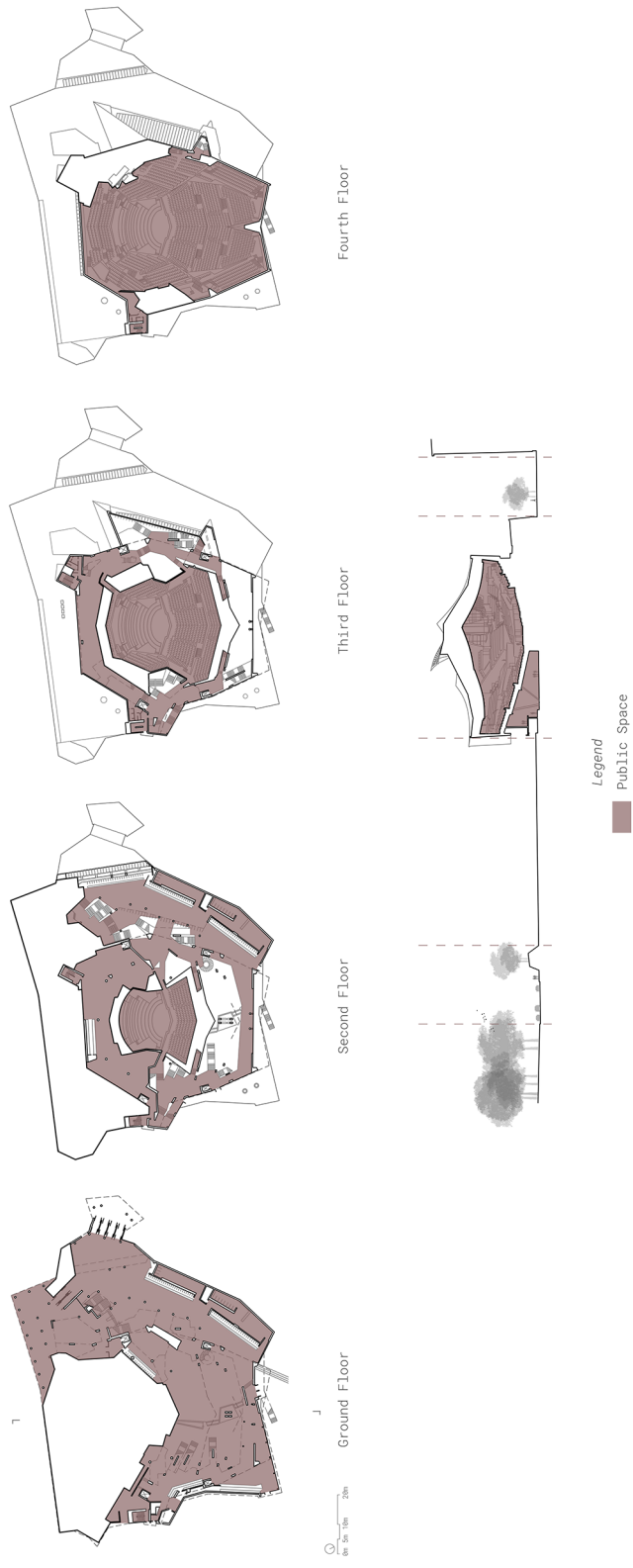
Music, people, and place are intimately connected. If we return to Scharoun's original vision of music, architecture is meant to materialize the process of gathering. Because music is the focusing event, architecture should encourage



Hans Scharoun, primary entryway into the Berlin Philharmonic, Berlin, 1956-63

and facilitate this process through an accessible approach that encourages exploration and engagement.

Scharoun's hall provided a critical turning point in the development of the typology. The Berlin Philharmonic constructed the concert hall as the materialization of a democratic society: an experience designed for people.



Floor plans and section of the Berlin Philharmonic showing the areas available to the audience during the concert



Hans Scharoun, vineyard seating that allows the audience to move freely throughout the hall, Berlin, 1956-63

The concert hall plans on the previous page emphasize the publicly accessible spaces of the hall. Scharoun pushes the functional, administrative, and operational architecture to the perimeter of the building to maximize the social potential experience of the hall. Based on my previous travel research experience, every area of the lobby can be explored. The gathering of people in space materializes a social performance of architectural space. The social inhabitation of the center also extends into the concert hall. The entire concert hall is accessible through a complex network of stairs and aisles. The audience member is free to explore and experience the space on the journey to find their seat.

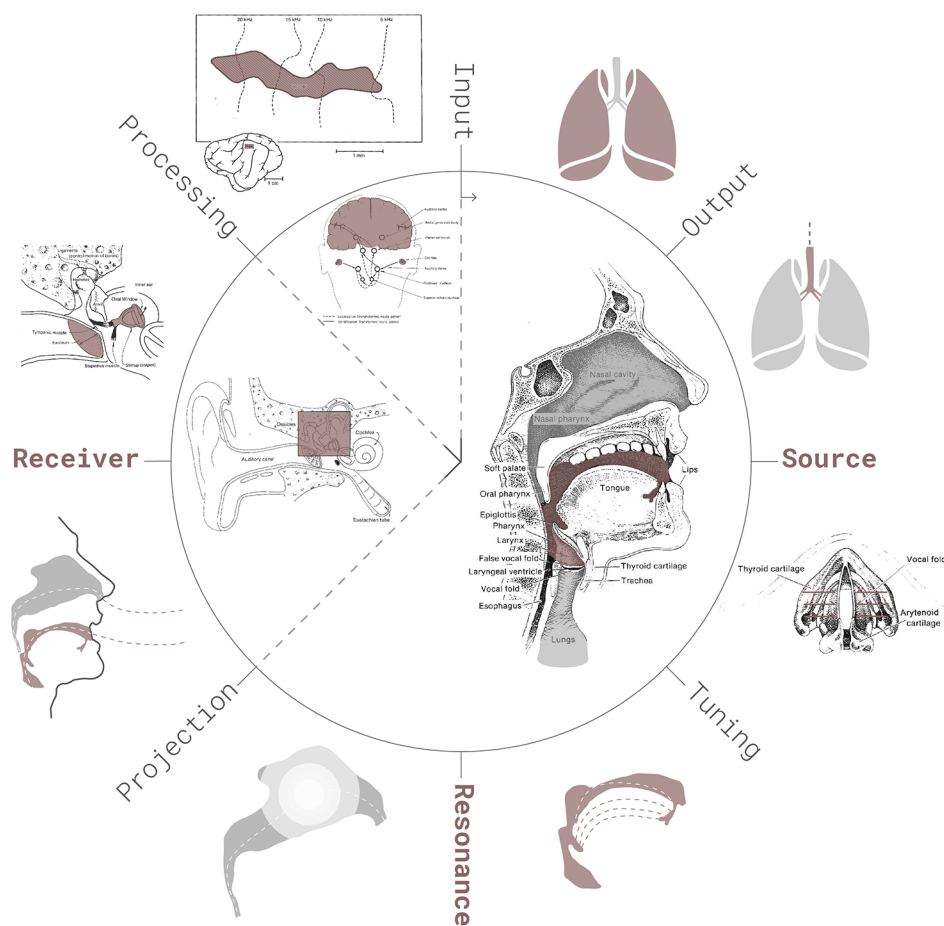
Scharoun's completed vision of a center for music articulates the importance of people. By dismantling the hierarchy between performer and audience, the Berlin Philharmonic shows the social, cultural, and political benefits of a design driven by the human experience.

Approaching music as a process requires a repositioning of sound, people, and space. The previous chapter described

some of the challenges of approaching acoustics from a visual and purely architectural perspective. The following discussion aims to expand this to a multi-disciplinary perspective and outline the foundation for the architectural strategies and role that each performer plays.

The Human Performance

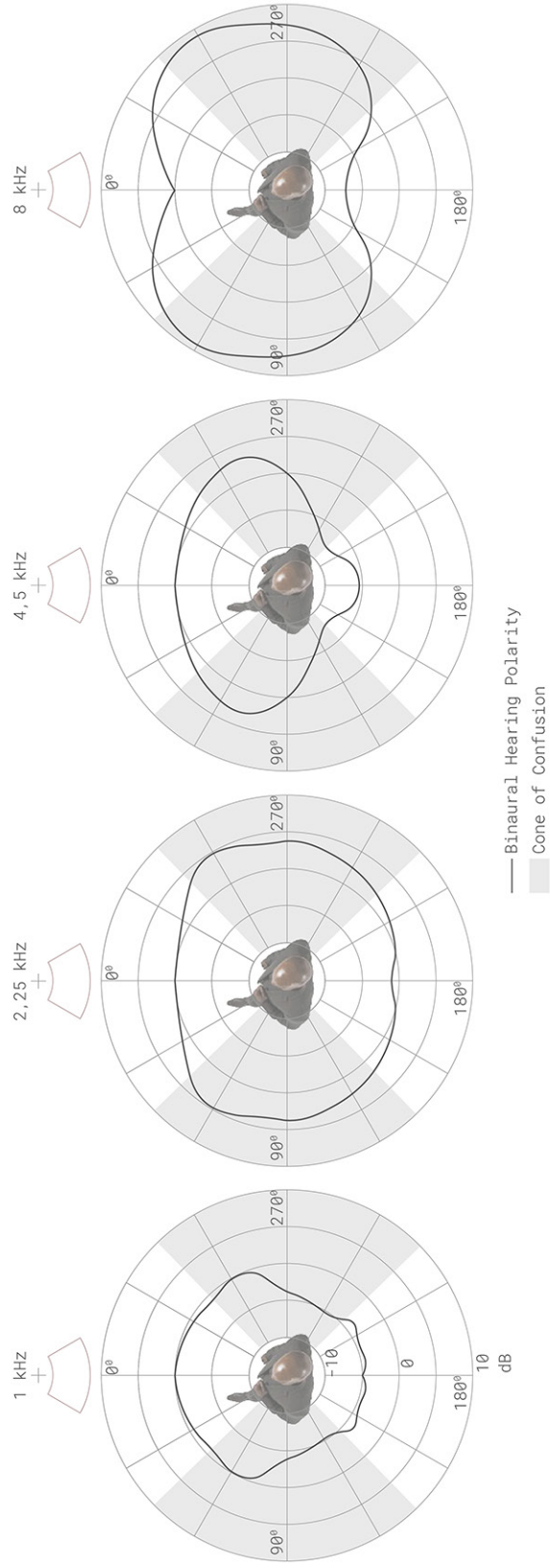
The human body is in many ways the root of music: its creation and perception. Sound, which is the displacement of air through space, is produced and processed through a



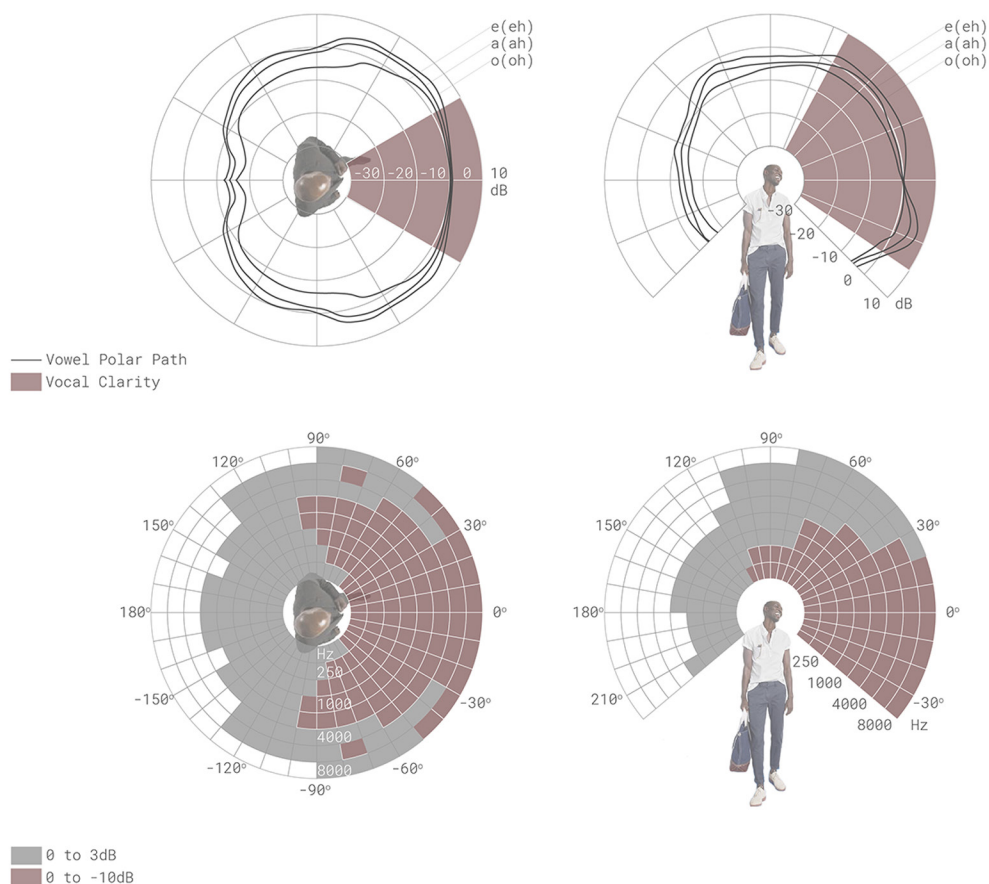
Sound Life Cycle [Human Voice]

The human body produces, manipulates, and perceives sound in a complex life cycle (adapted from Handel 1989, 136, 466, 478, 535)

Adapted from: (Meyer 2009, 175-76)



Polarity map illustrating the positional intensity of received frequencies (data from Meyer 2009, 14; Handel 1989, 11)



A diagram visualizing the forward directionality of the human voice (Meyer 2009, 175-176)

complex relationship of processes. Neuroscientist David J. Levitin suggests that at a fundamental level, the perception of pitch (a musical note):

[...] is a purely psychological phenomenon related to the frequency of vibrating air molecules [...] it is entirely in our heads, not in the world-out-there; it is the end product of a chain of mental events that give rise to an entirely subjective, internal mental representation of quality. Sound waves - molecules of air vibrating at various frequencies - do not themselves have pitch. Their motion and oscillations can be measured but it takes a human (or animal) brain to map them to an internal quality that we call pitch. (2007, 22)

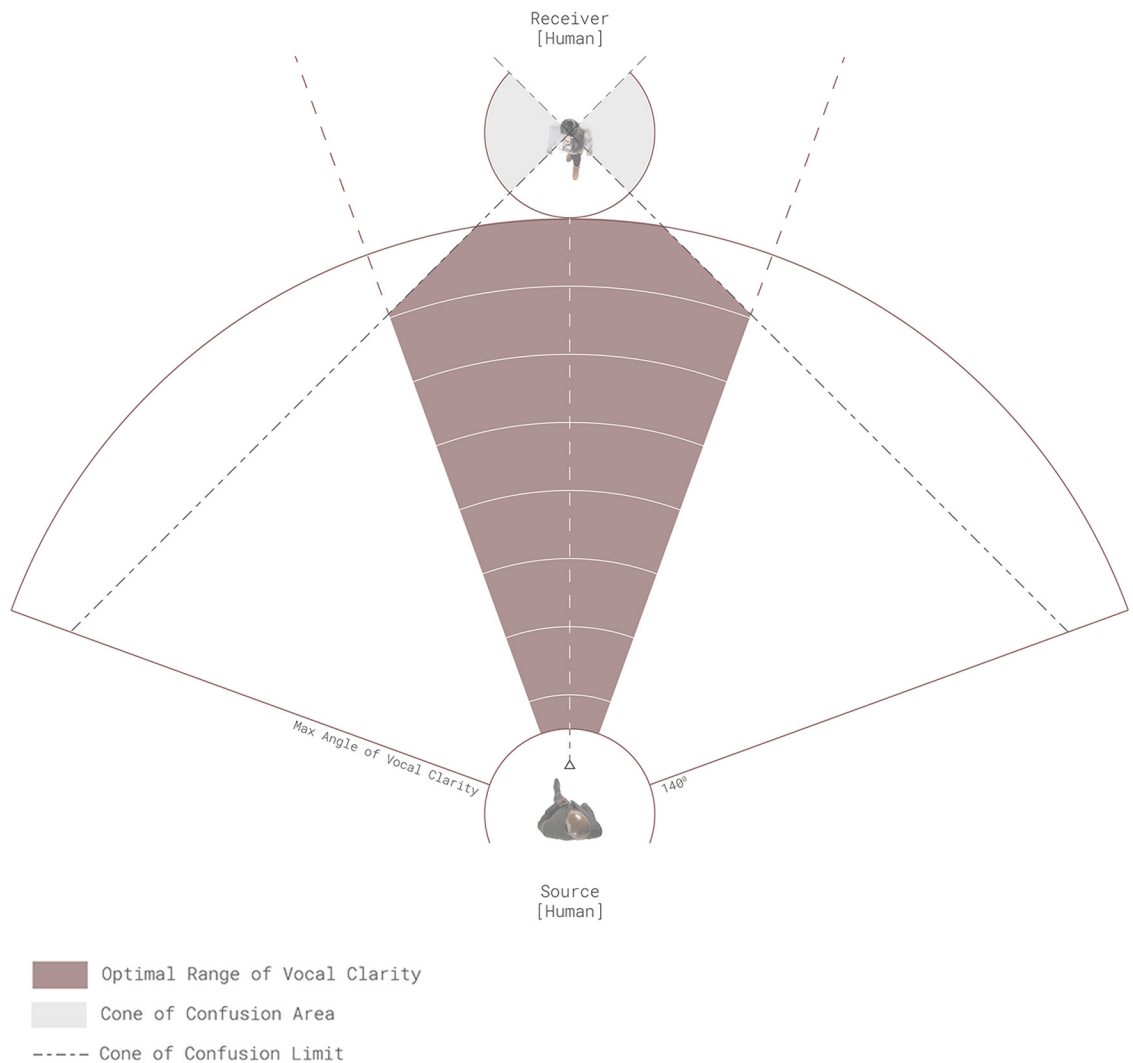


Diagram illustrating the optimal area for vocal projection and reception

For this reason, the architectural strategy approaches the acoustics of sound through the human perspective as producer, manipulator, and perceiver.

