DUET WITH NATURE

- A SITE FOR MUSIC -

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Duet With Nature
Throughout the years at Unitec, it has been nothing but an exciting and challenging journey to reach this position. It has been an overwhelming year preparing for this thesis.

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Thank you
Music in Architecture, architecture in music, two creative symbols of expression co-existing as one. Like music, architecture has the power to engulf and drive one's mind through the number of different sensations. The project entitled “Duet with of nature” utilizes this relationship as a catalyst for architectural exploration.

Since the beginning of the digital revolution, the music industry in New Zealand has faced enormous challenges of its own. The way people create, share and listen to music has changed. Online platforms like Spotify and Apple Music are the new music shops which provide an endless choice of music from around the world. Being a small country, the free range of user taste and global algorithms in these platforms has led the NZ music industry to being dominated by international artists. Therefore, young musicians and budding artists in New Zealand have begun to feel intimidated and less motivated to reach success.

“Duet with nature” investigates how architecture can contribute its role in creating a facility to encourage the exposure of kiwi musicians. The project aims to separate itself from the urban chaos and to locate itself in a natural setting, which can strengthen the power of architecture by creating an active and encouraging space.
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1.0 INTRODUCTION
1.1 BACKGROUND CONTEXT

“Music is the soundtrack to our lives. It is a defining element of our culture and national identity and contributes to our social and cultural wellbeing.”—RMNZ (Recorded Music NZ)

New Zealand has been influenced by various traditions throughout history, starting from the native Māori, the early British settlers, immigrants from Europe, Asia, Pacific and other countries. New Zealand has been a diverse home of creativity from musicians, writers, filmmakers and other artists. People started to embrace popular music since they first heard blues, jazz and other music that arrived from overseas in the early 1920s, while rock music made its entrance in 1954 and hip-hop in 1980. New Zealand has faced a diversification of genres from the early to the present. As a result, the music industries in New Zealand started to rise firmly by elevating a number of artists to achieve local and global success. Also, Music became a part of the social and cultural art form for the kiwis. According to NZMC, the industry contributes a substantial part to the country GDP and employment growth in New Zealand.


Figure 1.1 Historical movements in New Zealand history
1980
Top ambassadors for New Zealand pop music in the Eighties, Split Enz began in 1972 mixing progressive rock with psychedelic sounds.

The CLEAN

1984
This No.1 hit combines kapa haka with breakbeats. Written by Dalvianus Maui Prime and Ngao Pēwhairangi, “Poi E” encouraged young Māori to take pride in te reo.

Pol E

1987
Crowded House was formed by Neil Finn in 1985 from the ashes of Split Enz. Crowded House won an international audience with Finn's beautifully crafted songs.

Split ENZ

1988
The first local group to record a rap song, Upper Hutt Posse’s debut single “E tu” (1988) was a bilingual, political track with a haka-like chorus, continuing the tradition of Māori musicians converting US music into something indigenous.

BIC RUNGA

1996
The 1993 Smokefreerockquest introduced a talented Christchurch teenager whose delicate songs – including 1996’s “Drive” and 1997’s “Sway” – seduced the world, including the US where “Sway” was used on two soundtracks.

1997
“How Bizarre” was the first Kiwi song to reach No. 1 in the US and was a worldwide hit.

OMC

2013
Takapuna teenager Ella Yelich-O’Connor – was still at high school when “Royals” rocketed her to global stardom – both as a viral hit and as an international chart-topper.

LORDE

2019
Dunedin five-piece Six60 has converted the bubbling popularity of reggae, dubstep and drum’n’bass into a soul and rock informed sound to attain gargantuan levels of commercial success here and in Europe.

SIX60
Defining the problem – The search for fame

In the 2002 survey, Record music NZ found that over three-quarters of the adult population in New Zealand listens to popular music on the radio, CDs and DVDs and over one third have attended live performances in and around New Zealand. In a few short years, the way people listen to music has changed beyond thoughts. The streaming services such as Apple Music, Spotify and other online services have become a preferred way to listen and enjoy music. This game-changing arrival of digital platforms had a significant impact on NZ music and artists.4

As a result, NZ music charts were dominated by overseas artists, and there was less attention to Kiwi artists. For example, in 2013, the number of kiwi artists to hold a place in the top 40 NZ music chart declined from 26 to just 2. The only Kiwi artists who have charted that year were Six60 and Lorde.5

The Streaming system also serves as a potential platform for the musicians to reach beyond the limited audience. However, there are other hurdles with digital platforms that are particularly challenging for New Zealand artists. The algorithms used to drive these digital platforms rely upon the data collected from global listeners.6

Since New Zealand is such a small market, it is a sad fact that the young artists/bands find it very difficult to promote themselves nationally or globally with highly successful competitors.7

A lot of artists travel overseas to seek opportunities and success fame for a bigger platform to train and promote themselves. Therefore as designers, how can architecture help to promote and encourage the exposure of Kiwi musicians in New Zealand?

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6 Joanna, “The Rise and Fall of New Zealand’s Music Industry.”

Source of music revenues in 2018

- Streaming 69%
- Public performance 14%
- Sync
- Physical 10%
- Downloads 5%

Figure 1.3 Numbers of artist who got listed in NZ Top 40

TOTAL TOP 40 SINGLES BY NEW ZEALAND

Figure 1.4 Dave Dobbyn, Photographer: Iain McGregor
How can architecture help to promote and encourage the exposure of Kiwi musicians?
There is a close and long-lasting relationship between music and architecture. Be it in the ancient Gothic cathedrals or the contemporary Walt Disney concert hall, music and architecture have been intertwined, with one affecting the other. Like music, architecture has the power to engulf and drive one’s mind through a number of different sensations. This research project explores how architectural space can contribute to encouraging the exposure of local musicians, with a central focus on experiencing natural values in New Zealand.

The digital transformation of the music industry led to a significant impact on local music and artists. The streaming services like Apple Music, Spotify and other online services have become a preferred way to listen and enjoy music. As a result, the streaming platforms have begun to dominated by overseas artists, making it quite hard for a small market like New Zealand to compete with global artists. This has started to affect the growth of local Kiwi artists by killing their confidence and created a threat for young kiwi musicians.

The project “Duet with Nature” firstly explores and analyses the existing field through architectural literature and precedents, and then the research investigates an architectural solution to the enhance and uplift musicians. The research project will be located in a natural setting that can strengthen the power of architecture by creating active, engaging spaces.