The human mouth focuses the direction of a produced sound. Based on polarity mapping in the following diagrams, it appears that there is an inverse positional relationship between the production and reception of the human voice. The process of producing and gathering sound within the human experience traverses through a fan shaped

geometry in space. The project will therefore use this form as a foundation to amplify and materialize music, sound, and the human experience as a process of gathering.

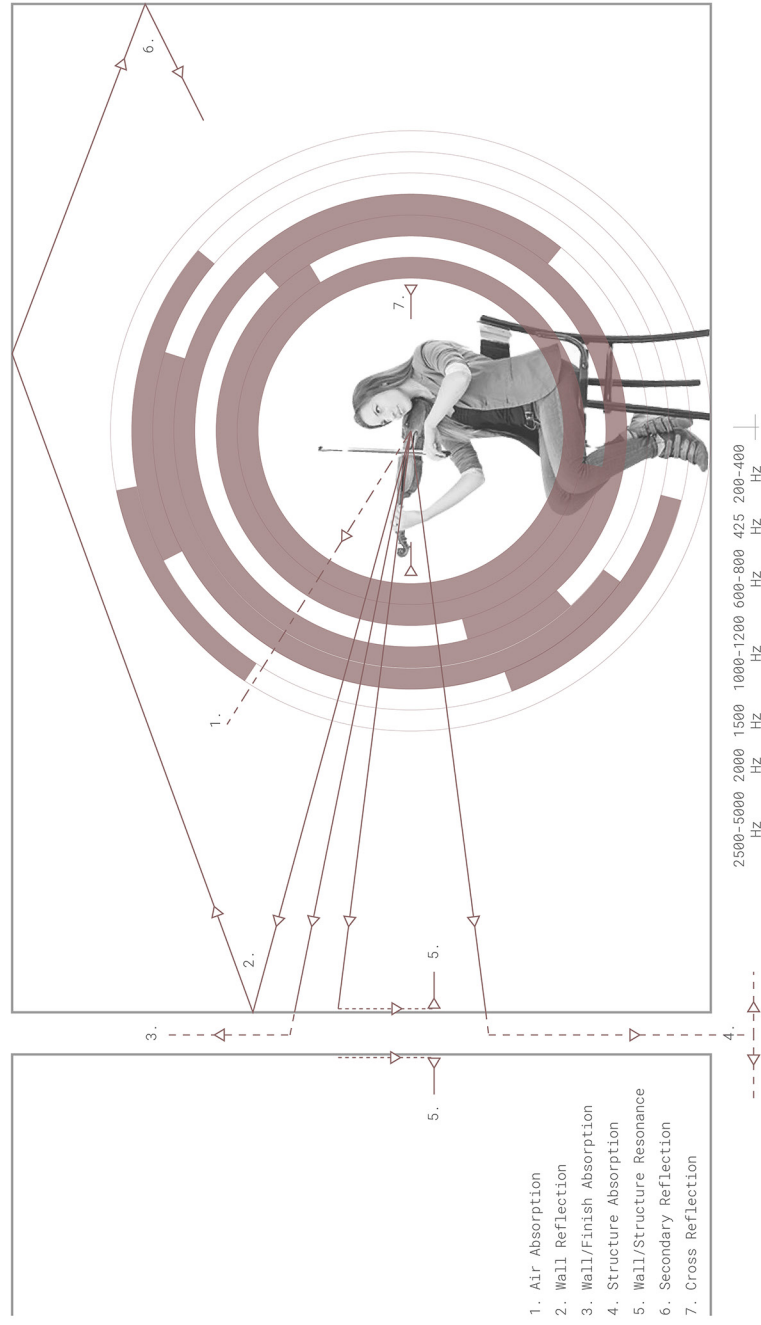
Musical Performance

The human body perceives sounds over a frequency range of 20-20,000 Hz (Levitin 2007, 24). By mapping the frequency range of instruments and the human voice, the auditory location of various forms of music production can be placed within the hearing spectrum.

From a musician's perspective, this information is used in the performance of live and recorded music. Instruments performing within the same frequency range will appear to be louder due to the additive effect of sound waves. This is part of the reason why certain instruments will tend to play melodies (sounds that are memorable and can be hummed or sung) such as the violin and the voice, and others will support the melody such as a bass or piano.

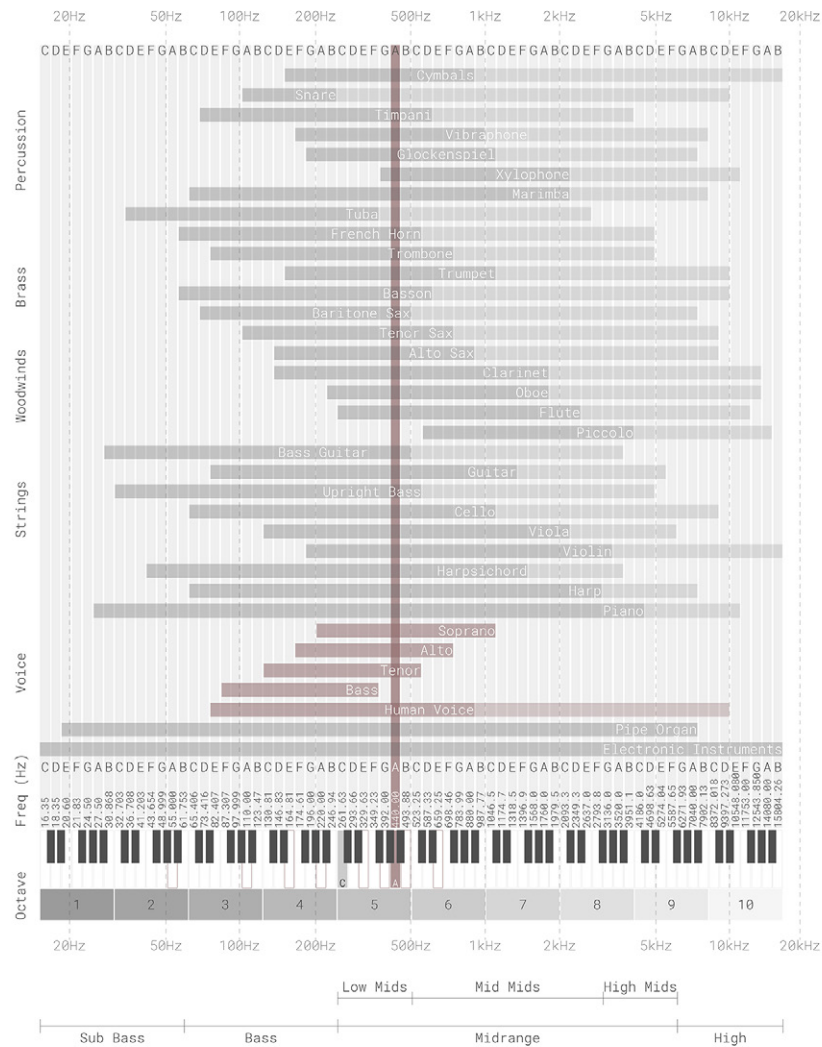
This process of ensemble balance changes depending on the location of the performance due to reverberation, the audience size, the genre of music, the reflection of surfaces, the absorption of sound wave energy, and the materials used in the space. As the following page illustrates, sound moving through a simple space. Even this simple geometry materializes complex performance relationships between sound travelling through space.

Ensemble balance strategies and responses are learned gesturally through experience with the instrument as well as the space being performed in. As a result, musical performance in place encourages musicians to 'learn' and respond to space. Therefore, the physical gathering of



- 1. Air Absorption
- 2. Wall Reflection
- 3. Wall/Finish Absorption
- 4. Structure Absorption
- 5. Wall/Structure Resonance
- 6. Secondary Reflection
- 7. Cross Reflection

The movement of sound can be perceived as having direction or as a wave form of frequency (data adapted from Moore 1961, 19; Meyer 2009, 274)



The frequency range of instruments and the human voice highlighted in red (data from LANDAR 2020; Handel 1989, 166)

music creates unique sensory conditions specific to every room, place, and musician.

Architecture as a Instrument

The instrument, which articulates to the performance, materializes a relationship between controlled and uncontrolled opportunities. This is the role of the live music venue. As a facilitator, the venue synthesizes the performances of people, place, and events in a way that

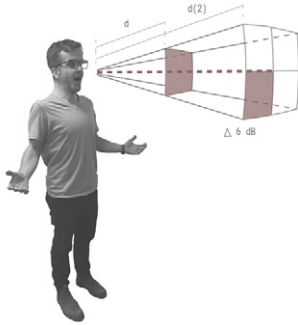


A wish image proposal of a live music venue as a process of gathering

provides the opportunity to explore and engage based on the individual's need and comfort. This enables each performer to contribute to the overall performance based on their strengths. The venue facilitates the opportunity to perform the present.

The performance of the present moment materializes through the exploration of the live music venue. The product of this process can metaphorically become a 'musical work'.

The musical work [...] is not a concrete physical object. It is



Illustrating the decay of sound energy in uninterrupted space (Moore 1961, 17)

not a private idea in the mind of the composer, performer, or listener. It does not exist in an external world of ideal, uncreated forms. It is not identical to any one of its performances. Its parts exist simultaneously, not temporally. It is not identical to its score, but the performance and the score enable the work to be detected. (Parcell 2012, 6)

The unpredictable nature of the 'musical work' allows the venue to encourage interpretation. The result of this kind of architectural approach materializes an inseparable connection between people, place, and events through the participatory performance of music.

As form plays a vital role in the movement in space, these tools will be used to inform the architectural strategies in direct and symbolic ways. As a result, the process of gathering becomes informed by the human experience, production, and reception of sound in space. Through the human perspective, music can become materialized as an architectural performance of Halifax's historic waterfront.

Chapter 5: Halifax as a Venue

The city of Halifax is home to a diverse range of festivals, musicians, audiences, and public space. As a result it is an ideal candidate for the proposed architectural investigation. This chapter will begin to contextualize the site and location of the proposed live music venue.

Atlantic Canada Music Industry

The Atlantic Canada Music industry consists of four provinces: New Brunswick, P.E.I., Newfoundland and Labrador, and Nova Scotia. While the East Coast has a rich diversity of music, Nova Scotia “represents an investment in the music industry [...] at the same per capita level as Ontario” (Music Canada 2017, 23). This level of investment suggests that there is a significant music industry foundation despite the small size of the province. The two primary music centers in the province are located in Cape Breton and Halifax. The former tends to promote historical and tourist music while the latter is the primary center for the contemporary. As a leader in the East Coast music scene, Halifax provides a strong musical ecosystem to support the live performance of music.

Challenges Facing Halifax Venues

The Halifax peninsula is home to a diverse range of venues. The two busiest venues in the city are the Rebecca Cohn Auditorium and Scotia Bank Centre. Located within the Dalhousie University Campus, the Rebecca Cohn is the current home of Symphony Nova Scotia. The hall primarily hosts the largest acoustic, folk, alternative, and symphonic music within the city. The Scotia Bank Centre is a multi-use event space that hosts music, sports, public speaking



Map of Halifax identifying existing venue locations and the waterfront site (base map from Halifax Open Data 2019)

events, and conventions. These two buildings are the largest indoor venues in the city and host artists from around the world.

The Music Room on the north end of Halifax is a small-scale intimate recital hall located on the north end of the peninsula and hosts primarily acoustic events. Many of the other popular venues in the city such as the Seahorse on Gottigen Street and the Carleton in downtown Halifax are multi-use or function as secondary program to food services. The deep

religious history of the city also provides a large number of religious structures that can act as alternative venues.

Despite the density of potential performance spaces, the city still faces many accessibility challenges. The Rebecca Cohn is geographically isolated from the majority of the downtown event infrastructure needed to support live music events. Located within the heart of the Dalhousie University Campus on the southwestern part of the peninsula, the venue lacks adjacent social event experiences such as restaurants and local retail.

Multi-use venues associated with food often require a minimum age of 18 due to the sale of alcohol. While these conditions are not unfamiliar to the industry, they impose potential restrictions on audiences and upcoming musicians. Specifically, the drinking age and late night programming prohibits families with younger children from attending. From the musician's perspective, the age limit dramatically reduces the number of venues where a young emerging artist can perform, therefore limiting their audience and experience. This forces younger artists to move to other provinces to gain performance experience (Music Canada 2017, 21). Despite the thriving music scene, the venue conditions inherently prohibit the younger generation of artists and families from performing and experiencing live music.

In response to these venue restrictions, this project utilizes Halifax's downtown public space as a live music venue. Specifically, the historic harbour city hosts a unique waterfront boardwalk that is easily accessible by public transit for locals and is the gateway for the international cruise ship ports. As an existing tourist and local place of gathering, the



Surrounding music venue infrastructure in Halifax's downtown core (base map from Halifax Open Data 2019)

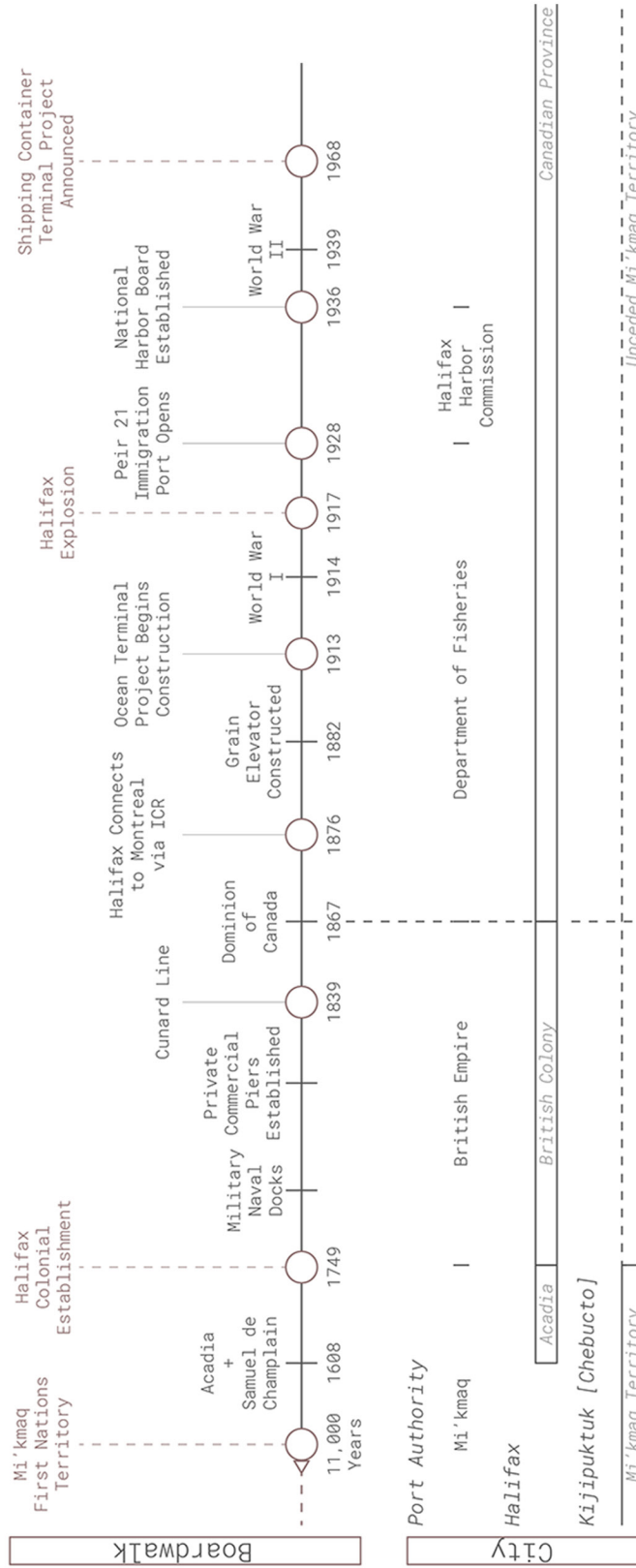
boardwalk area provides an ideal location that is supported by an array of event infrastructure; hotels, restaurants, local retail, public space, parking, and tourism. Specifically, the Halifax waterfront provides a public route that connects the local and tourist populations through events and festivals.

The Halifax Waterfront

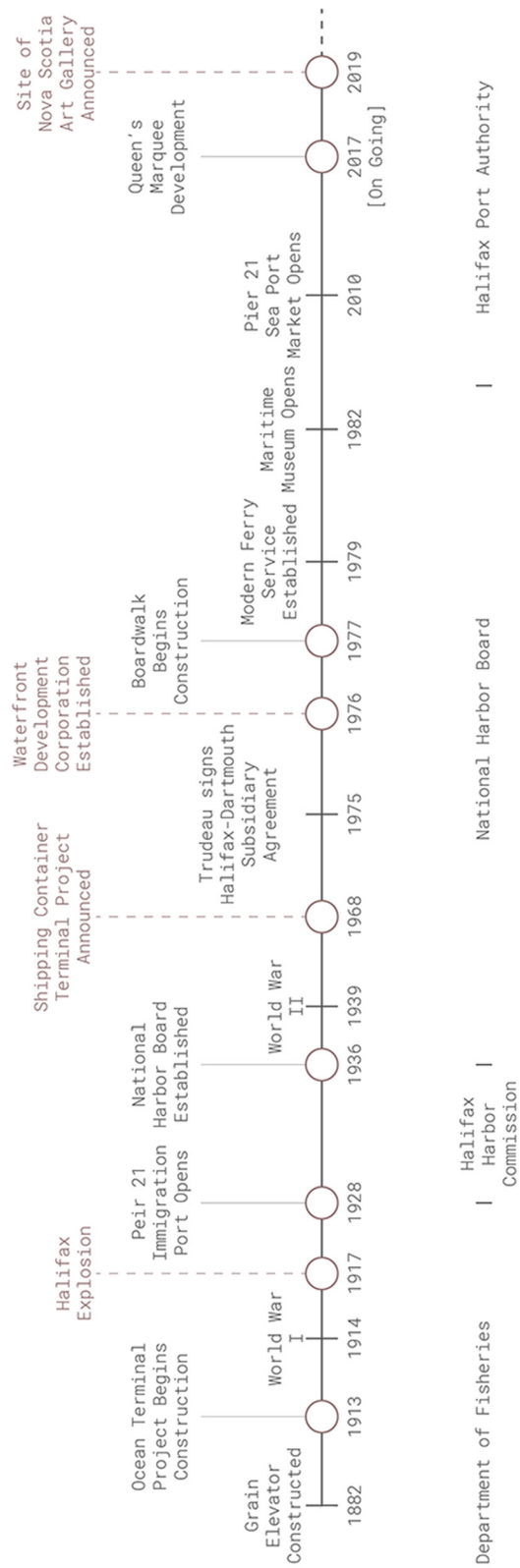
Halifax is located within the ancestral and unceded territory of the Mi'kmaq First Nation: a deep bay connected to the Atlantic Ocean that has been inhabited for the past 11,000 years. Founded in 1749 by Edward Cornwallis as a British colony, the city began as a naval and commercial port. The economic successes and failures of the city has been directly tied to the waterfront operations throughout the Seven Years War, the American Revolution, Canadian Confederation, the Halifax Explosion and both of the World Wars. The harbour is also home to the oldest ferry service in North America which has been in operation since 1752 (Boileau 2007).

Since the mid 1800's, the harbour was utilized as a major commercial port to access the European continent. With an established national railway connection to Montreal in 1876, Halifax became a gateway between Europe and Canada. The immigration port of entry was located along the southern harbour waterfront at Pier 21. The authority opened its doors in 1928 and serviced immigrants until its closure in 1971 (Frost 2008).

The emergence of shipping container transportation in the 1960's had a devastating impact on the Halifax waterfront. Since the founding of the city, most of the commercial lots along the waterfront were privately owned and operated well into the 1960's. With the announcement of a new shipping container port in 1968 along the southern waterfront, the city



First half of the timeline illustrating the history of the waterfront (Boileau 2007; Frost 2008)



Canadian Province

Unincorporated Territory

Second half of the timeline illustrating the history of the waterfront (Boileau 2007; Frost 2008)

and port authority began to lay plans for the redevelopment of the commercial waterfront. In 1976 the Waterfront Development Corporation was formed to oversee the public redevelopment of the commercial waterfront. The boardwalk began construction in 1977 and was followed by a number of new public spaces, events and cultural facilities including: the Maritime Museum in 1982, the Tall Ships Festival in 1984, the completion of the Casino and full boardwalk in



A rendered view of the new Queen's Marquee Development design by Mackay-Lyons Sweetapple (Globe and Mail 2018)

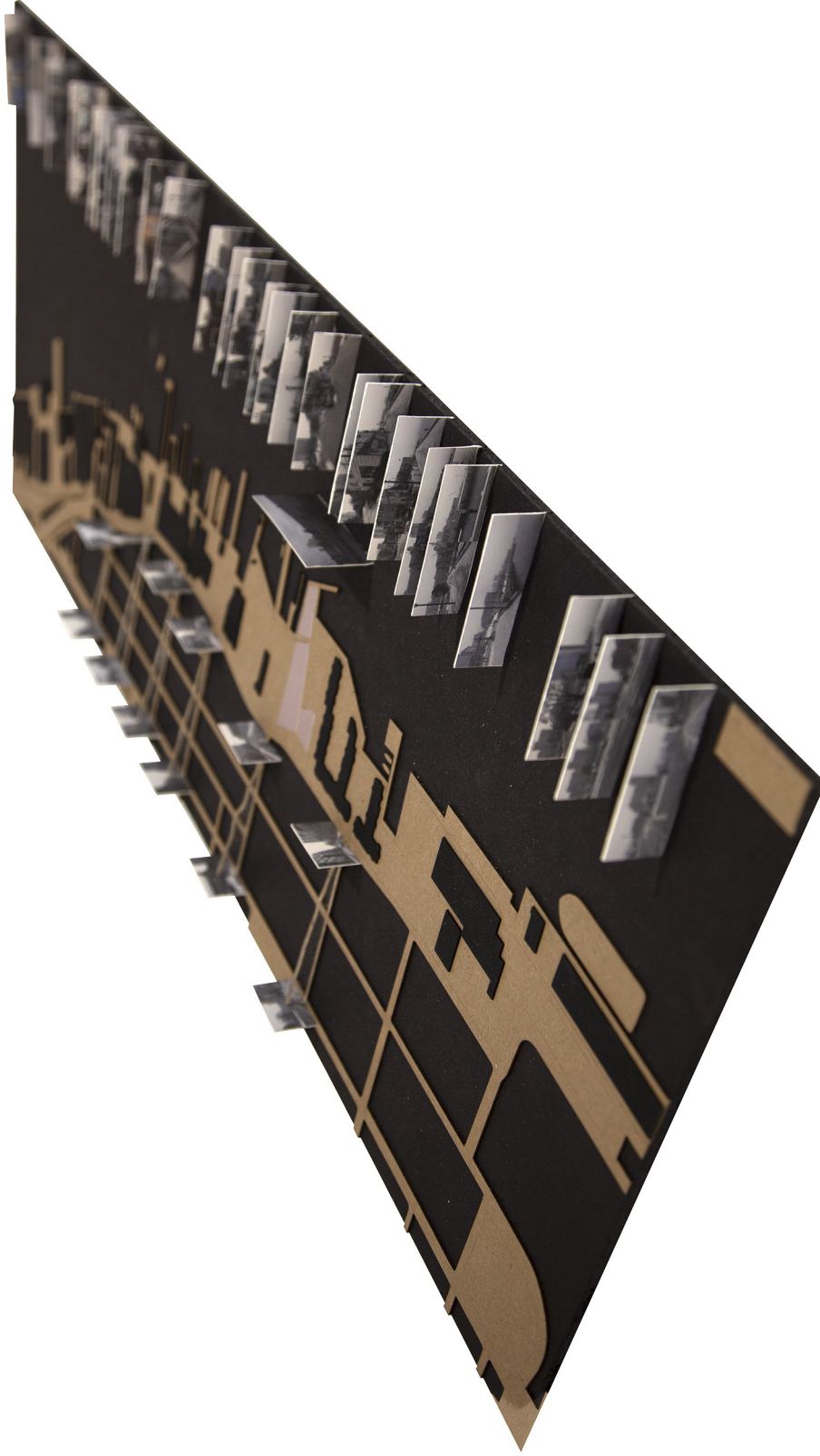
2000, the opening of Pier 21 in 2010, and the beginning of construction for the new Queen's Marquee in 2017 (Boileau 2007).



The Alexander Keith's Brewery building also hosts small businesses and a weekend farmers market

The Site

The chosen site for the project remained a private commercial site until its redevelopment as a parking lot in 1982 (Boileau 2007, 48). The site is adjacent to the historic Alexander Keith's Brewery established in 1820 which also includes small retail spaces and hosts a farmers market on weekends. To the south, Bishop's Landing hosts a diverse range of restaurants, private residential units, and local



Photomontage model illustrating the pedestrian circulation in brown card and views from Barrington Street and the Waterfront boardwalk



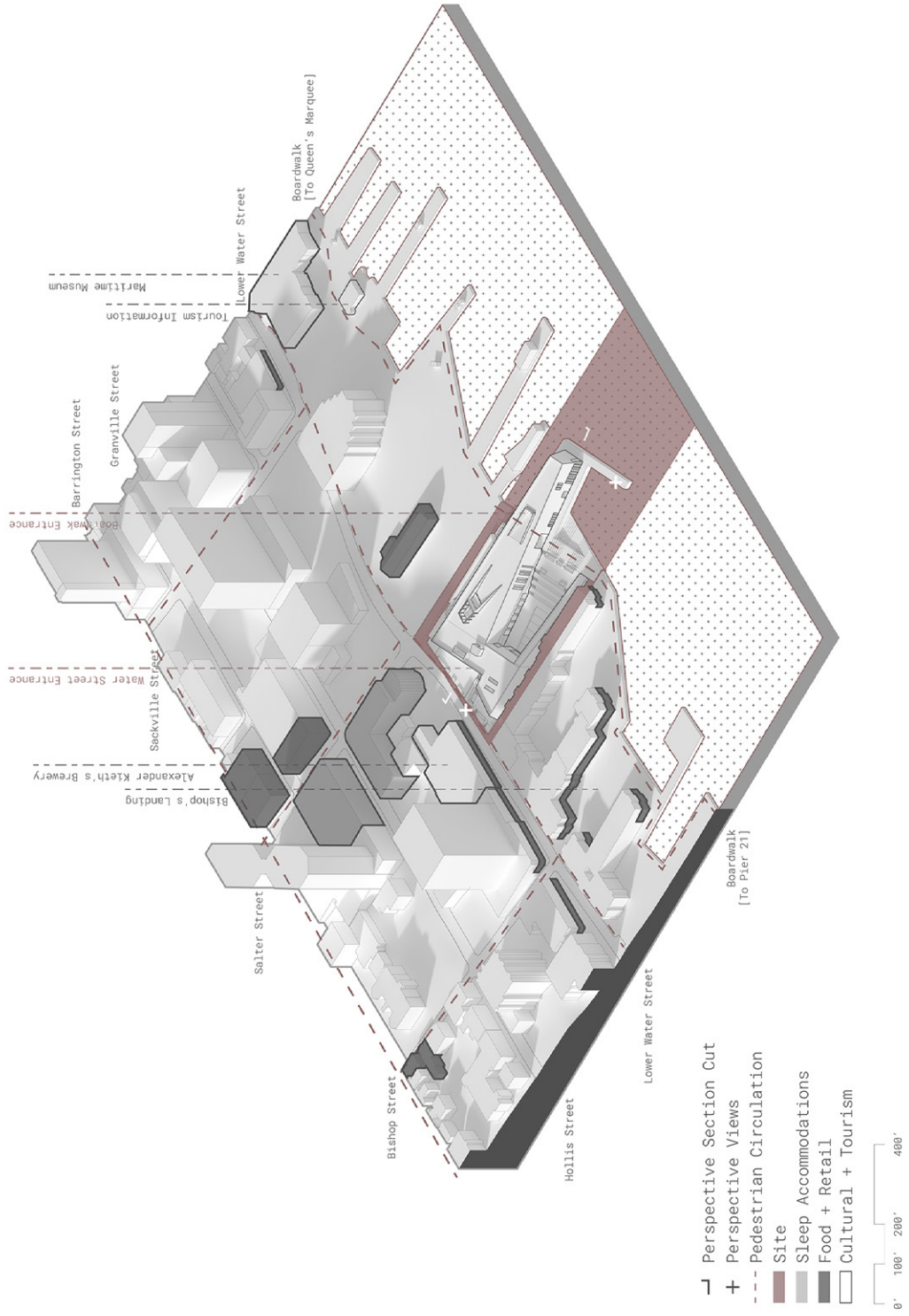
Photomontage model illustrating the pedestrian sequence along the waterfront focusing on the site

retail spaces. Following the boardwalk in this direction leads directly to Pier 21 and the Cruise Ship Entry Port. To the north of the site, the boardwalk leads to the Maritime Museum, the new Queen's Marque development, the Harbour Ferries, the Historic District, and the Casino.

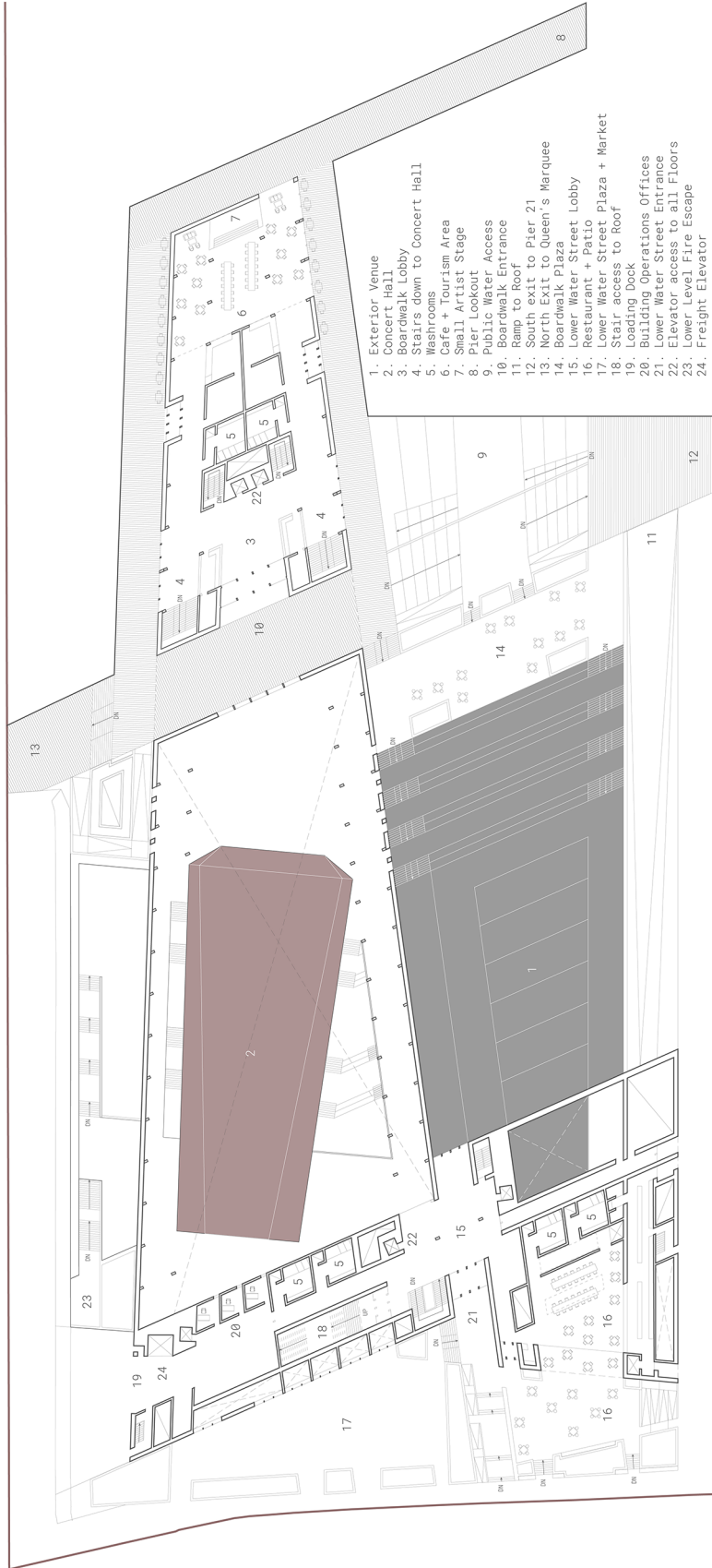
During the summer months, the site hosts a variety of festivals, holiday celebrations, and events including the annual Halifax Jazz Festival. The festival features a combination of local and international artists during mid-July that perform outdoors within a fenced-off area in the existing parking lot.

The Waterfront Venue

The project confronts two primary site conditions: the urban to the west and the harbour to the east. As an experiential instrument, the building acts as a gateway between the two environments. From a site strategy perspective, both environmental conditions require a unique approach and response in order to facilitate the process of gathering.

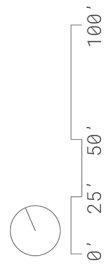


Site context illustrating the Boardwalk two primary public entrances, surrounding infrastructure, and primary pedestrian circulation



- 1. Exterior Venue
- 2. Concert Hall
- 3. Boardwalk Lobby
- 4. Stairs down to Concert Hall
- 5. Washrooms
- 6. Cafe + Tourism Area
- 7. Small Artist Stage
- 8. Pier Lookout
- 9. Public Water Access
- 10. Boardwalk Entrance
- 11. Ramp to Roof
- 12. South exit to Pier 21
- 13. North Exit to Queen's Marquee
- 14. Boardwalk Plaza
- 15. Restaurant + Patio
- 16. Lower Water Street Plaza + Market
- 17. Stair access to Roof
- 18. Loading Dock
- 19. Building Operations Offices
- 20. Lower Water Street Entrance
- 21. Elevator access to all Floors
- 22. Lower Level Fire Escape
- 23. Freight Elevator

- Public Venue
- Exterior Venue
- Concert Hall



Boardwalk level plans illustrating the locations of the venues and entrances



View of site relating to surrounding buildings



Lower Water Street is the primary exit for large commercial vehicles leaving the Halifax peninsula

Lower Water Street (West Side)

The west edge of the site is bordered by a high traffic street. Due to restricted trucking access on the peninsula, Lower Water Street is the primary route for large trucks leaving the shipping container port. In combination with the heavy traffic volumes, the frequency and time spent idling creates an enormous amount of motor vehicle noise throughout the site. With no existing barriers between the road and the water and the hard reflective surface of the parking lot, the vehicle traffic overpowers the entire site.