The project aims to generate architectural design by exploring a balanced relationship between music and nature. “Duet with Nature” investigates the potential role of architecture to support the struggling musicians by developing their skills, network and by creating confidence. Through the analysis of architectural precedents and literature, the project aims to explore music as a design driver. However, the ultimate goal of the architectural design is to -

- Create spaces which can visually encourage the musician's talents
- Improve the connectivity and relationship between the user and the environment
- Ensure that the architecture and the programme will play a role in creating active and engaging spaces
- Express the sense of freedom, maintain interest and support creativity.

Exploring the architectural intentions above, the project is expressed in the architectural design of a Musical Centre, a spatial combination of practicing, performing and living.

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1.5 SCOPE AND LIMITATIONS

The focus of this project is on uplifting and facilitating local musicians. The project not only allows music to act as the primary catalyst for design but it also focuses on the functional program to support the research project. The music centre aims predominantly to create spatial experience and perception of the surrounding nature. The research does not imitate nature, instead it seeks a way to contrast without affecting its context.

The music centre has been planned to meet its practicing, performing and accommodating functional requirements. The centre will benefit all the struggling musicians and the bands who seek for support, while not focusing on any particular genre.

Additionally, to allow the project to seek more interest, transparency and sound have been used as tools to create a visual and aural spatial experience to the users. The project attempts to investigate sound through attributes of spaces and materials. However, it is not the main focus of the project.

Figure 1.9 - Musical genre

Figure 1.10 Size of groups
2.0 EXISTING KNOWLEDGE
The term “rhythm” has many definitions. In relating to music, rhythm can be defined as “the systematic arrangement of musical sounds, principally according to duration and periodical stress.” Rhythm is a principle that consists in the relationship between elements that repeat themselves regularly. When we think of rhythm, music is the most common thought that strikes our mind. Throughout history, architecture and music have often been defined in similar terms. In the book *The nature of Ornament*, author Kent Bloomer points out that rhythm can affect us psychologically or physically through architecture or music, by depicting the notional movement of forms, space, shapes and other compositional elements. Rhythm is one fundamental element that has an impact on both art forms.

Chiu-Shui Chan’s research acknowledges that the influence of rhythm in architectural design has the power to enlighten or heighten energy into the built space. Chan points out that elements or motifs in the design of spaces can be altered, repeated or arranged so that the intervals between the design element can generate a sense of rhythmic movement.

Architectural critic Charles Jencks, in his article “Architecture becomes music” explains rhythm in music as a sound tied to the beat and in architecture as the repetition of design elements. As described, rhythm can be either regular or irregular to achieve a convincing visual effect. Accordingly, Jencks also suggests that the repetition with similar movement or an irregular arrangement will always develop an ordered pattern. It is essential that the element does not have to be completely identical. However, they can share the same characteristics allowing each element to be unique and belong to the same group.

In the article “Rhythm in Architecture: An Aesthetic Appeal”, author Rena Thapa clarifies that when components are arranged around a central point in a spiral-like form, the elements or spaces can generate a radial impression of rhythm. Just as component elements, rhythm can also be obtained through the involvement of forms and colours. According to the Soviet architect Moses Yakovelvich Ginzburg, “From the date of its creation to the present, the art of the building in its formal elements, mass composition and distributing particular parts is inspired only by the laws of rhythm.”

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Rhythm as a principal regulator, which stands as a source of aesthetic pleasure, started with a caveman who initiated to build the surrounding space with a rhythmic circle of upright stones and reached to the modern age creating contemporary works. In the famous architecture book *Introduction to Architecture*, author Francis D K Ching describes that most buildings have elements that are repetitive by nature. For example, beams and columns in a building repeat themselves to form repetitive spaces and structural bays. It is well known that the composition of a number of elements ordered in a rhythmic form amplifies its perception in comparison with an unordered form. Confronted with the chaotic unordered clusters of architectural elements/structure, one does not feel any comfort. Instead, it appears visually upsetting.

Accordingly, rhythm has the ability to create visual rhythm in movement through space by generating repetitive form and size. Tietgenkollegiet Copenhagen, designed by Lundgaard architects, stands as an ideal example of a spatial rhythm. The floor plans of the building are designed at differing depths in an alternating rhythm (as shown in Figure 2.2), which indicates its unique form and its rhythmic character.

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2.2 LE CORBUSIER AND IANNIS XENAKIS - MUSICAL COMPOSITION IN ARCHITECTURE

Many authors have used a metaphor for architecture as frozen music. Le Corbusier, with his colleague, Greek-french music composer Iannis Xenakis, created numerous designs which are known for their combination of musical qualities in architecture.

In the design for the famous monastery La Tourette in France, Le Corbusier assigned Xenaxis to play with the distance between the concrete mullions and to create an appealing façade with glass panes. Xenakis came up with a concept of rhythm by designing panes in an undulating rhythm to amplify musicality in the corridors. The west façade of the building is designed in a way to create an asymmetrical appearance. Each layer in the façade is arranged with vertical concrete mullions with uneven intervals, derived from his musical composition “Metastassis”. Xenakis used vertical parallels from the density in sound, pitch and tempo to correspond the physical density of the undulating façade. As a result, the measurement of the façade consists of the parallel division with 48 intervals that comprise the irregular rhythmic appearance of the façade.

The works of Le Corbusier and Xenakis on different methods of architectural intersections with music have been recognized widely. The Capitol complex building in Chandigarh is another ideal example of his design relation with rhythm. Le Corbusier used his signature element “brise soleil” (sun blocker) as an architectural feature, where the vertical and horizontal planes of brise soleil are purposely arranged in an asymmetrical composition. The balconies and louvres in the main façade are placed with equal distance while the concrete columns are set out in a different grid alignment throughout the façade. Le Corbusier calls this arrangement in façade as “free form”. However, the regular and irregular placement of the elements in façade creates a sense of rhythmic appeal.

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Figure 2.6 - Repetition of structural support in regular intervals, Photo by Laurian Ghinitoiu

Figure 2.7 - Secretariat Building, Photo by Laurian Ghinitoiu

Figure 2.8 - Brise soleil, High court Chandigarh, Photo by Benjamin Hosking.
In many ways, nature has been an endless supply resource for creative people, musicians, architects and many other artists (to learn and get inspired). Humans are considered as a part of surrounding nature and also nature has a significant impact on humans. In the book *Nature design*, historian Barry Bergdoll states that “Nature, with its forms, structures and formation principles, does not only inspire the broad range of ideas and design process but also communicates a wide range of forms and functions.”

One of the first interactions between human and nature was essential to protect themselves from other elements. The primitive hut, as interpreted by architectural theorist Marc Antonie Laugier (Figure 2.1) does not only satisfy the functional need of shelter but also introduces notions of structure and form characterizing the natural origin of architecture.

The variety of forms that nature can create are appealing and endless. In the book *Form follows nature*, architect Rudolf Finsterwalder argues that the beauty of pattern and forms in nature are based on mathematical rules, symmetry, regularity and stability. These are the factors that make humans feel comfortable. In the late 19th to 20th century, many architects including Luis Sullivan, Frank Lloyd Wright started to pick up influences from nature in their designs. In the book *Organic architecture*, Wright advised that the building should not only grow naturally from its surrounding context but should also be considered in the design, as if it were a combined organism. Villa Mairea in Finland, designed by Alvar Aalto is one of the ideal examples of nature’s influence on architecture. Aalto designed the building with the intention to create a link between nature and architecture, which was achieved by blurring the lines between indoor and outdoor spaces of the building.

Nature is never absent. As spaces created by man to cope with the natural environment, architecture plays the medium between the manmade and natural environment. In the book *Alvaro Siza*, Philip Jodidio points out that architecture comes from natural forms, and it has the power to transform nature. He gives the example of the architect Alvaro Siza’s work Boa Nova Tea house, Portugal (figure 2.10 & 2.11). He explains that the rocks which were untouched in the design are the way the author witnesses the relationship between nature and architecture.

However, a fascinating concept of enhancing nature is to leave in its originality and to appreciate nature; it can be well-considered and contrasted.

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20 Angeli Sachs, *Nature Design : From Inspiration to Innovation*, (Zurich: Lars Muller, 2007), 17-34.


Figure 2.9 - The Primitive Hut, Frontispiece of Laugier’s Essay: L’Architecture, 1755

Figure 2.10 - Boa Nova Tea House, Photo by Samuel Ludwig

Figure 2.11 - The untouched rocks in the design shows the relationship between nature and architecture.

Boa Nova Tea House by Alvaro Siza, Photo by Samuel Ludwig
The most common argument around “contrast” in our mind is: how is contrast related to music, nature and architecture? Interestingly they all share many mutual principles. It is considered as one of the powerful tools in the designer’s kit. When an element stands in contrast to something else, it is rendered more clearly and understood. A single element that stands out in arrangement becomes the focus of the composition, a centre of activity, attention or attraction. In the article “The use of Contrast in Architecture”, Stephen M Black describes that the contrast in architecture is nothing new to design, but it has been used as a tool in the art for generations.26 (figure 2.12)

The principle of contrast has been a pillar of musical composition for a long time. In the article “Rhythmic contrast”, musician Gary points out that rhythm is one element which can literally stand out of the contrast principle.27 The main idea of the contrast in music is, altering your repeating melodic motif (rhythm or a chord progression) with different notes so that it changes the predictable pattern and adds more interest to music. Similarly, in architecture, contrast is used as a design tool to highlight a particular space or an element through visual interest. For example, intense colour in a pathway will help the user’s attention to reach the desired location.

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The contrast in scale and size is quite often used by architects to create an exciting feeling of space. The Martin House in the USA, designed by Frank Lloyd Wright, is one of the suitable examples of contrast in scale. Wright designed the house by breaking up the spaces with layered roofs, varying the size of spaces, ceiling heights and large walls to create a sense of movement in his design.²⁸ Contrast has the power to pull the attention of the user even if it is identified as good or bad. The American artist Michael Heizer installed “Levitated Mass” sculptural artwork (Figure 2.13) in Los Angeles museum where the 450-foot long concrete ramp was crowned by a massive 340-ton rock. Some users found the artwork very exciting, where the others found it as conflicting. However, the accidental contrasting effect in the artwork draws everyone's attention while passing through the ramp.

The contrast in orientation, colour, shape and size imply design intent and create a sense of drama. To understand the contrast in nature, Squish studio by Saunders Architects in Fogo island, Canada (figure 2.15) sets a good example to start with. The white angular form of the compact squish studio, located on a rough-rocky strip shoreline, the form itself attempts a sharp contrast to the neighbouring picturesque backdrop.

Architect Todd Saunder explains that the southern end of the squish studio is above over twenty feet in contrast to the northern tip which only measures half that dimension.²⁹ However, the architectural design is contrasted with natural surroundings, and it is also a pleasant addition that does not harm or disturb nature.


2.4 TRANSPARENCY IN ARCHITECTURE

Transparency in regular words is known as the efficiency of seeing through a solid object. In architecture, transparency can be defined as the action of object or material, that allows sight and light simultaneously to create a visual feature. Transparency in design is commonly used as a sense of the concept, that provides a visual connection between the viewer with the surroundings. Author Jane Jacobs states that “Sight of people attracts still other people”. This means they could share the thrill and pleasant delight of the outdoor world, a feeling of sound, nature, wind, forms and colours. This connection of a visual boundary between the built environment and nature can be attained through transparency.

Transparency does not only exist by the choices of materials, but it can also be achieved through open spaces and clear visual connections (Figure 1.18). According to Malvina Apostolou, transparency is defined as a state of a relationship, which is examined and understood to use it as a means of spatial arrangement. It allows spatial and visual connection within a built space, which are obtained by layered spaces or expanded openings.

Malvina Apostolou points out that the relationship between spaces of two separate planes not only generate the visual enhancement of a smaller space but also creates an ambiguous special connection, where the spatial area is varied and also connected in the same time through visual relationships. These visual connections encourage the user to engage with the surrounding activity and create an interactive opportunity for the neighbouring environment. Architect Adrian Lo points out that the transparency serves as a creative tool in a build space, where it has the power to build the illusion of an open or an enclosed space, depending on the analysis made by the visual user.


The Writers Theatre (Figure 2.17) in the United States, designed by Studio Gang Architects, highlights the effective use of transparency in its delightful design. In relationship with the public viewers, to accommodate the audience and to encourage the global artist community, Studio Gang Architects came up with an idea of introducing transparency and flexibility in design. Wide-open spaces and rendered viewing corridors have been designed as a tool to unite the viewers together to experience the activity.