In direct response to the invasive urban noise, the west condition of the building focuses on acoustic diffusion and reflection. The building is inset from the site boundary in order to provide public areas of gathering and tree vegetation. While trees can diffuse sound in the canopy, the exposed area between the ground and upper branches still allows the majority of the sound to pass through (Egan 2007, 253). By working in tandem with the public landscaping, the sloped exterior walls of the building reflect the sound at an angle away from the site. Furthermore, the angle of the walls aims to produce a sensitive urban wall that invites the public



Render illustrating the Lower Water Street entrance and landscaping



Site model view of the Lower Water Street entrance and landscaping

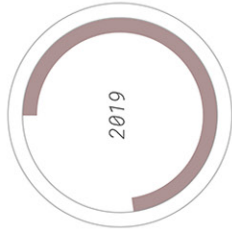
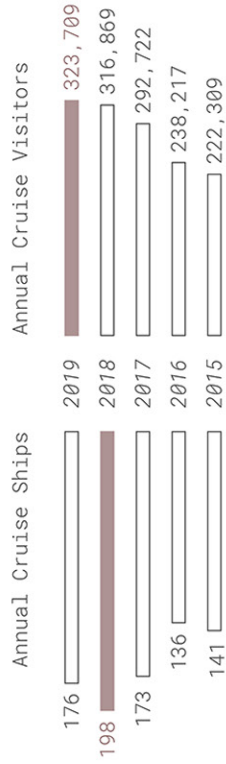
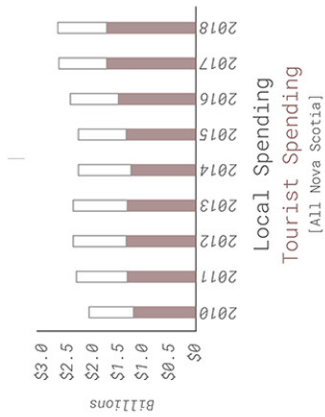
into the building, providing an opportunity to extend the Alexander Keith's farmers market into the street. In order to increase this reflectivity, the building is clad in metal panels. These panels will also be used on the east side of the site to reflect the sound away from the residential apartments on the south border condition.

Following the street front urban fabric of the neighbouring Bishop's Landing, the southwest corner of the building hosts a restaurant and patio. The sunken patio aims to help mask the noise from Lower Water Street and provides a sensory opportunity for food to draw people into the building.

This area will also include a new bus stop to allow the local population to gain easier access to and from the site. Lower Water Street is already frequented by multiple bus lines so the addition of the stop would build upon existing transportation infrastructure.

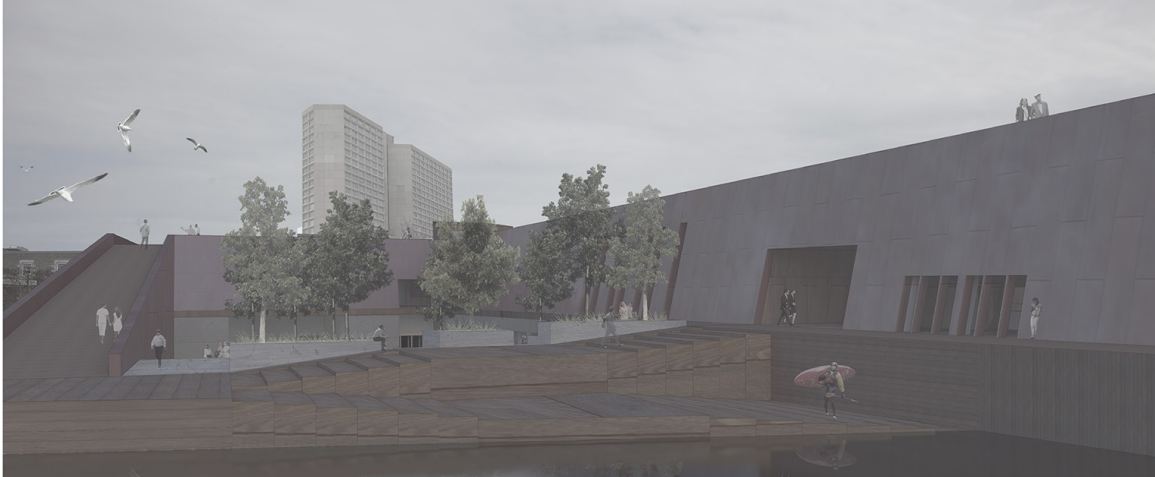
The Boardwalk (East Side)

The waterfront boardwalk is a 4 km stretch of continuous public water access that extends from Casino Nova Scotia to the Pier 21 cruise ship terminal (Nova Scotia Canada 2020). As a featured destination in the city, the boardwalk hosts a large number of non-resident visitors due to the proximity of the downtown hotels and cruise ships. The Halifax Port Authority has found that in 2019 alone, the port docked 179 vessels and hosted 323,709 visitors (Cruise Halifax 2020). This figure is significant for two reasons. First, this does not account for visitors who reach Halifax by aircraft, vehicle, and train. Secondly, the cruise ship tourists equate to nearly 75% of the 430,512 permanent resident population (Chronicle Herald 2019). The boardwalk site



Local Pop. : 430,512
 Cruise Visitors: 323,709

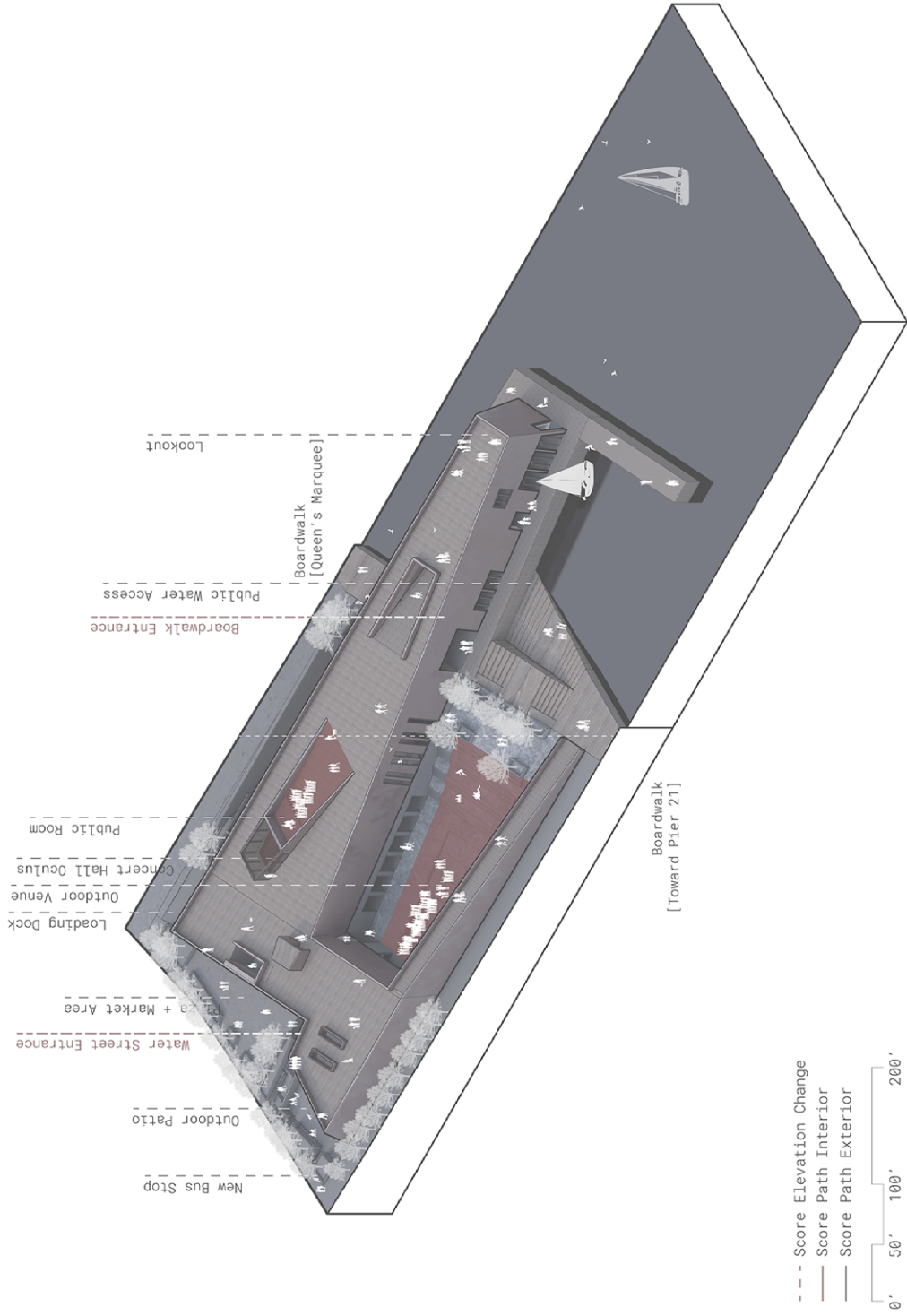
Diagrams of tourism revenue and cruise ship statistics in relation to the local populations (data adapted from Tourism Nova Scotia 2019; Cruise Halifax 2020)



Render illustrating the waterfront boardwalk and public access to the water

condition of the project therefore programmatically focuses on tourist retail and services.

In order to maintain boardwalk circulation throughout the duration of an outdoor event, the primary waterfront circulation has been located on the periphery of the outdoor venue. Approaching the site from the north provides two paths that allow the visitor to walk through the cut out opening of the building or continue the boardwalk experience along the water. The southern entrance to the site offers three more possibilities. The visitor can either approach the ramp leading up to the rooftop, descend into the exterior venue, take steps down to access the water, walk through the cutout of the building, or walk along the periphery. The choice from both boardwalk entrances encourages the visitor to explore and find their own path through the site and venues. The clear visibility lines between the different areas allows visitors to inform one another about which areas of the site are accessible. This allows for a collective process of movement and gathering throughout the entire site.



Building site axonometric illustrating the key programmatic and social areas

Site as an Instrument

The site encourages relationships between the urban and harbour conditions. As an urban gesture, the building strategy aims to sensitively connect to the surrounding architectural community, social context, and rich history. The performance of place therefore can materialize with or without music. Due to the large scale of the site this allows gathering to celebrate the human experience in the event the visitor chooses a pathway without music. This is important because it allows the building to operate as a truly public building: a transparent experiential invitation for the public throughout the entire day. This allows gathering to be a celebration of individuals materializing relationships and community in place.

Chapter 6: The Concert Hall as a Process of Gathering

My Rossetti travel research offered a unique opportunity to critique a diverse range of concert halls in person within a short duration. The following discussion will dive deeper into some of the positive and challenging aspects of the contemporary typology. Specifically this chapter will examine the Elb Philharmonie by Herzog and de Meuron in order to illustrate the social, sensory, and financial lessons that can be learned from this particular case study. As a result, this thesis will establish a position on the contemporary concert hall as a process of gathering.



Herzog & de Meuron, the Elb Philharmonie viewed from the city harbour taxi, Hamburg, 2007-2017

The House of Music

Despite intense confrontation throughout the design and development process (Mack 2018, 174), the Elb Philharmonie has become one of Hamburg's most celebrated citizens. It became apparent during the previous travel research that the concert hall had become an icon of the city: in the same

way the Sydney Opera House is an icon for the city. While the project is a unique commercial, cultural, and tourism success, very few cities or countries would be able to survive, finance, or facilitate a project of this scale.

As a public building, the Elb Philharmonie illustrates the complex network of interested partners and high level of risk and investment when undertaking a permanent public venue. In Hamburg, the project integrates a hotel, a spa, cafes, restaurants, a gift shop, two concert halls, parking, a public plaza, and private residences. This programmatic diversity suggests that the contemporary concert hall appears to be more than a house for music; it is one experience within a larger architectural apparatus.

This case study offers a great opportunity to consider the peripheral experiences and services that surround the concert experience. While every concert hall creates its own unique process, the design of the Elb Philharmonie illustrates valuable financial, social, and experiential lessons from the typology.



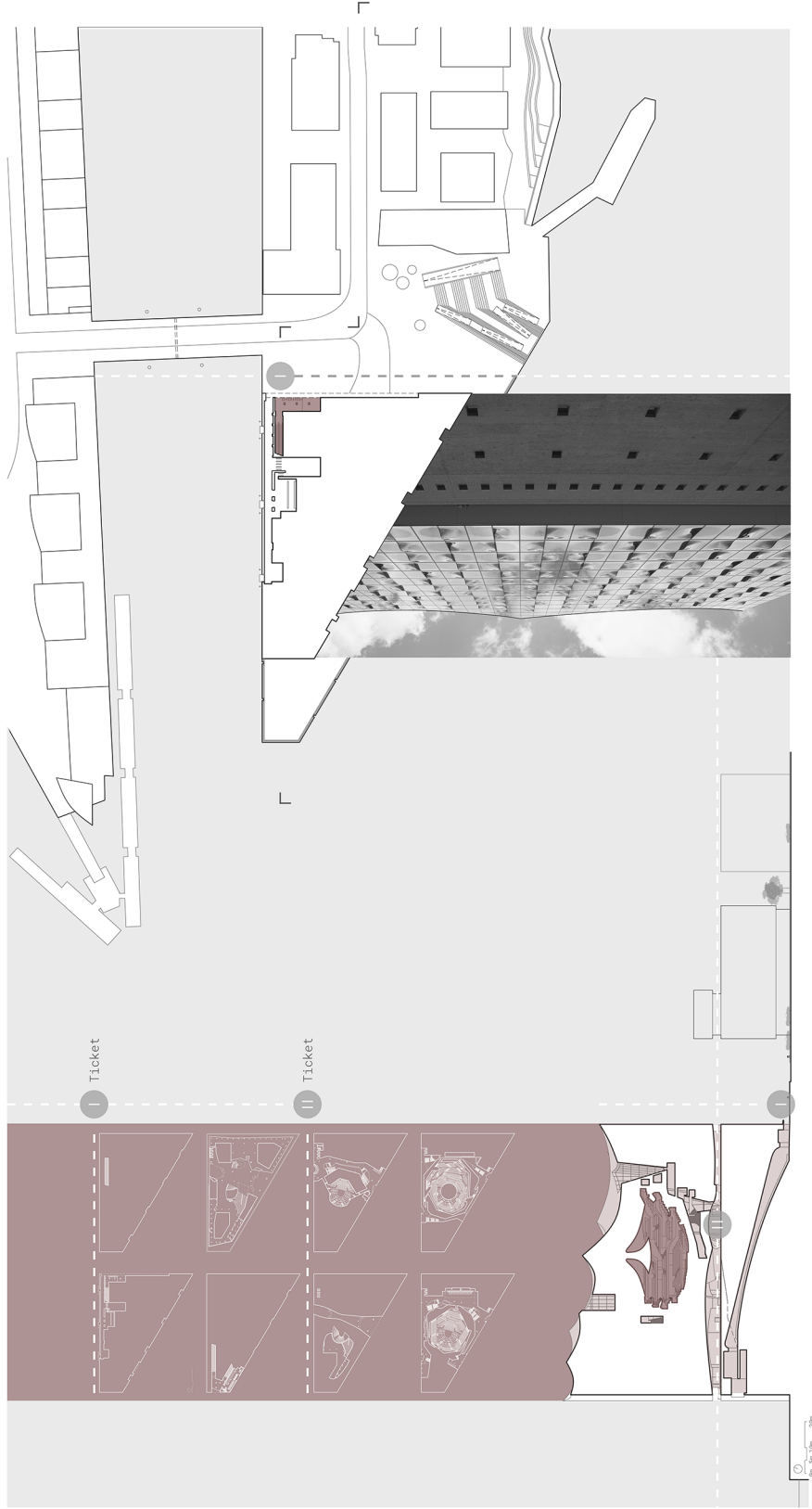
Herzog & de Meuron, the visitor reaches the viewing platform through a featured escalator sequence, Hamburg, 2007-2017

The Ticketed Event

The building is divided into three primary forms: the brick parking lot, the panoramic outdoor public plaza, and the upper glass volume. The parking lot and public plaza require a free ticket in order to regulate the number of tourists; however, priority tickets can be purchased if the user pays a small fee ahead of their visit. While the public plaza is operationally free, the social performance of the priority ticket offers an experience free of waiting. Spending is also integrated into the public viewing platform. Cafes, restaurants, and shops are nested amongst the panoramic views. Food and shopping extend the experience of the exterior public plaza. The building is isolated from the primary tourist areas and is nested in a high-end residential area of the waterfront.

Like most concert halls, the hall and reception area remains closed for the majority of the day. The upper glass volume which hosts the main concert hall is only open to visitors with concert tickets for a few hours before the show.

The extended ticketed sequence of the hall exposes a commercial integration that capitalizes on music as a process of gathering. The architectural curation of waiting, access, and isolation of program requires the audience to wade through a series of transactions to reach the music. The sequenced experience of the building encourages the audience to spend more time in the building, and therefore more money. Furthermore, money allows the visitor to move further and further into the building. During the research trip a full price concert ticket cost 150 Euros per person. This figure alone begins to suggest that the term 'public building' in this case applies to a very specific kind of 'public'.