Therefore, the built space shows the potential connection between the outside and inside spaces by contributing transparency and providing views out to neighbouring spaces.

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Figure 2.17 - Writers theatre Performance space (right) The viewing platform, Photo by Hedrich Blessing.

Figure 2.19 - Allowing people to visually connect with surrounding activities, Photo by Hedrich Blessing.

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2.5 SPATIAL SOUND IN ARCHITECTURE

Sound, in general, is defined as the vibration that travels through air or another form (liquid, solid or gas) to the ear. The stronger the vibrations get, the louder the sound. Architect and professor Anyla Berisha in her article, the “sound architecture” points out that sound exists in architecture and architecture exists in sound. She explains that good architecture depends on how good sound travels through build space and how it reflects/behaves with the user.36 Swiss architect Peter Zumthor, in his book Atmospheres, claims that “Interiors are like huge instruments”.37 Just like the physical feature in the musical instrument, the sound has the character and quality within a space which has the power to affect the aural experience of a space.38 The characteristics of a built space or a wall such as its size, materiality, texture and orientation will regulate its quality of the soundscape, its size, feel of creating confidence to move through the space and sense of being inside an ambience or outside to it.

In the book Spaces Speak, Are you listening?, the author Barry Blesser points out how aural spaces can provoke emotions and feelings as user listen. He explains how sound helps to connect or isolate users, which depends upon the proximity to noise levels. People use their sense of hearing to understand spaces. The attributes of a space can be obtained through sound, by every sound reflection of the build space/wall, the echo of a closed space, the length, height, depth and roundness.39 The interplay between visual and aural space can create a powerful experience which can stir the emotions of the user.

Author Micheal Kimmelman in his article “Dear Architect Sound Matters”, explains that soundscape affects human in four different ways, depending on their physical conditions of space and nature of the user. Firstly, the auditory spatial environment has the efficiency to control the social connections between people. Most spaces support social involvement, where some spaces can help isolation and privacy. Secondly, sound works together with other senses as a tool for navigation. When vision cannot be trusted, the acoustic reflection from materials, surface and objects can help to communicate the condition of the space (Mostly helps visually impaired or blind user to experience spaces). Thirdly, the soundscape has potential which can affect the aesthetics of space. For example, the visual elements can generate a calm, peaceful emotion which can please your eye, where the unwanted, loud sound, has the power to make a space unpleasant. Finally, the sound has the function to decrease or enhance the experience of the music.40

38 Peter Zumthor, Atmospheres: Architectural Environments - Surrounding Objects, 30-32.
The physical acoustic space combines with social and emotional qualities of the soundscape, to create an undivided experience that impacts the hearing of music in space.

According to architect Natasha Clayton in the research paper “Space, we hear”, the qualities that can change the physical perception in an aural and visual space are stretching, soothing, pulling, reliving, narrowing, confining, expanding, opening and bounding. Therefore, the detailed study provides an interesting start off point to the design research.

Characteristics of Sound in different spaces:

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Summary

Good spatial design helps to provide an efficient musical centre. The following criteria seek to find efficient potential precedents which help to support the research associated with similar objectives. The essential architectural fundamental values include,

**Rhythm** – as a source of aesthetical pleasure and spatial arrangement, rhythm creates a closer relationship between music and architecture. The influence of Rhythm in architectural design has the power not only to strengthen the visual sense in a built space but also the link between sound and space. It is thus adding substantial musical value to the design.

**Contrast** - A single element that stands out in a composition becomes the focus of the composition, a centre of activity, attention or attraction. It is crucial that excessive contrasting elements in the design can destroy unity and create confusion.

**Musical Program** - To seek and understand the activities and function of the buildings, exploring the connection and relationships between spaces, specifically focus on analysing the arrangement of zones.

**Transparency** - Transparency provides visual connection and facilitates visual perception, where it invites the world in or projects the program out. People like to observe what others are doing. Transparency as a tool encourages all the co-users to share a social relationship and encourages them to participate in activities.
3.0 PRECEDENT STUDY
3.1 STRETTO HOUSE

Location – Dallas, Texas
Architect – Steven Holl
Purpose- Residential House
Built – 1991

Music and architecture are forums through which creativity is conveyed. Stretto House, by Steven Holl in Texas sets a good example that expresses the relationship between music and architecture. The Stretto house was designed based on the musical piece *Music for strings, percussion and celesta* by the Hungarian musical composer Bela Bartok. Steven Holl has always been interested in the connections between music and architecture.42

The structure of the Stretto house was designed around the notion of “flowing”. Holl wanted to indicate the site with its four water bodies. “The idea of water overlapping in space is analogous to a condition in music called Stretto, where one set of tunes or melodies overlaps another”.43 Even though the Stretto house is not a direct analogy of music, it exhibits a healthy way to interpret music through its rhythm, form, notation and proportion.

Bela Bartok’s musical piece is composed in four movements with the characteristic qualities of ‘heavy’ (percussion) and ‘light’ (sight). The house is divided into four sections (figure 3.1), with each section consisting of two spatial parts. The dominant division in the design creates a sort of irregular rhythm and creates a significance to space. The contrasting elements of musicality and the solid framework with a multi-layered structure creates a melodic approach in the design.44

The flow of spaces evolves in different ways to promote the spatial sequence. The floor plane overlaps with the next level, and the roof overlaps with the walls to pull down the daylight into the building. The design appeals to the senses and plays on musical perception. The sequence of spaces, the rhythmic break between the four sections, textures assigned to differentiate function: all this makes the house extraordinary and beautiful.


Figure 3.1 - Spaces divided by Four parts

Figure 3.2 - Section

Figure 3.3 - Stretto house, Photo by Jim Tuttle
3.2 THE PALACE FOR MEXICAN MUSIC

Location – Merida, Mexico
Architects – Reyes rios+Larrin, Quesnel, Munoz, Alejandro Architects
Purpose – Museum and Performance centre
Built – 2018

The palace for Mexican music was designed as an expression of contemporary architecture to amplify historical and musical value through design. Four local architectural firms teamed up to design the Palace of Mexican music. The careful placement of windows, panels and metal frames in the elevation represents the strong notion of rhythmic movement and contrast in rhythm. The texture in the building expresses the materiality of the neighbourhood heritage context, and the architect used colourful linear windows as a tool to create an irregular pattern that conveys musicality.