Herzog & de Meuron, a hybrid drawing illustrating the ticketed zones, Hamburg, 2007-2017



Herzog & de Meuron, primary entry to the lookout and shopping plaza, Hamburg, 2007-2017

The commercial success of the concert hall positively benefits the city and musical community; however, if an individual does not have financial resources, they are physically and socially excluded from the entire experience. The concert becomes a collection of paid events that are planted throughout the architectural design and experience. The ticketed event exposes a potentially subversive behaviour of consumerism that capitalizes on the traditional concert ritual; it aims to connect music and spending as interdependent. As Adorno previously warned in the mid-twentieth century, the normalization of consumer behaviour in the music process begins to replace consciousness with conformity (Adorno 2004b, 104). This is where the integration of accessory capitalist programming requires critical evaluation.

Theodor Adorno's critique of the cultural industry provides an opportunity to expose the existing architectural practices that encourage potentially misleading communication.

[...] the culture industry no longer has anything in common with freedom. It proclaims: you shall conform, without instruction

as to what; conform to that which exists anyway, and to that which everyone thinks anyway as a reflex of its power and omnipresence. The culture industry's ideology is such that conformity has replaced consciousness. (Adorno 2004b, 104)

Critically identifying existing conditions that generate false discourses or distract the listener from problematic behaviour will allow the thesis to create a guideline for a sensitive integration of supplementary program. As a result, the investigation of the live music venue can begin to refocus its attention on active and participatory practices that encourage the visitor to spend more time exploring than spending.

Music, musicians, and concert halls are valuable and require financial revenue streams to operate. This position is not in question. The concern is that in reality, the materialization of an event is a prediction that an audience will pay for an experience based on previous purchases.

The consumer is really worshipping the money that he himself has paid for the ticket to the [...] concert. He has literally 'made' the success which he reifies and accepts as objective criterion, without recognizing himself in it. But he has not 'made' it by liking the concert, but rather by buying the ticket. (Adorno 2004a, 38)

The sensory event and architectural experience is in part materialized by the audience, not the ticket. From Adorno's position it becomes clear that in the case of the concert hall, the process of gathering is partially dependent on the purchasing power of the ticket: a power possibly unbeknownst to the consumer. The addition of consumerist programming further amplifies a capitalist desire to equate monetary value and experiential value.

In reality the audience indirectly holds partial responsibility over the success of a performance. In the case of the concert hall, the influence is perhaps diffused or negligible due to

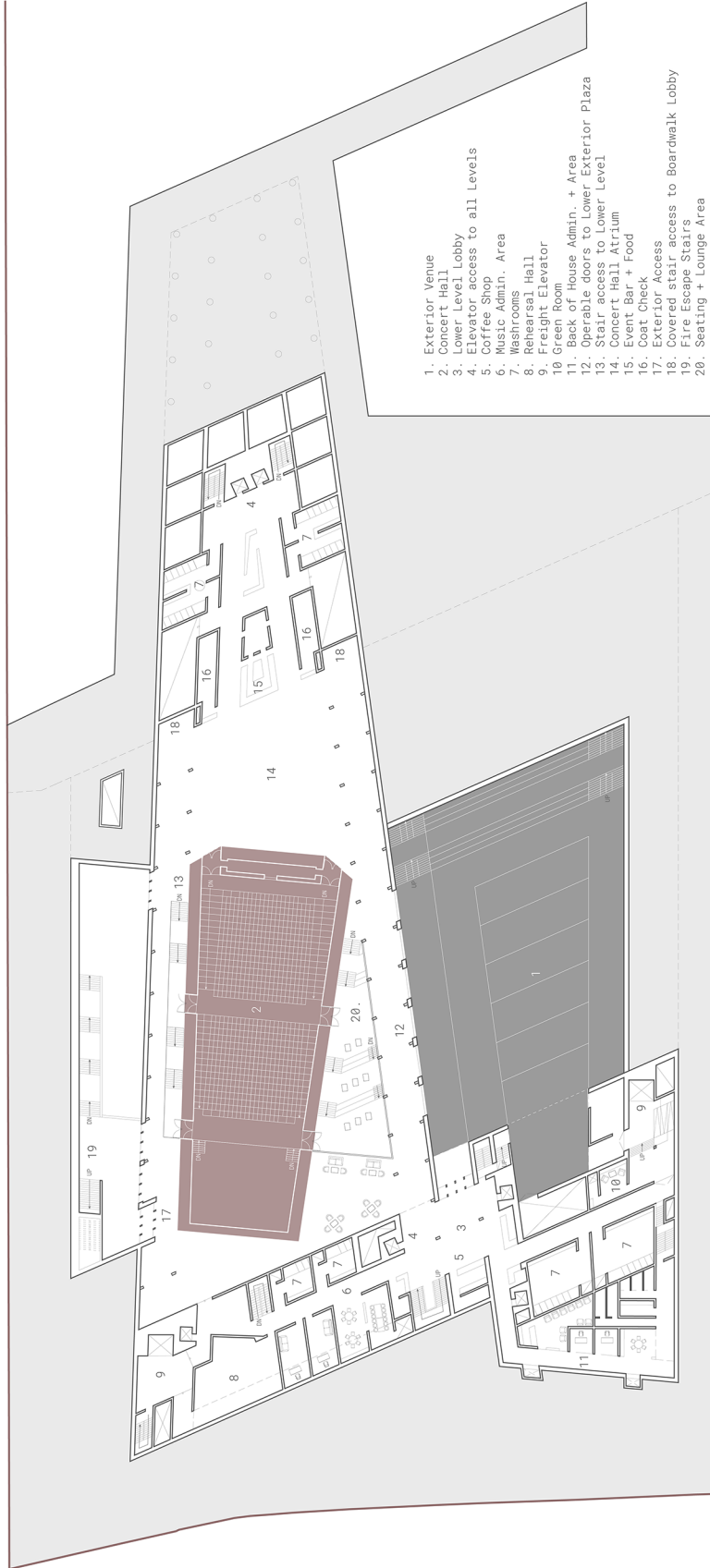
the ambiguity of the collective operating as a unified party. Funding from municipalities, sponsors, arts organizations, and private donors helps balance the materialization of concerts and programmed events. As a result, the ticket supports but does not entirely determine the success of the performance.

The Concert Hall as a Process of Gathering

This thesis approaches the concert hall as an experiential instrument within the larger live music venue. Following the Elb's sequential integration of diverse program, the design of the concert hall is positionally aligned with the outdoor venue and the public venue on the roof. The dynamic volume of the hall is nested within a large lobby. The surrounding public space allows for the concert hall to be explored and examined from every side.

The centralization of the hall allows for the social space of the building to be located at its core. As a process, the periphery commercial program to perform secondary to the primary architectural experience. Following the Berlin Philharmonie's strategy of pushing services to the perimeter, the process of gathering culminates within the centre of the concert hall.

The interior insulation of the concert hall provides many benefits in relation to the building's daily operation. The location of the hall allows the lobby to be utilized throughout the day for social gatherings, tours, non-musical events, and festivals. It forms an accessible procession between the boardwalk lobby and the Lower Water Street entry. Elevator access allows for a direct connection between the interior and exterior roof throughout the day and during concert events. Furthermore, by focusing the ticketed area



Level II building floor plan of the Concert Hall



Building model illustrating the relationship between the concert hall, the other venues, and the site

to the concert hall, the strategy allows the building to be experienced, used, inhabited throughout the day. As the central interior element, the lobby area becomes a social space that promotes human interaction and procession. The area acts as a central hub for both the interior program and the lower exterior venue. The scale and size of this area allows the space to be used for formal and informal occasions.

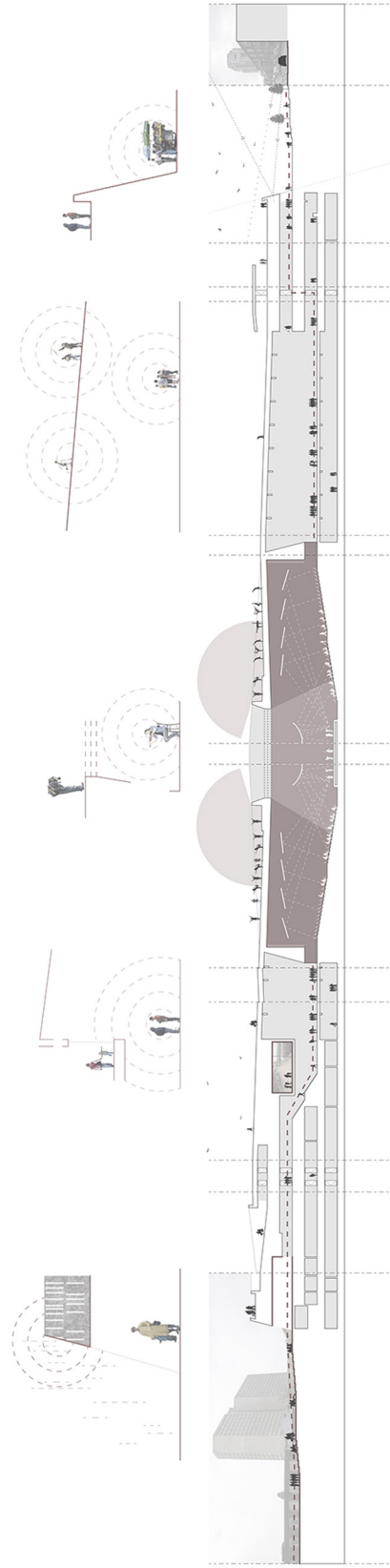
The exposed structure provides spatial definition by dividing the area into zones without walls. The smaller bays that run along the perimeter allow for an efficiency of circulation and offer smaller areas for conversation and interaction.

The following fillet section provides a potential procession through the building that illustrates the diverse experiential conditions throughout the concert hall experience. It also features the previously discussed elements as a cohesive visual narrative. The diagrams above the drawings feature the primary experiential and gestural elements of the venue. The concert experience can be approached from the waterfront boardwalk and Lower Water street.

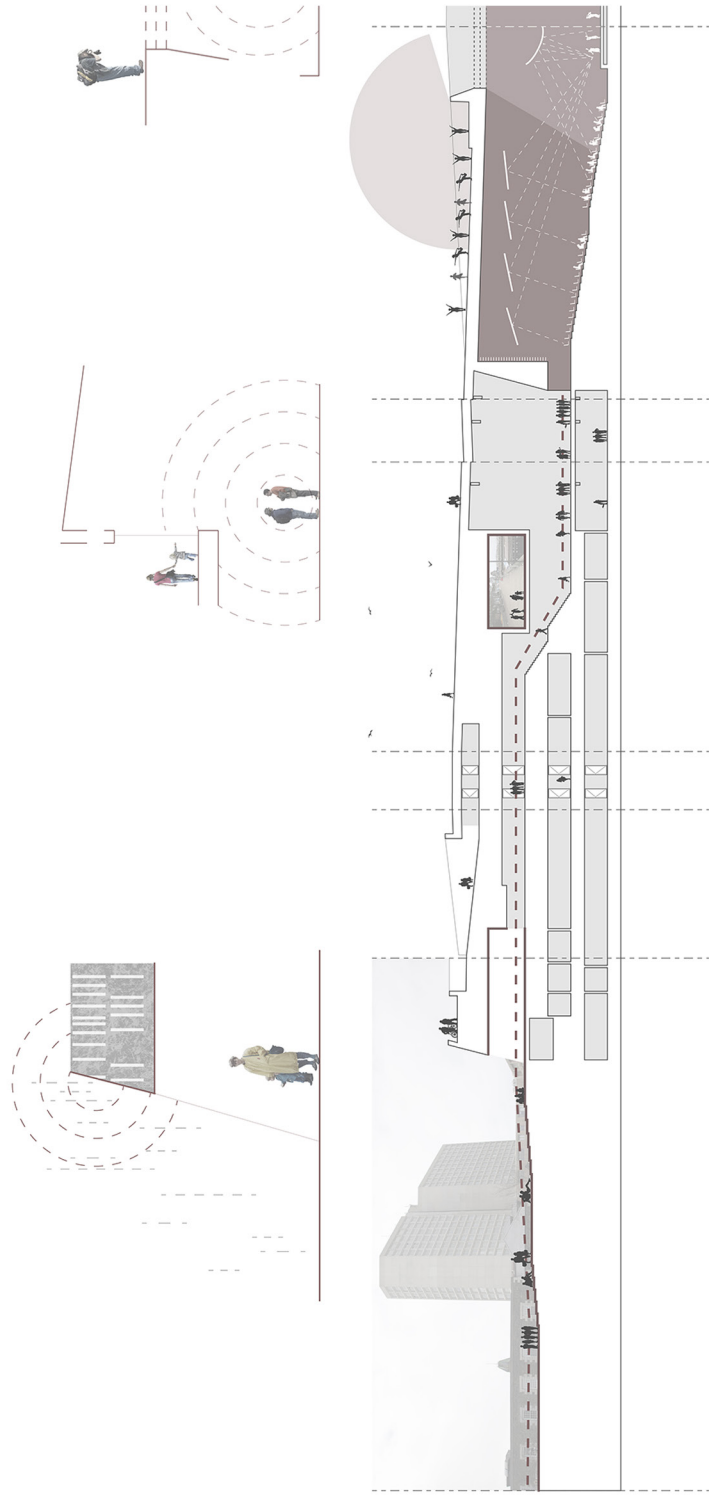
Concert Hall Design

The concert hall is constructed with a double concrete shell that allows for acoustic isolation between the lobby and the interior hall. The hall holds an audience of 800 people and is designed for recital concerts and symphonic music.

Based on a collaboration with an acoustic consultant, the interior ceilings and walls above the audience are clad in wood. The treatment and profile of the interior surfaces optimizes the primary lateral reflections adjacent to the seating areas by using smooth planar surfaces. A smooth



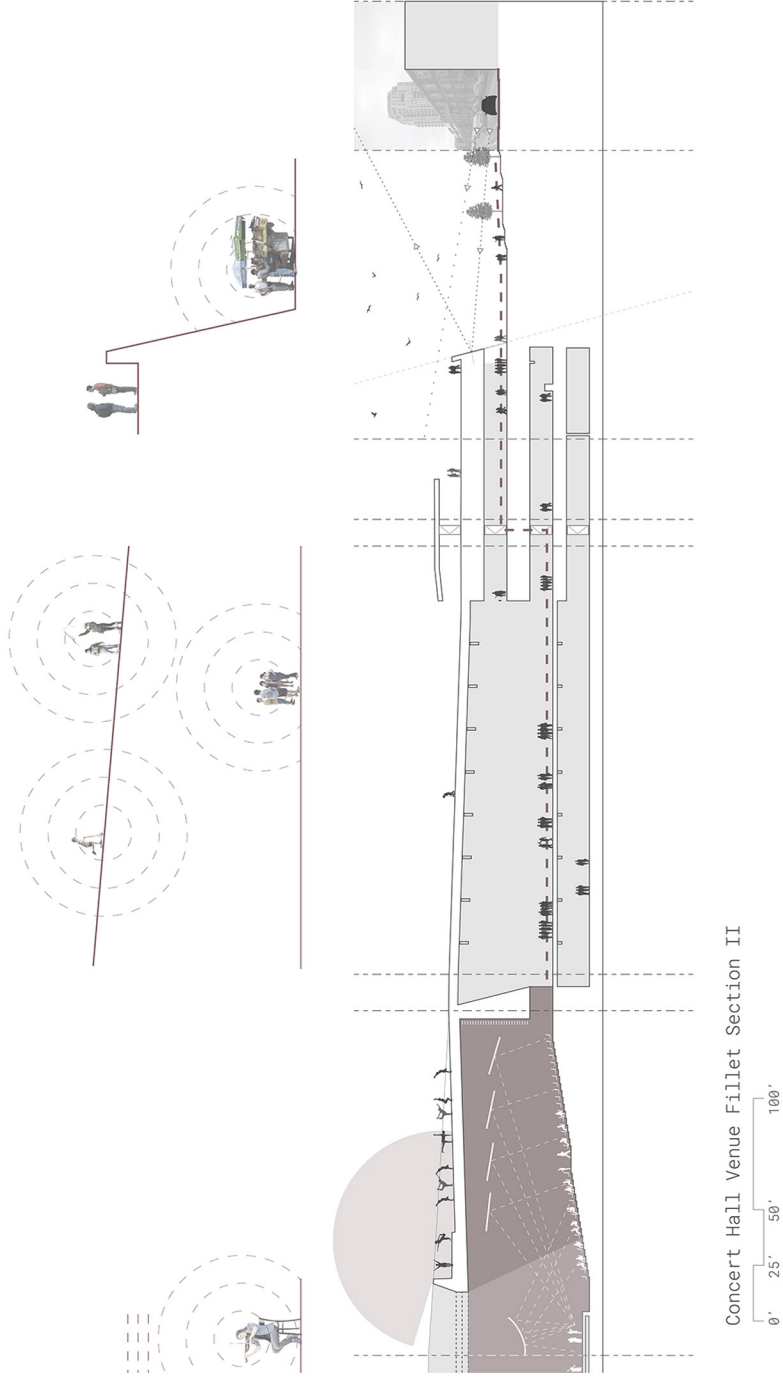
Full fillet section through the concert hall illustrating a possible procession through the building



Concert Hall Venue Fillet Section I

0' 25' 50' 100'

Part 1 of the fillet section through the concert hall illustrating a possible procession through the building



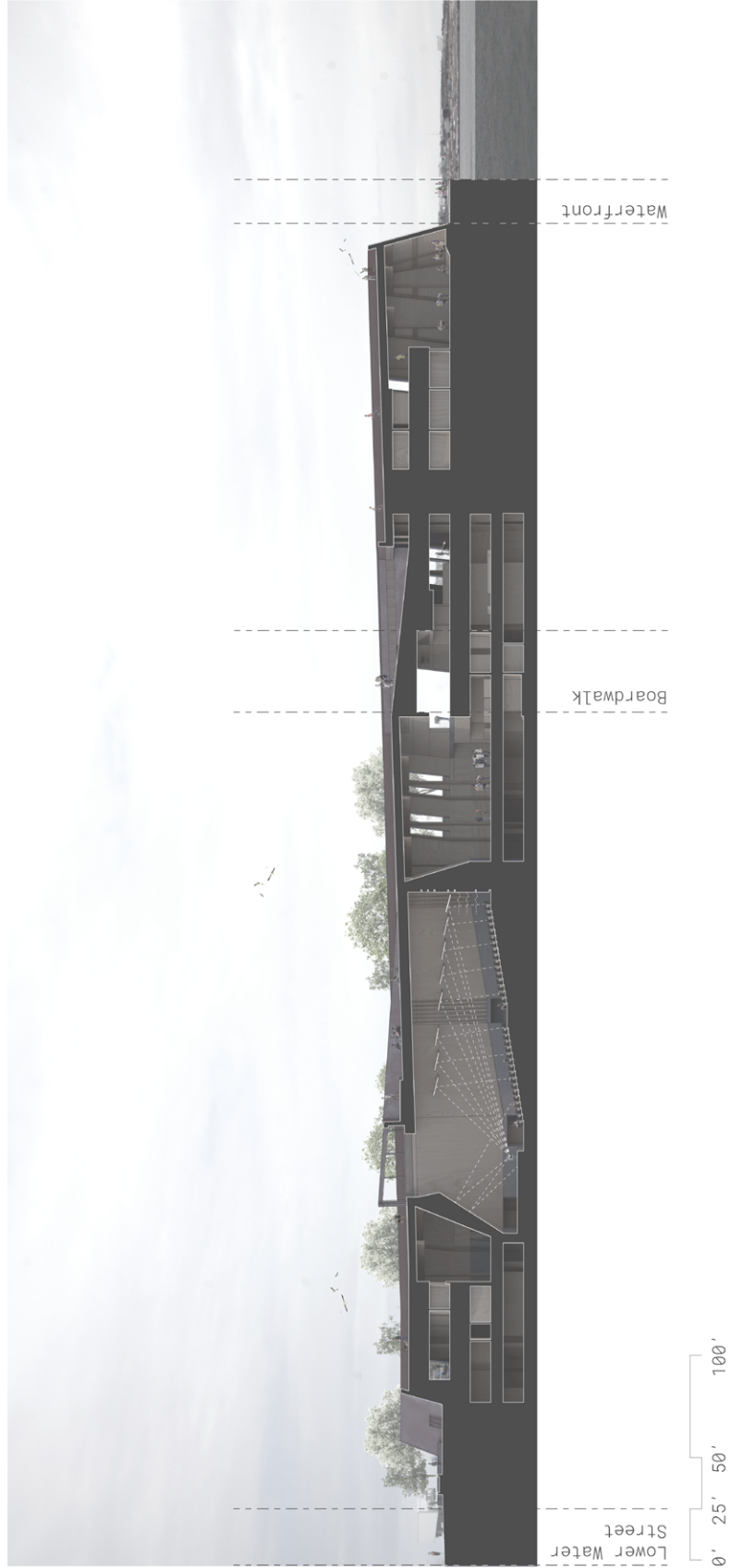
Part 2 of the fillet section through the concert hall illustrating a possible procession through the building

angled surface behind the stage acts as a reflector for the musicians and the first few rows of the audience. As shown in the fillet section, dropped ceiling reflectors above the audience allow for focused primary reflections for the rear audience. The rear wall of the concert hall increases is treated with vertical wood slats in order to diffuse the sound and prevent echoes from reaching the audience.

According to the acoustic consultant Brady Peters, the wood attached to the concrete is beneficial for the mid and higher range frequencies such as the violins, woodwinds, and brass. The concrete exposed at the seating height reflects lower frequencies such as a the upright bass and timpani because wood absorbs lower frequencies. As a result, the combination of wood and concrete begin to perform as the body of an instrument by working together to create an acoustically rich sound.

As the following render illustrates, the stage is placed beneath an oculus that connects the performance inside the hall to visitors on the roof and the movement of the sun. This materializes a relationship between place and performance even within an acoustically insulated space. Based on Brady's recommendation, the use of membrane frequency absorption strategies such as layers of sound proof glass allow the hall to feature the experience day and evening city light without acoustic repercussions to the musical performance. This connection also encourages performances to be experienced throughout the day and year as the illumination of the space will change with the seasons.

As an instrument, the hall and it's procession materialize gathering through exploration, movement, social interaction,



Rendered section of the building and concert hall



Rendered view of the concert hall venue

performance, and the site. By exposing the raw material surfaces throughout the hall and lobby, the audience is encouraged to touch, feel, and explore the process through haptic curiosity. The hall becomes an experiential instrument through the performance of music and the process of people gathering in place.

Chapter 7: The Live Music Industry

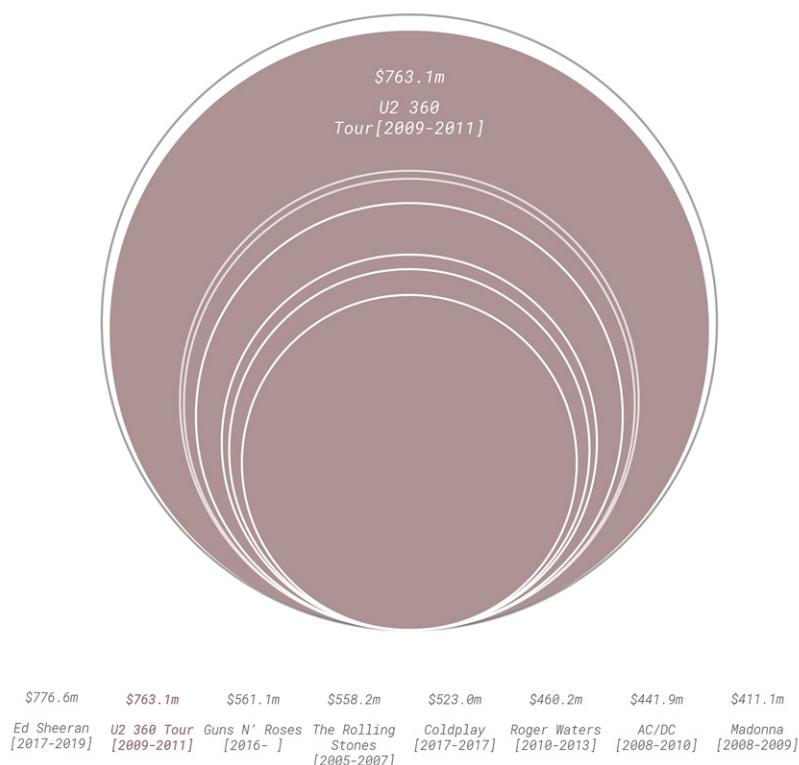
The following discussion will examine the relationship between the live music industry, artists, and the financial accessibility of touring music. The discourse will also examine one of the top grossing music tours of all time: the U2 360 Tour. This investigation will materialize a position regarding the economic, social, and artistic sustainability of current live music practices.

The U2 360 Tour and the Live Music Industry

The digital production of music has provided a higher level of fidelity that is physically impossible to achieve in the real world. Furthermore, the global dominance of the internet and digital streaming services have changed the processes of mass music consumption and listening practices. It has produced a market that allows the analysis of big data to analyse and predict what audiences want and enjoy (Bruenger 2016, 230). The industry's primary control of promotion, advertising, and distribution has serious behavioural implications for the audience.

[The] superficial nature of the objects of refined entertainment inevitably leads to the inattentiveness of the listeners. One preserves a good conscience in the matter since one is offering the listener-first class goods. To the objection that these are already a drug on the market, one is ready with the reply that this is what they wanted, an argument which can be finally invalidated by a diagnosis of the situation of the listeners, but only through insight into the whole process which unities producers and consumers in a diabolical harmony. (Adorno 2004a, 44)

Adorno exposes problematic relationships between consumer and producer expectations. Digital music offers a hi-fidelity product that is experientially disconnected to the physical world. As a result, the live music experience is a

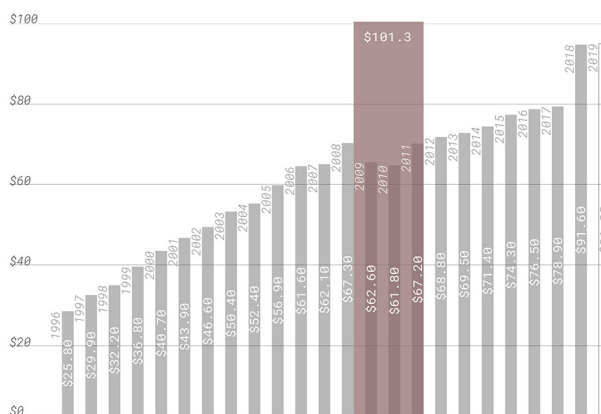


The top grossing tours of all time (data from Beech 2019)

product fundamentally connected to a physical process of reproduction. As Philip Auslander suggests,

By being recorded and becoming mediatized, performance becomes an accumulable value. Live performance exists within the economy of mass-produced cultural objects - the primary economic function of popular music concerts is to promote the sales of recordings, for example - or to serve as raw material for mediaization. (1998, 26)

The interconnected commercial relationship between recorded and live means that the audience purchases music in the current structure of mass music consumption. The integration of choice in the design allows for the audience to practice agency and resist this behavioural pattern. The public will make decisions and judgements themselves by materializing events through choice and gathering.



Increase in average ticket price with U2 360 Tour in red (data from Shaw 2019)

From a musician's perspective, the internet has forever changed the way live and recorded music is experienced. Streaming services such as Spotify and YouTube have overturned the earlier methods of music distribution and consumption. The repercussion of this relatively young distribution system has had a major impact on the live music industry and the ways in which musicians financially support themselves. In response to digital streaming and increasing publishing royalties, touring and live performance has become a major source of income for musicians by accounting for nearly 75% of their income (Lunny 2019). Despite the increased dependence on live performance, total revenue in the live music industry is in reality driven by a small percentage of acts. In 2019, the leading 1% of touring artists accounted for 60% of the total revenue (Lunny 2019).

Between 2009 and 2011, the U2 360 Tour generated a gross revenue of \$735 million dollars over the three-year tour (Beech 2019). While the case study reflects the extreme end of the top 1 percent, this level of profit is not out of reach within the current industry. U2 maintained this record until

2019 when Ed Sheeran's world tour came in at \$775 million as the new highest grossing tour of all time (Beech 2019).

From a commercial sales perspective, the live music industry has maintained a steady increase in ticket prices since the early 1990's. According to Pollster data, the average ticket price has quadrupled in the past 30 years. This steady increase has been beneficial for revenue in the collective live music industry; however the inflation of ticket prices has begun to produce secondary effects. Specifically, this has led to a dramatic increase in the scale of event production and consumer expectations (Shaw 2019). This trade-off can be directly illustrated in the average operating costs of the U2 360 Tour. Daily tour overheads are estimated to have been \$750,000, and included the coordination of 120 trucks, three identical 200-ton stages, and a 300 person crew (Jones 2012).

The live music industry's increasingly disproportionate revenue dependence on the total number of touring superstar acts also has serious ramifications for consumers. According to Music Business Worldwide, the 2019 average ticket prices (USD) from some of the top touring acts included: Bruce Springsteen on Broadway at \$506.39, Lady Gaga at \$269.94, Aerosmith at \$205.02, and Bruno Mars at \$193.76 (Ingham 2019). A study of Live Nation event's in 2016 further indicates that audience members spent an average of \$20 extra on food and merchandise at their events (Shaw 2019). While it appears consumers are still willing to pay higher prices for live music (Shaw 2019), this illustrates a clear argument can be made for the increasing financial inaccessibility of live music.

The Music Venue as a Process of Gathering

In direct response to the financial accessibility of music, the design has exposed two of the three venues to the public: the rooftop's public room and the exterior stage. The consistent visible connection between the public and the stage allows the acoustic and sensory experience of a performance to be experienced by every individual that inhabits the site.

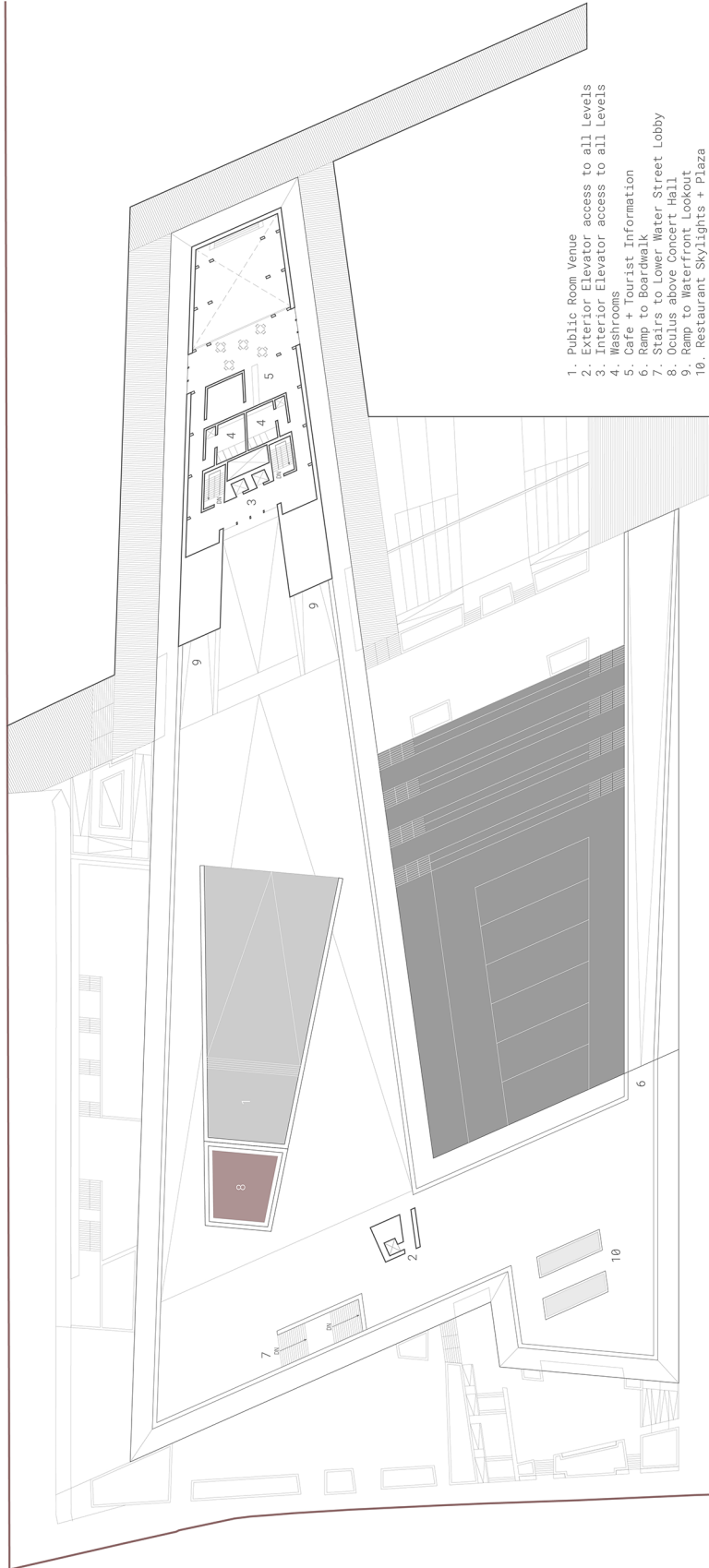
Landscape design elements on the boardwalk level provide event zoning opportunities that maintain public accessibility and provide ticket holders a closer proximity to the stage. As a result, every concert on the exterior of the building is accessible. Ticketing therefore has a minimal limit on the accessibility of the site and venues.

Public circulation runs parallel to every venue to provide a minimum sensory connection to every performance. The proximity of the venues allows for the potential of an experimental gradient: sounds morphing from one concert to another. As a result, the performances begin to co-inhabit the site: performing a sensory duet.

The positioning of the exterior venues capitalizes on exposed areas of the site. Consequently, the natural lighting encourages performances throughout the full extent of the day.