The music centre is comprised of four stories and divided according to the function. The ground floor features an interactive museum space for Mexican music. The spatial relationship between each function characterizes the evolution of Mexican folk music. The arrangement of spaces is rational, functional and creates a potential journey through the building.

The main ‘U’ shaped entrance brings the visitors and the public into the central courtyard space, allows the user to move around openly. The architects used vertical steel frames painted matte black to cover the side portion of the two storeys facing the central courtyard. The vertical strips/frames are arranged with a regular space between each other. These strips are used as a controlling element to block visibility from the side, also as the user moves around the central courtyard, the arrangement of these vertical elements create a rhythmic movement and an illusion of ripple across the façade.

This precedent study illustrates the active attempt of using rhythmic elements to create an optic musical illusion, transparent connections between spaces, the flow of movement through the spaces. This adds value to the research.


Figure 3.5 - Public circulation

Figure 3.6 - Irregular placement of linear windows, Photo by Onnis Luque.

Figure 3.7 - The central courtyard space, Photo by Onnis Luque.
3.3 SAYA PARK: THREE CONCRETE BUILDING

Location – Gyeongsangbuk, South Korea
Architects – Alvaro Siza + Carlos Castanheira
Program – Mixed-use
Built – 2018

Portuguese architect Alvaro Siza teamed up with Carlos Castanheira to design a complex of three buildings. The complex is located on a densely vegetated hill site in South Korea. The complex consists of three concrete buildings, an art pavilion, a chapel and an observation tower. The buildings are designed entirely on concrete without ornaments and additional materials, intend to create a rough spatial experience. The volume of the building adapts to the surrounding hill site. However, the roughness of the concrete and the built form attempts to form a contrast to the dense forest backdrop.

Upon arrival, the user is faced with the isolated library contained within a separate space. The art pavilion forms a fork from two parallel building elements connected by a passageway cantilevered against the topography. The interior space characterises a dramatic raw appearance from the concrete walls. However, the structure is designed to have openings that extend through the concrete walls and roof allows to provide natural lighting. The art pavilion also provides uninterrupted balcony views across the beautiful landscape.

The second building is a chapel, which is set at a distance from the other two structures. This space is designed to create a sensation of calmness and peace. The interior concrete structure is punched by a small light cannon which helps defines the functional characteristics of the interior volume. The building is faced towards the towards a direction, allowing the natural light inside.48

Furthermore, the observation tower is designed on the top of the site, which rises above the pine forest around. The concrete structure with its form opens up a few windows that permit views into the visitors. The building, with its simple appearance, its function and roughness of materiality exemplifies the contrasting quality of architecture against nature.

This precedent is an excellent example of how design intent can create contrasts through shape, texture, orientation. In addition, the design highlights the architectural key values such as openness, form and circulation. The building design allows people to be physically and visually connected to the natural environment. It is also a healthy addition that the design that does not disturb or harm the surrounding nature, therefore, adding a value to research.

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Figure 3.8 - Contrast with the surrounding Backdrop, Photo by Fernando Guerra.

Figure 3.9 - Light cannon, Photo by Fernando Guerra.

Figure 3.10 - Uninterrupted View with surrounding nature, Photo by Fernando Guerra.
Location – Jerusalem, Israel
Architects – Pliskin Architects
Program- Music school
Built – Conceptual 2016

The Mevaseret music school is a conceptual design proposal for a new music centre in Mavaseret, located in the city of Jerusalem. The selected site for the musical centre sits between an open terrain and a built plane, facing towards a picturesque hill station. The design intends to maintain and control the visual connection through the functional spaces and focuses on creating linked interactive spaces to encourage the users. The public functional spaces like orchestra, auditorium, café and the choir room are semi-open and create a sort of transparent connection between each program, making the space more exciting and enhancing.

The outer landscape of the music school is designed to create a continuous transition between the soft scape and hardscape, encouraging different activities. The spaces are separated according to the type of users/musical groups and depending on public/ private activities. Mostly, all the private functional spaces, including rehearsal spaces and instrument storage space, are placed on the first floor. The service spaces for backstage are located under the auditorium seating to allow nature to act as a backdrop for the performance space. The performance room, dance hall and the

3.5 ROLKA STUDIO

Location – Mevaseret Zion, Israel
Architects – Rolka architects
Program- Musical centre
Built – Competition project

The Rolka music centre is a conceptual design proposal for a new music centre in Mevaseret, Jerusalem. The musical centre is located on an isolated site surrounded by a picturesque valley. The idea of the music studio is to integrate the natural borders and the built-up area of the site with architecture that contains musical functions. The Rolka studio generates “a dialogue between the natural surrounding and the built environment.”

This is achieved through the arrangements of the architectural buildings. The building blocks are placed in the position to experience an uninterrupted view into nature. The design opens up to nature, inviting the landscape into the building, which blurs the borderline between the indoor and outdoor environment.

The spaces in Rolka studio express a sense of freedom, inspiration and excitement. Transparency is used as the central design tool to create a visual link between the user and the public. The studio spaces are arranged in such a way that a simultaneous view of different spaces within the building and to the outside nature is provided.

Each of the learning rooms delivers a visual connection with the surrounding environment. Even if it’s just people walking around the corridor, they can still feel connected visually with the surrounding functions. The studio holds a unique musical program to support its functional spaces, which includes a variety of practice rooms, performance room, concert halls and a dancing room. The spaces are separated and linked by differentiating private and public zones. The private practice rooms are arranged on the end part, with direct views and opening to the existing landscape.

Analysing this precedent, provides an understanding of the relationship between music and nature, how spaces are connected to the surrounding context, providing a vibrant space for musical activities and gauging on how transparency and openness engage in creating visual interactions between users.

Figure 3.13 - Link between users and public, Artist- Rolka architects
3.6 TOHOGAKUEN SCHOOL OF MUSIC

Location – Tokyo, Japan
Architects – Nikken Sekkei
Program – Music school
Built – 2014

The school of music is located in the Chofu suburb of Tokyo, Japan. The design intends to create an appropriate place to interact and learn music. The architect Nikken Sekkei attempts to break the general old-style institution design, which has typically a long corridor that connects with small teaching rooms, Sekkei calls out such design as “Similar to prison house”.

The arrangement of spaces in the Tohogakuen school has not developed from any campus nor school styles. Sekkei uses boxes of spaces with common areas and breaks the repetition of spaces through alignment. The classroom space is amplified to create more visual connections among the other students or the surrounding. This transparency creates a eye-contact, which may encourages other participants to join the activity. Commonly, students tend to use the staircase, corridors as leisure space. Therefore, this design utilises the corridor spaces by creating seating pockets. The use of such spaces can help to create more social interactions and unity among the students.

The basement has large group practice rooms and spaces for loud musical instruments. The ground floor provides a communal space which allows access to the public. The majority of practice rooms is placed on the first floor, and the spaces are separated from each other for acoustical reasons. The use of glass walls allows the sound of music from practice space to float through the public spaces. Each proportion and size of the lesson room is adjusted to match the needs of specific musical instruments.

The volume of the practice rooms is extended to the exterior, a small open space like the courtyard has been created between each square, as shown in the floor plan. The Tohogakuen school of music’s square layout reflects in its strong, rough appealing exterior. Similar to its floor plan, the exposed concrete façade resembles a collection of interlocking squares and a rectangle of different size.

By analysing this precedent, the study provides a clear understanding of spatial relationships, a sense of creating visual continuity between students, arrangements of functional programs, control of sound and use of natural light and wind as a tool to enhance the interior. Therefore, adding a vibrant enhance presence to the research and also potential keys from the design that can be considered and used while designing the research project.

Figure 3.14 - Corridor as an informal practice space, Photo by Harunori Noda

Figure 3.15 - Interlocking Concrete square with different size resembles contrast, Photo by Harunori Noda

Figure 3.16 - Transparent practice spaces, Photo by Harunori Noda
3.7 GEHUA YOUTH AND CULTURAL CENTRE

Location – Qinhuangdao, China
Architects – Open Architecture
Program- Library/community centre
Built – 2012

The Gehua youth and cultural centre is located in Qinhuangdao, a seaside site surrounded by untouched nature, protected from all the chaos of urban life. The building accommodates various programmes such as a gallery, café, library, theatre, multi-media space, master studio etc. The centre amplifies interest to the user in various programme, which helps to explore and discover creativity. The design aims to maximize the relationship between spatial qualities and nature in the site.

The spaces in the centre are arranged around a central courtyard. The central courtyard allows the user to move without restrictions and build multiple connections within the building. The courtyard is surrounded by a large glass façade that allows the user to interact and connect with the surrounding spaces visually.\(^\text{52}\)

The building is a mixture of open and built space. Due to its compact area, each space is optimised and used effectively. The centre holds a small theatre with glass sliding doors that connects the courtyard, which allows extending the theatre space when needed. The arrangement of spaces creates a spatial experience to

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Conclusion of Precedents

Through analysing the architectural values such as Rhythm, Contrast and transparency in architecture, investigated through the precedent analysis, has presented a way to generate a centre that encourages musicians. Therefore, the values of this analysis will help to shape the design process for this research project.
Figure 4.1 - New Zealand map
4.0 SITE AND CONTEXT
The project aims to create an inspirational and social platform to the budding musicians. For this, it was important for the site to be disconnected from the urban chaos. An artist usually respects the silence that serves as the foundation of creativity.

Nature as a surrounding has the power to create a sense of freedom to express and improves creativity in music. In such a way, a site with similar natural criteria can motivate musicians and also serve as an open platform. The project allows people to explore the site and encourage musicians by supporting their performance. It was essential to have a significant flow of crowd near the area to keep the site active. Possible sites were refined by comparing natural characteristics of the author’s homeland (Kanyakumari, India) nature with New Zealand nature. The general character, energy and habits are studied through different sources, which later helped to find the potential site away from Auckland.

Therefore, considering all the possible factors, including visual engagements, surrounding characters and topography. The site was chosen on the strip of Tutukaka coast, Whangarei district.

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Similarities of Characteristics in Nature

1. Rocky beach
2. Picturesque green land
3. Contrast between man made and nature
4. Cliff land
5. Long Sand beach
6. Harsh rock landscape

Figure 4.3 - 4.8 Natural character

Figure 4.9 - 4.14 Natural Character
4.2 PHYSICAL CONTEXT

Tutukaka is located on the east coast of Northland, New Zealand. The area is commonly referred to as the Tutukaka coast. The selected site is situated next to Tutukaka harbour, which stretches out from Matapuri main coast road covering approximately 30 acres of land. The site is currently used as a nature reserve land by the government, which provides a walking track that connects to the Kukutauwhao Island.

The walkway through the site is recognized as one of the top destinations as it leads to the iconic lighthouse in Kukutauwhao island. The site is formed by a rocky bed covered with rolling grassland. The walking track starts from the entrance parking zone, which is located about 50 metres from the Matapuri main coast road. The walking track runs through the soft exposed headland and then connects down to a small rocky causeway, which links the site area and Kukutauwhao island. Besides its clear landform, the high elevation of the site provides excellent panoramic views of the ocean and its coastline.

Tutukaka’s physical conditions and picturesque surroundings not only invite people to the site but also serve as a quality of natural retreat. The selected site with its vast land area and its physical condition have the opportunity to serve as an ideal context for the proposed architectural design.

Figure 4.15 Site map
The Tutukaka Coast is placed almost 20km from the east of Northland’s largest city, Whangerei. The nearest coastal villages that connect Tutukaka are Ngunguru and Matapouri. The long coastal stretch of sandy beach, intimate bays, sharp cliffs and natural harbour in Tutukaka creates a high aesthetical appeal of nature. With all these characteristics, Tutukaka is commonly said as the destination for divers and bushwalkers.

A little further on from Tutukaka is the world-famous Poor Knight Island, with excellent ecological quality and amazing marine life of over 130 species calling the Poor island home, diving at this island makes an enjoyable experience. Water-based and land-based ecotourism makes Tutukaka as one of the top coastal destinations in New Zealand.

The connecting road from Matapouri to Tutukaka town holds plenty of holiday houses and retail/rental shops for a stunning holiday activity. The coastal road between Ngunguru and Tutukaka offers a variety of fancy restaurants, cafes, luxury holiday houses, motels and campground. The beaches in the coastal road are more open to the ocean, and they are generally loved for surfing when conditions are right. Being located as the central gateway to the coastal stretch, a short walk from the site can be accessible to all stunning activities around.

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4.4 DEMOGRAPHIC ANALYSIS

The Whangarei district council surveyed to analyse the population of the coastal areas between November 2013 – January 2014. In result, Tutukaka and Matapouri hold a population of around 4,000 permanent residents, and it is also said to be increasing 2% every year. The number of holiday houses in Tutukaka is over 60%, which shows the domination of the holiday population over permanent residents. Also, during peak holiday seasons, it is estimated that the population increases over five times higher than the permanent local population.