The Public Room Venue

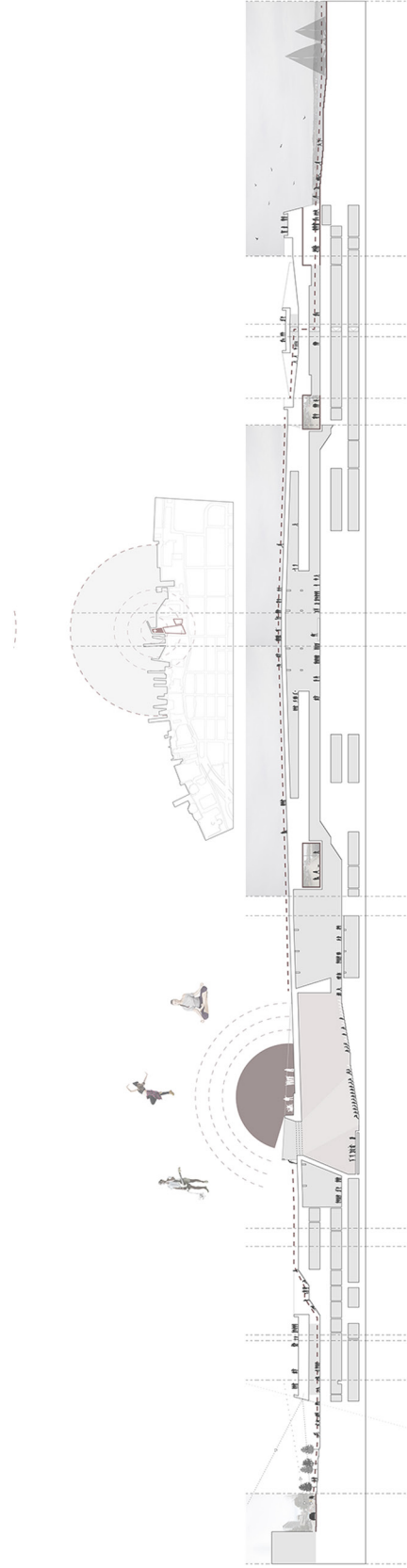
The rooftop venue is specifically targeted toward the agency of the audience. While the venue is not limited to music, the space intentionally provides a minimal infrastructure to allow for a diverse range of public gatherings. The location between the waterfront and the urban core allows tourists to



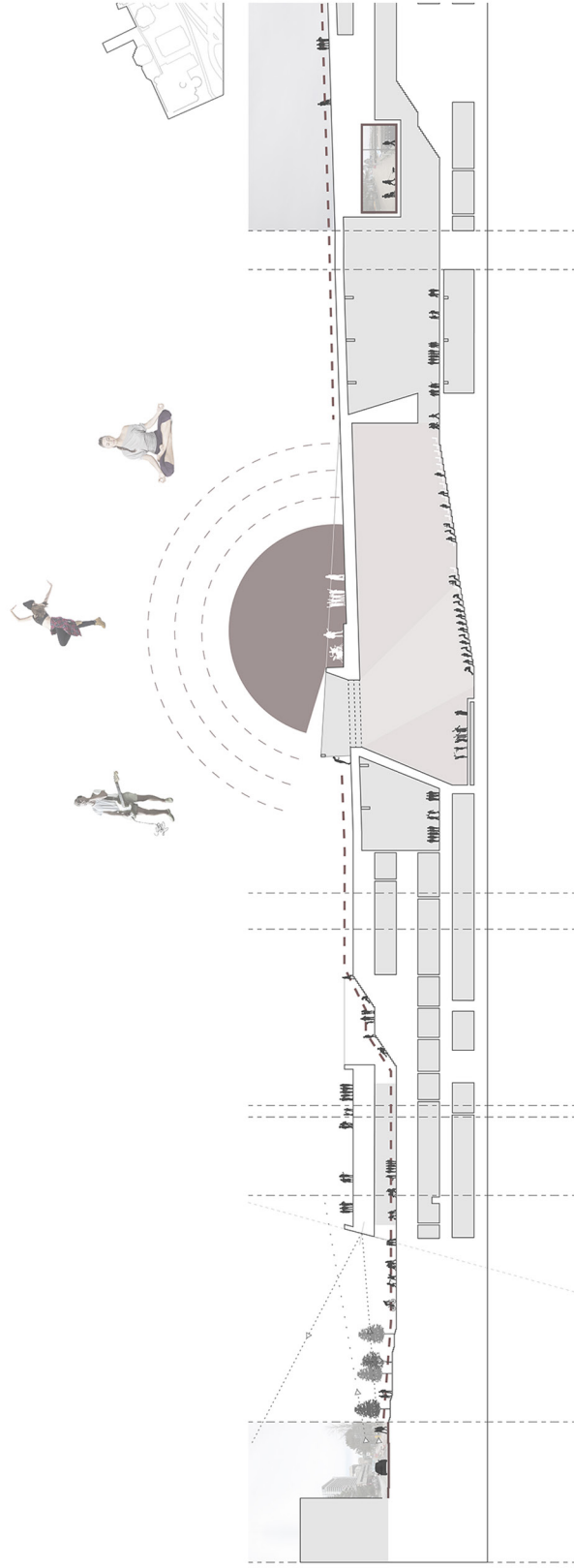
Level IV building plans illustrating the rooftop access and the public rooftop venue



View of the public room approached from the boardwalk rooftop access



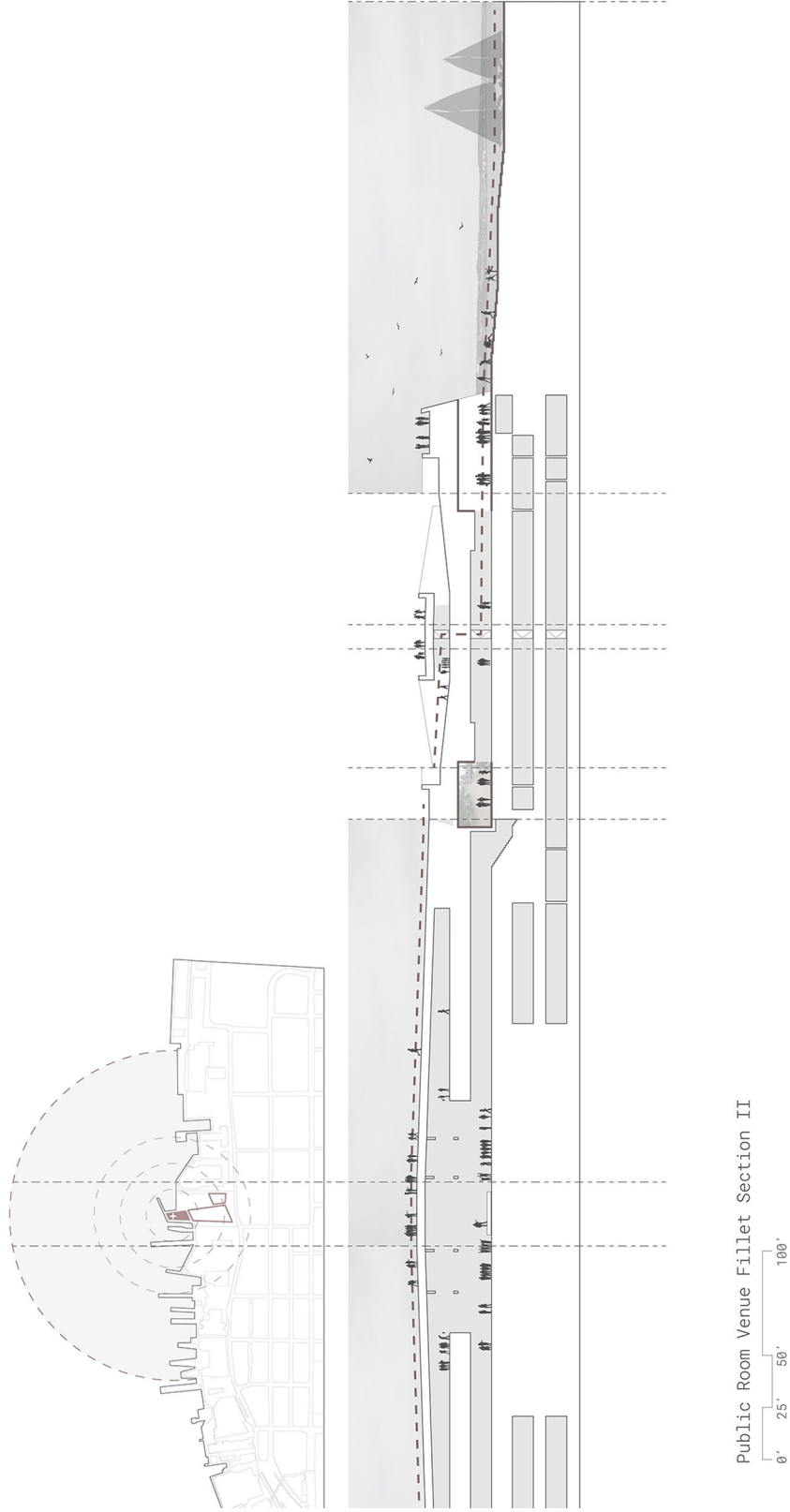
Full fillet section through the outdoor public venue illustrating a possible procession through the building



Public Room Venue Fillet Section I



Part 1 of the outdoor public venue fillet section illustrating a possible procession through the building



Part 2 of the outdoor public venue fillet section illustrating a possible procession through the building

experience and see events run by local organizations such as yoga studios, dance companies, and public festivals.

The venue is positioned between the two primary accessible rooftop elevators to allow wheelchair and low mobility users an opportunity to directly participate in the views and events. Furthermore, the roof has been designed as a 1:20 slope in order to remove the need for barriers and reduce the energy to ascend the roof. The peak of the roof allows for a panoramic view of the entire boardwalk. This strategy serves navigational and scenic purposes by allowing uninterrupted views between the Queen's Marque and Pier 21.

The previous fillet section provides a potential procession through the building that illustrates the diverse experiential conditions throughout the concert experience. It also features the previously discussed elements as a cohesive narrative. The diagrams above the drawing feature the primary experiential and gestural elements of the venue.

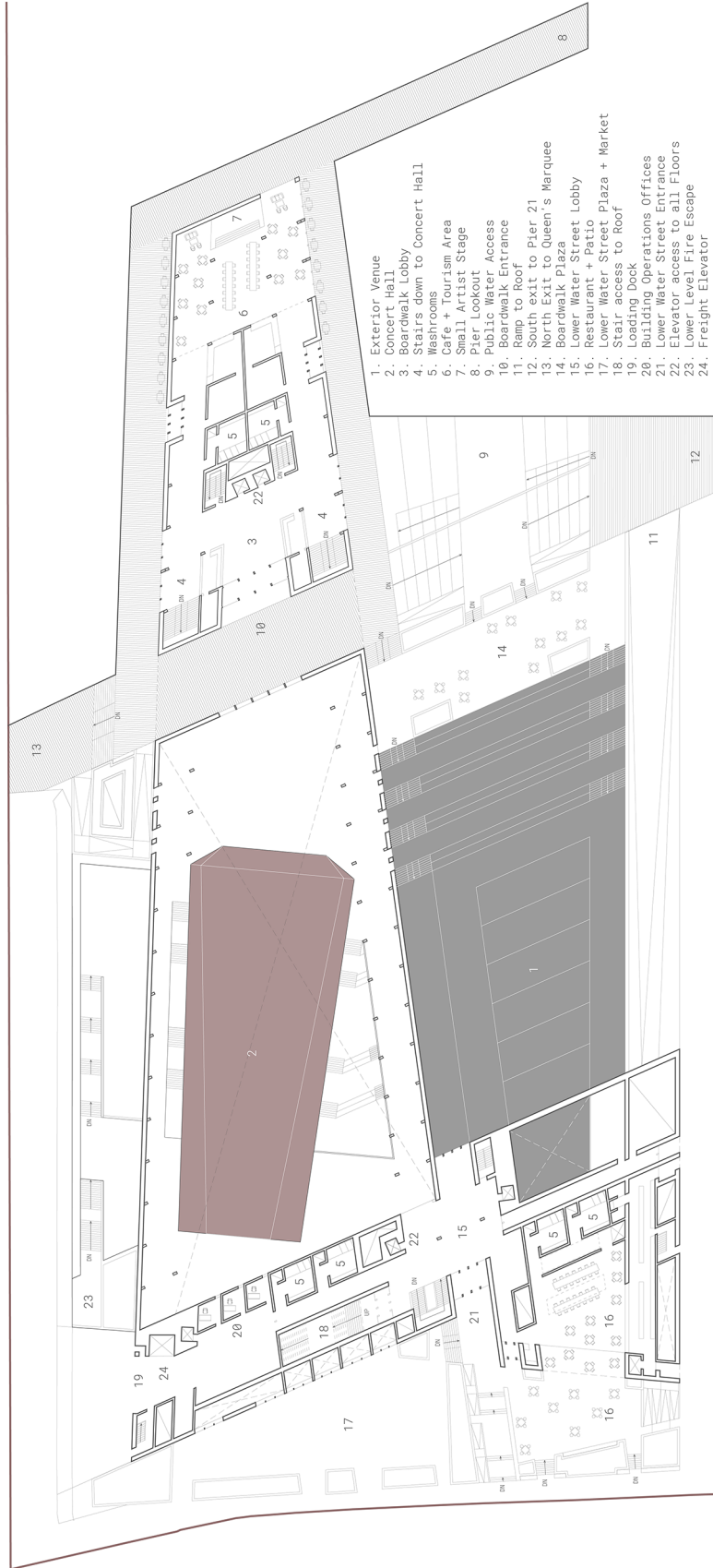
As an experiential instrument, this venue by materializes the relationship between the urban and the natural. The direct opening of the stage to the environment and habitation create an invitation for performance. Gathering is therefore collectively constructed and directed by the performers who articulate it. The process of gathering is celebrated through social gestures of community, movement, and exploration of the rooftop venue and waterfront.

The Exterior Stage Venue

This venue will be designated as the new primary venue for the Halifax Jazz Festival. The open seating area allows for a diverse range of listening: sitting, standing, and movement. The venue is located below the boardwalk level and utilizes



View of the sunken exterior concert venue from the boardwalk



Level III building plans illustrating the relationship between the exterior venue and the public boardwalk and Lower Water street



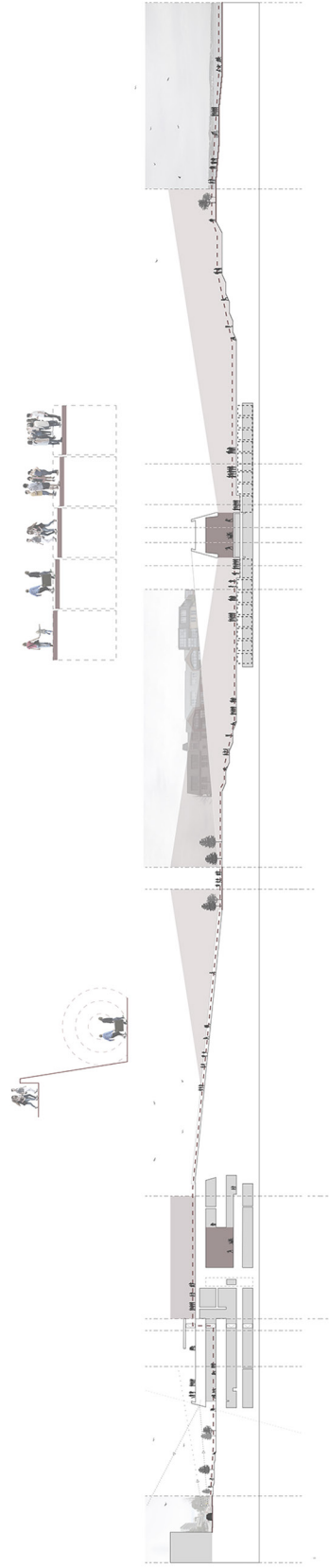
Site model photo illustrating relationship to surrounding context

the exterior walls of the main building in order to direct the sound away from the neighbouring residential units. This strategy positions the architectural form as an acoustic buffer to deflect vehicle noise on Lower Water Street away from the outdoor venues.

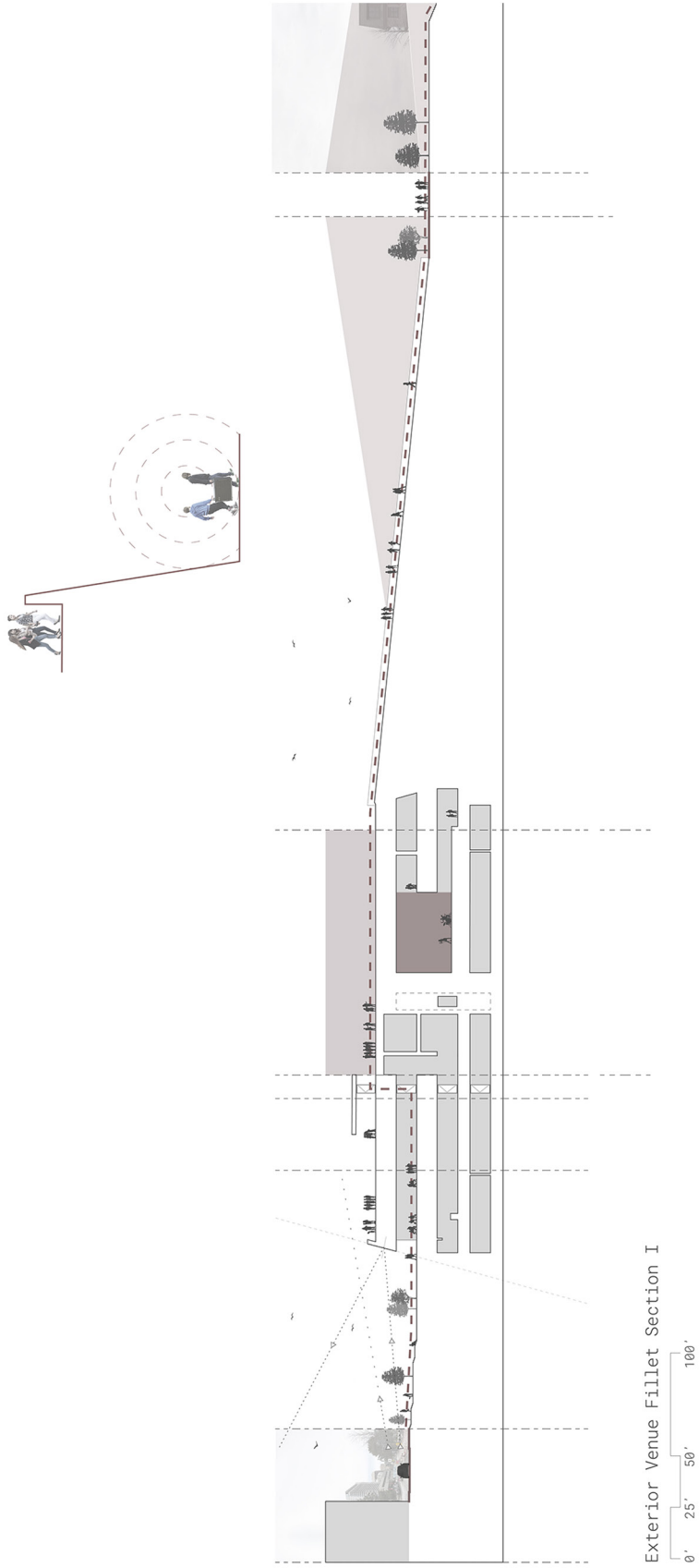
The primary feature of the venue is the dynamic floor. This venue element will respond to the physical and human processes of gathering. As the audience moves closer toward the stage, the weight of the audience begins to slowly lower the floor. The gradual stepping becomes an architectural articulation of gathering that adjusts the venue in response to each unique audience. The floor movement can also serve other functions such as increasing visibility for the rear seating and directing water towards the emergency holding tanks in the event of a storm.