The Māori word for Tutukaka is called “Parrot snaring tree.” Tutukaka was renowned for its native Puriri bushes, whose tender berries attract parrots and other birds, also the favourite food of native Māori. The coast has a population of Māori people of the Ngatiwai tribe, whose generations still live along the coastal area and they have been identified as the children of seas.\(^{56}\) It is believed that Tutukaka identifies the significance of this site as an important food source to indigenous people along the coast.\(^{57}\) However, the district plan identifies that Tutukaka has no Marae or sacred sites that are significant to Māori. It is believed that Tutukaka started developing around the 1920s, being a little late starter compared to the neighbouring town Ngunguru and Matapouri.\(^{58}\)

It was noted that after the third European settlements, Tutukaka was found as one of the potential recreational coastal regions. During the mid 20th century the European musical influence was all over the coastal zones highlighting weekend entertainments.

Postscript:

Although the district plan does not identify any sacred sites around Tutukaka, it has become clear that the headland was a Pah site and as such sacred. Therefore, it would have been wise to choose a different site for the project.

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58 Whangarei District Council.

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Tutukaka has a coastal climate. The site is in close proximity to the sea has the characteristic of windy, mild and humid weather. However, the climate of Tutukaka and its surroundings varies slightly depending on the topography. The summer season in this area is warm and tends to be more humid, while winters are mild, with cold winds. Tutuakaka receives rainfall almost all round the year with occasional heavy falls.\(^{59}\) The site being stretch from the mainland has a benefit to receive bright sunlight from the morning to evening without any interruptions. However, the site is quite windy as it is exposed to the sea.

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Site Photos:

1. Overgrown native bushes around the edge
2. Ariel view of the site
3. Clear rolling land
4. Seating in the middle of the walkway
5. View from the cliff shows the depth
6. View from the site

Figure 4.22 - 4.27 Site View
5.0 MUSICAL PROGRAM
The project addresses the need to provide facilities for musicians who seek a platform for opportunity and exploration in the field of music. The project’s program will provide a fusion of musical and educational experience to encourage these creative spirits. Within each space, the program creates relationships with other spaces, activities and user circulation. The criteria of the design program are explored through analysing and comparing similar precedents with musical activities.

The research program is to be used as a guideline for functional and physical needs, which are explored through music and architecture to enhance the spatial experience. To support the project objective, the program for the centre is divided into three main independent functions,

- Performance
- Practice
- A place for Accommodation.

Even though the spaces have an individual functional purpose, they are united through circulation and spatial arrangements with one another. Through this complex of spaces, the research intends to provide a range of activities that will encourage the user to gain a new level of confidence and exposure in the field of music.
5.1 FUNCTIONAL BRIEF

Practice

The main goal of this facility is to provide services for the budding artists, where they can learn, compose, practice and share their music with their peers. The centre provides a limited number of practice/teaching spaces with three different room sizes. The individual user or musical bands can rent the room according to their convenience of needed space. The centre also provides supporting facilities like the instrumental workshop and large lecture rooms to invite professional musicians to host workshops and tutorials.

The user will also be able to use the library as a source to use musical resources, gather information and to make connections with recording companies. The centre also provides two informal open spaces for the users to relax and jam music. These spaces are created with the intention to provide social interaction with other participants and to bring unity among the users.

The majority of the users who get benefit with this centre tends to stay with the provided accommodation within site. Each group will spend approximately 15 – 45 days in this musical centre. However, the availability of these spaces will be limited upon booking.

Performance Centre

The purpose of this facility is to provide a social platform of inspiration and confidence for musicians. With the use of performance space, musical bands/individual musician will get an opportunity to perform live in front of the public. Therefore, this breaks down the inner fear of musicians and helps them to express their artistic freedom to impress the public. The performance centre will also include the facility of a temporary exhibition space, which will be used for promoting local artists and to educate the visitors with music history etc. An outdoor café is linked with the performance centre to enjoy the view with the experience of the picturesque surrounding.

Accommodation

Musical bands or individual musicians from all over New Zealand will be open to access the benefits of this music centre. They spend up to 45 days in this accommodation. In terms of saving time and energy. In searching for suitable spaces, these private spaces will be a convenient solution for them. This facility will provide three different accommodating spaces for musical groups with essential services and utilities. This will be a place musicians come to immerse themselves into a diverse neighbourhood atmosphere.
Possible Functional Access

Figure 5.2 Site Zone diagram
Bubble diagrams were used in order to present the relationship between functions. The sizes of these bubbles represent the size of the floor areas. Which at this movement are only provisional and flexible. The process explores how private and public spaces are separated and connected. The connections then lead to planning the circulation between Performance, practice and accommodation spaces. The process also investigates the pedestrian relationship with spaces across the site.

The project brief as follows:

**Performance Centre**
- Administration/lobby
- Performance space
- Temporary exhibition space
- Kitchen / store
- Staff rooms
- Retail store
- Outdoor Cafeteria
- Service (Backstage, Restrooms)

**Practice Centre**
- 4 x Small Practice room
- 1 Medium Practice room
- 1 Large Practice room
- Library
- 1 Multipurpose room
- Service

**Accommodation**
- 12 x 4 people sharing space
- 6 x Single room
- 2 x Dormitories
Figure 5.3 Bubble diagram
5.0 DESIGN PROCESS
Once the functional diagrams started to show the relationships between spaces, the design process began by exploring the connections between music and architecture. One of the aspects that this project focuses on is its involvement with spaces. To conceive this spatial experience, the project started to use rhythm as a primary design tool which can allow/help the user to experience the musical journey. In order to achieve rhythm in planning, 4/4 time signature (metre signature) was used as a formula to create a basis for this process.

Fundamental to the definition of music itself is that it must move through time. The time signature in musical notes keeps the rhythmic beat as the steady pulse that makes us feel the tune. Similarly, a time signature is used as an initial guideline to keep the rhythmic movement steady in order to obtain a spatial experience.

The spaces are aligned with the repetition of the same measurements from the entry point to the last point. Through this, a person moving from one space to another within the build space can feel the rhythmic spatial experience without paying attention to it. For solving this conceptual idea, the functions generated through the bubble diagram are arranged with the musical grids (4m x 4m time signature. The attempt of overlaying and combining 4m gridlines helped in creating a musical journey which puts practice and performance centre together.