The harbour orientation activates the boardwalk as a wall-less boundary. Waterfront pedestrians can move freely throughout the site during an event. The boardwalk lobby allows access to the interior of the entire building during a live performance. The roof also maintains its accessibility during a performance and even offers the potential of outdoor 'balcony' seating. Furthermore, the landscaping elements provide an opportunity to block off the sunken venue to help prevent storm water penetration. The position of the outdoor venue also allows for an integration of the interior services of the building. This includes the lobbies, bar and food services, elevators, and restrooms. This encourages the user to explore and experience the interior and exterior of the structure.

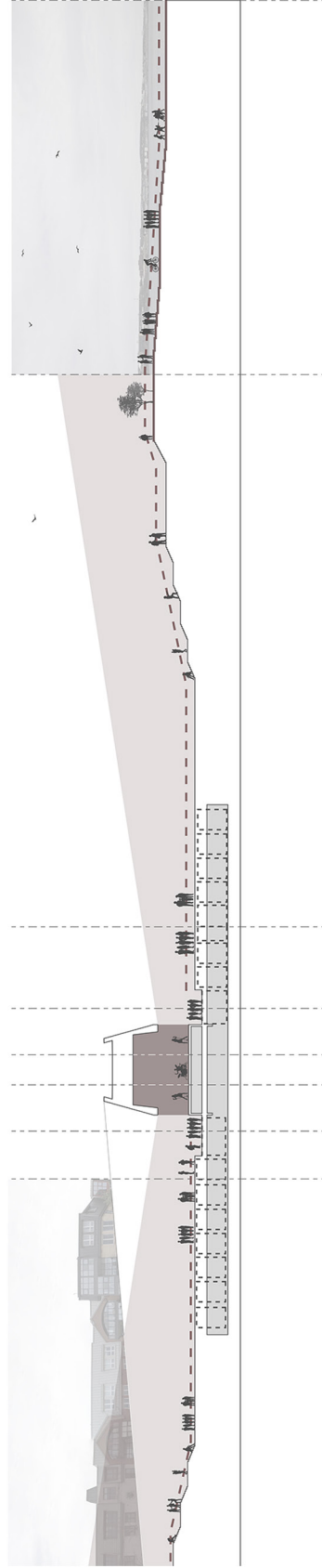
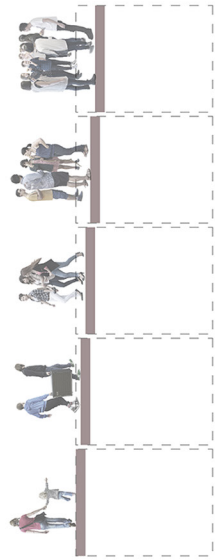
The following fillet section provides a potential procession through the building that illustrates the diverse experiential



Full fillet section through the outdoor concert venue illustrating a possible procession through the building



Part 1 or the fillet section through the outdoor concert venue illustrating a possible procession through the building



Exterior Venue Fillet Section II



Part 2 or the fillet section through the outdoor concert venue illustrating a possible procession through the building

conditions throughout the concert experience. It also features the previously discussed elements as a cohesive narrative. The diagrams above the drawing feature the primary experiential and gestural elements of the venue.

The transparency and accessibility of the exterior venue allows for the venue to be experienced throughout the entire site. Even if the music is experienced indirectly, the venue provides music to be experienced regardless with or without a ticket. As an instrument, the performance extends throughout the entirety of the site. The use of amplification also allows the performance to extend beyond the site. Music can begin to permeate the surrounding city and harbour. As a gesture to the city, the venue directly connects the process of gathering with the surrounding context and community.

Chapter 8: Conclusion

This thesis has illustrated the potential of approaching music as a process of gathering. While it has aimed to be a foundation for further investigation there have been a large number of lessons that can be drawn from the body of work.

Gathering in Place

As an architectural strategy the thesis has approached the live music venue as a human process: a series of events that take place in a specific place and time. Christopher Small's concept of 'musicking' allows the celebration of human relationships to become the primary goal of the live music venue. These concepts provided a repositioning of the role of the music venue in order to pursue music as a social and gestural process: a ritual that is expressed through action. As the parti model below illustrates, the benefit of this approach intimately connects the relationships between people, place and music. To 'take part' is to act and react to place. The site, building, and program therefore must respond to the dynamic human process. As a result



An early parti model illustrating the physical process of gathering

it becomes an instrument of performance: a structure to materialize meaningful relationships of community.

At the human scale, it is an invitation to investigate more than the building, site, and sound. It is a profound opportunity to reconsider and challenge our relationship to others and the experience of music. As Christopher Small argues that in 'musicking':

[...] our exploration, affirmation and celebration of relationships does not end with those of a single performance, but can expand to the relationship between one performance and another, and, for those who are prepared to explore farther afield, to the relationships between performances in different styles, genres, and even whole musical traditions and cultures. It is an ever-widening spiral of relationships, and each twist of the spiral can widen our understanding of our own relationships, of the reality that we construct and is constructed for us by the society in which we ourselves live. (1998, 210)

This thesis begins the process of an 'ever-widening spiral of relationships' that has implications beyond music. It is an opportunity for the musicians and audience to have a say in how they construct meaningful musical and social experiences. The exploration of music as a process provides an architectural and conceptual instrument that has the potential to teach us how to celebrate our relationships to place, community, and ourselves. In direct line with Nils Frahm, the architecture celebrates and supports the social and experiential operations that are already taking place. It does not edit or filter the context, history, and unique qualities of a particular place or community.

Through gesture, the architectural instrument can be a performance of place that begins before the first note is played. As the following drawing illustrates, the act of 'musicking' goes beyond the spatial confines of the venue. The potential for event throughout the building creates a

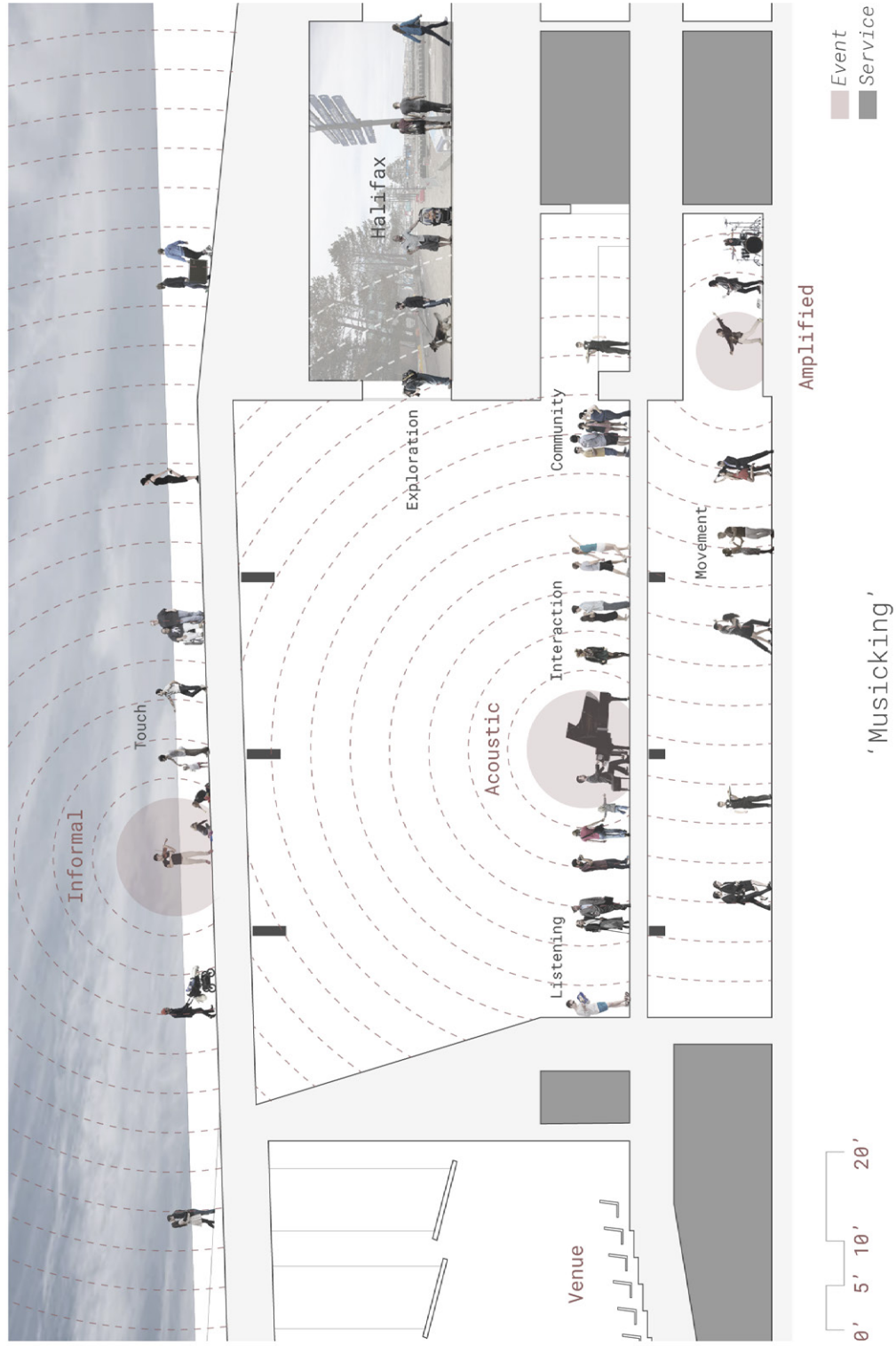


Photo of site model illustrating relationship of the exterior venue to the building, concert hall, and boardwalk

narrative that leads to a richer and more meaningful process of gathering.

As Small suggests, these processes accumulate meaning over time through repetition and a desire to engage. The value of this process has the potential to ask us to seriously consider our relationship to how we consume, evaluate, and experience music. Scharoun's original philosophy therefore takes on a much deeper meaning. Located at the center, music celebrates what it means to be human. It provides a social instrument that helps us learn how to support and nurture our relationships to one another. It is a human 'call to take part': a song to celebrate the process of gathering.



Photo of site model illustrating the live music venue in place

References

- Adorno, Theodor. 2004a. "On the Fetish Character in Music and the Regression of Listening." In *The Culture Industry*, edited by J.M. Bernstein, 29-60. New York: Routledge.
- Adorno, Theodor. 2004b. "The Schema of Mass Culture." In *The Culture Industry*, edited by J.M. Bernstein, 61-97.
- Auslander, Philip. 1998. *Liveness: Performance in a Mediatized Culture*. London: Routledge.
- Barkhofen, Eva-Maria. 2013. "Space, Humans, Music." In *Philharmonie: Hans Scharoun*, edited by Wilfred Wang and Daniel Sylvester, 5-12. Tübingen: Wasmuth.
- Beech, Mark. 2019. "Ed Sheeran's Record-Breaking Divide Tour Totals \$775.6 Million, Beating U2, Guns N' Roses". *Forbes*. <https://www.forbes.com/sites/mark-beech/2019/08/27/ed-sheerans-record-breaking-divide-tour-totals-7756-million-beating-u2-guns-n-roses/#276284ab36c2>.
- Blessner, Barry, and Linda-Ruth Salter. 2009. *Spaces Speak, Are you listening?: Experiencing Aural Architecture*. Cambridge: The MIT Press.
- Boileau, John. 2007. *Where the Water Meets the Land: The Story of the Halifax Harbour Waterfront*. Dartmouth: Saltscapes Publishing Limited.
- Bruenger, David. 2016. *Making Money, Making Music*. Oakland: University of California Press.
- Cage, John. (1961) 2013. *Silence*. Middletown: Wesleyan University Press.
- Carpenter, Edmund, and Marshall McLuhan. 1960. *Explorations in Communication*. New York: Beacon Press.
- Chronicle Herald. 2019. *Halifax gets bigger, younger, richer: Halifax Partnership's Annual Index Report*. Data published by Statistics Canada. <https://www.thechronicleherald.ca/news/local/halifax-gets-bigger-younger-richer-halifax-partnerships-annual-index-report-323090/>.
- Cruise Halifax. 2020. *2019 Data*. Statistics. <https://www.cruisehalifax.ca/our-visitors/statistics/>.
- Egan, David M. 2007. *Architectural Acoustics*. New York: J.Ross Publishing.
- Frahm, Nils. 2015. "The Shooting." Track 7 on *Victoria (Music for the Motion Picture)*. iTunes, Erased Tape Records Ltd, 2015.
- Frost, James D. 2008. *Canada's Atlantic Gateway: An Illustrated History of the Port of Halifax*. Halifax: Nimbus Publishing.

- Globe and Mail. 2018. *View of the Queen's Marque*. Render. Property of Armour Group/ Handout. Project design by MacKay-Lyons Sweetapple. <https://www.theglobeandmail.com/business/industry-news/property-report/article-will-queens-marque-complex-add-to-glut-of-downtown-halifax-office/>.
- Halifax Open Data. 2019. *Building Outlines in Halifax*. Halifax, Halifax Regional Municipality.
- Handel, Stephen. 1989. *Listening: An Introduction to the Perception of Auditory Events*. Cambridge: The MIT Press.
- Ingham, Tim. 2019. "Live Music Business Slumps In First Half of 2019, With World's Top 100 Tours Down \$725M Year-On-Year." *Music Business Worldwide*. <https://www.musicbusinessworldwide.com/live-music-business-slumps-in-first-half-of-2019-with-worlds-top-100-tours-grossing-752m-less-than-in-h1-2018/>.
- Jones, Dylan. 2012. "The Biggest Rock Tour in History: Behind U2's gigantic 450 Million Live Performances." *Daily Mail*. <https://www.dailymail.co.uk/home/moslive/article-2212936/U2s-450-million-tour-Behind-groups-gigantic-360-degrees-concerts.html>.
- LANDR. 2016. *EQ Cheat Sheet: How to Use an Instrument Frequency Chart*. Last modified December 16. <https://blog.landr.com/eq-cheat-sheet/>.
- Levitin, David J. 2007. *This Is Your Brain on Music: The Science of Human Obsession*. New York: Plume.
- Lunny, Oisín. 2019. "Record Breaking Revenues In the Music Business, But Are Musicians Getting a Raw Deal?." *Forbes*. <https://www.forbes.com/sites/oisinelunny/2019/05/15/record-breaking-revenues-in-the-music-business-but-are-musicians-getting-a-raw-deal/#259f92337ab4>.
- Mack, Gerard. 2018. *Herzog & de Meuron: The Elb Philharmonie*. Basel: Birkhauser.
- Meyer, Jurgen. 2009. *Acoustics and the Performance of Music: Manual for Acousticians, Audio Engineers, Musicians, Architects, and Musical Instrument Makers*. Translated by Uwe Hansen. Braunschweig: Springer.
- Moore, John E. 1961. *Design for Good Acoustics*. London: Architectural Press.
- Music Canada. 2017. "Striking a New a Chord: Recommendations for the Growth & Development of Canda's East Coast Music Industry." *Research*. <https://musiccanada.com/resources/research/>.
- Nova Scotia Canada. 2020. *The Halifax Waterfront in a Day*. <https://www.novascotia.com/trip-ideas/stories/halifax-waterfront-day>.
- Parcell, Stephen. 2012. *Four Historical Definitions of Architecture*. Montreal: McGill-

Queen's University Press.

Shaw, Lucas. 2019. "Concerts Are More Expensive Than Ever, and Fans Keep Paying Up. Music." *Bloomberg*. <https://www.bloomberg.com/news/articles/2019-09-10/concerts-are-more-expensive-than-ever-and-fans-keep-paying-up>.

Small, Christopher. 1998. *Musicking: the Meanings of Performing and Listening*. Hanover: Wesleyan University Press.

Tourism Nova Scotia. 2019. *Tourism Revenues*. Research. <https://tourismns.ca/research/tourism-statistics/tourism-revenues>.