6.1 DEVELOPMENT OF SPATIAL EXPERIENCES

To add more interest in design, contrast was introduced in this basic rhythmic arrangements both to break the chain of repetition and for functional needs. Contrast here is generated by changing size and shape in space. However, these different spaces are arranged in such a way that it does not disturb the primary rhythmic alignment.

Figure 6.1 Concept Development
6.1 DEVELOPMENT OF SPATIAL EXPERIENCES

Figure 6.2 Arranging spaces with time signature

Figure 6.3 Repetition of spaces shown in different colours
1 - Entrance lobby
2 - Foyer
3 - Music shop
4 - Temporary exhibition space
5 - Performance space
6 - Cafe
7 - Outdoor cafe space
8 - Buffer space
9 - Library
10 - Corridor
11 - Service
12 - Large practice space
13 - Medium size practice space
14 - Workshop space
15 - Central open space
16 - Outdoor recreational space

Figure 6.4 Generated Floor plan
The music centre intends to maintain and control transparency in design through the use of spatial order. Every single space in the performance and practice centre provides continuous unhindered views of spaces within the campus and the natural surroundings. The primary intention of introducing this transparency in design was to create lively indoor spaces as opposed to the usually enclosed spaces. The functional spaces in the centre are designed with soundproofing glass on both sides. The sound from each practice rooms is controlled and absorbed through sound-absorbing wood panels. With this, a user can observe what others are doing when he or she walks through the corridor. This will generate a healthy visual connection without disturbing their privacy.

The central courtyard in the practice centre acts as a soft divider between spaces. The courtyard is covered with glass corridors. Conscious efforts have been taken to maintain visual links between the courtyard and the surrounding spaces. These visual links can initiate interactions between the users, thereby helping them hone their talent.

The performance space in the centre is designed to feel welcoming and to enhance staging opportunities. The informal performance space also has the potential to invite people across the boundaries (Temporary Exhibition space, Outdoor Café) through rendered visible. The first-floor corridor walk connects with the performance space providing views in and out. Also, the background wall of the performance space is partially closed with translucent glass, to generate a conceptual backdrop that allows limited natural light and sight. However, the project attempts to create a visual link between most places without affecting their privacy needs.

Figure 6.5 Visual Connection
Figure 6.6  The uninterrupted view from the lesson rooms

Figure 6.7  View from the outdoor cafe, even if one walking around can still feel connected visually with activities around.

Figure 6.8  Central open space intend to create a informal social connections among the users.
6.3 CONTRASTING VOLUMES & SOUND

“Creating an architecture of context by revealing nature by means of modification, measuring and utilization, redoubling and situating the landscape.” - Vittorio Gregotti

The placement of the building in a natural context itself creates a design that is in contrast with the surrounding environment. The volumes of the building spaces vary and create an uneven height. This height relates to their respective functions. The building with its simple appearance, size and roughness is formed to express the essence of contrast in architecture.

The building also amplifies spatial experience through its soundscape. This is achieved through the selection of materials. The buffer zones such as exhibition and corridors spaces are designed with light wooden floors and concrete, intended to create confidence of movement and interaction. So that when a person walks through this space, their footsteps are loud, they hear humming echos when they interact which makes them feel aware of their presence. However, as soon as you get to a practising zone or a performing space, the sound is absorbed with the help of sound-absorbing wood panels. This will strengthen the experience of soundscape and also helps the user to recognize the space as a result.

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Eric Satie says: “The distance between musical notes in a piece/score is not only the representation of time but also the visual expression of musical space.”

The facades of this musical centre will amplify the idea of music through regular and irregular rhythmic patterns. When a person moves around or walks past by the centre, the vertical wooden frames arranged at regular intervals, control the visibility and creates a rhythmic illusion. Because of the different genres of music heard at the centre, there will be a combination of various musical patterns which will represent the connection with music.

Vertical glass panes are used as a placed in an irregular pattern to represent “Beat against rhythm” in music. Although these glass panes are oriented towards Northwest, the low light from these vertical panes creates a dramatic effect in the space. The irregular placement of small light cannons on the roughcast concrete roof adds more drama to the exhibition space, it also creates a low humming echo that affects the exhibition space.

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Figure 5.11 Exhibition space
6.0 CONCLUSION
CONCLUSION

In response to the threat of struggling Kiwi musicians in a fight to succeed, this new innovative music centre helps to develop their skills, networks and assists in creating confidence. The music centre aspires to achieve a sense of support to lives led through music, by creating a spatial combination of practice, performance and dwelling.

The initial broad research allowed to explore the architectural relationship with music, nature and transparency. This has provided a strong understanding of musical principles, contrasting qualities, visual connections and spatial experience through sound. By analysing the precedents with similar objectives, it became more evident how to develop a programmatic constraint, spatial relationships and design values that helped generate the process.

Additionally, the understanding of rhythm as a musical concept has been one of the primary driving tools for the design. The spatial arrangement with time signature provides an appealing musical journey throughout the spaces and stands as an example of spatial rhythm. The placement of the building maintains the individual function through public and private relationship and also enables a convenient connection between spaces.

One of the most significant contribution to the project is its natural surrounding. It creates a sense of freedom through its surrounding setting. The project provides a continuous visual engagement from the musical centre. However, this project demonstrates contrast through nature without disturbing its context. The volumes of the building spaces vary and create an uneven height relating to the functions. The building with its simple appearance, size and roughness is formed to resemble the contrasting essence in architecture. Also, to enhance the musicality in space, the project achieves a spatial experience through the soundscape. The outcome of spaces, each provokes different experience related to its function.

However, this project does not pretend to solve the digital revolution of the music industry, but then it does create a possible educational platform for those who struggle with confidence, lack creativity and look for a band to team up with. Therefore, this musical centre can bring promising change in the field and can be an addition to support young and aspiring, but perhaps struggling musicians. And lastly, it is notable that the design outcome and the location could possibly has the power to attract a large number of visitors. However, It would have been a wise decision to relocate the project to a nearby site in order to avoid planning a building on the Pah site to respect its historical and cultural value.
7.0 BIBLIOGRAPHY


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Figure 6.9  Spatial experience through sound
Image by author

Figure 6.10  Section showing how soundscape in practice centre affects the user through the noise
Image by author

Figure 6.11  Exhibition space
Image by author
9.0 Design Outcome
Concept development