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# BUSINESS CENTER INDEPENDENT MUSICIANS

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UNDERGRADUATE THESIS PRESENTED BY RUSSELL PFAFF

# BUSINESS CENTER FOR INDEPENDENT MUSICIANS

A DESIGN THESIS SUBMITTED TO THE  
DEPARTMENT OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE  
OF NORTH DAKOTA STATE UNIVERSITY

BY

RUSSELL JOHN PFAFF

IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
BACHELOR OF ARCHITECTURE

## North Dakota State University Libraries Addendum

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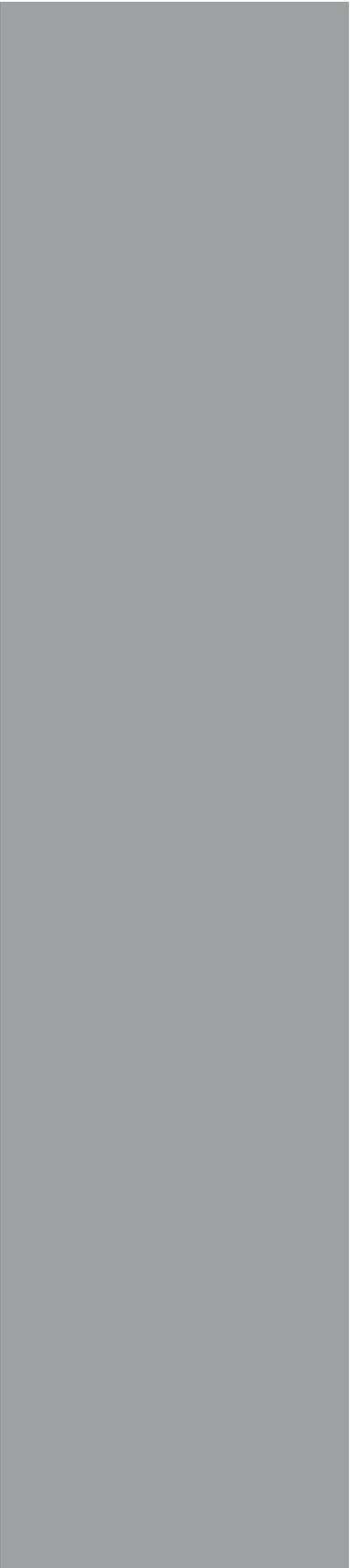
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# Introduction



# ABSTRACT

“In music, the meter, tempo and related rhythms are referred to as time. In architecture, there exists the idea of the fourth dimension. This theory suggests that architectural forms and spaces are experienced not just in terms of height, width and depth, but also as a sequence of events in time.”

This project will examine how music and architecture, two very different fields of study, have many distinct correlations. Specifically, the expression of rhythm as a visual design cue and a spatial organizational device will be investigated. Although the major program elements themselves are directly related to music, the design will be derived more from musical theories than architectural solutions to specific design problems. Another emphasis will be the infill of gaps in the urban fabric of downtown Fargo, particularly the area immediately to the east of North Dakota State University’s downtown campus, a site rich in history and potential.



# THEORETICAL BASIS

Since the main use of the Center will be to enhance the skills of musicians, rhythm will be a strong basis for design. Rhythm is a necessary component of most types of music. Music, in its most basic form is nothing more than a repeated pattern of sound. While it is possible to have music without a beat, it is very uncommon. In the same sense, architecture without rhythmical definition is possible, but the result couldn't be interesting. I will examine how rhythms can drive the development of spatial relationships and experiences.

In music, the meter, tempo and related rhythms are referred to as time. In architecture, there exists the idea of the fourth dimension. This theory suggests that architectural forms and spaces are experienced not just in terms of height, width and depth, but also as a sequence of events in time.

The idea of time is interpreted very differently between the disciplines of architecture and music. However, time is an integral part of both fields. I will concentrate on bringing these two related but very diverse concepts together in my design. I will examine how rhythms are overlapped with increasing complexity to form a polyrhythm which is then combined with others to create music that may sound simple, but is actually very complicated. My design will demonstrate how rhythm, the most basic musical component, can be interpreted as not only a visual design component, but also as a space defining element, and ultimately a sequence of architectural experiences.



# PROJECT JUSTIFICATION

The music scene in Fargo is growing at an amazing rate. This is due in part to the help of local radio stations, Universities and programs such as “Third Thursday” and open jam nights. Unfortunately, the number of venues for independent bands is not growing as fast. Some crucial venues have even been torn down recently. There is also a complete lack of professional recording studios in the area. In order to keep the creative energy on the rise, Fargo needs to nurture the budding local artists and help them get out of the garage and into the studio.



# PROJECT EMPHASIS

Many words used in music are also used in architecture. I don't think it is a coincidence that music and architecture can both be melodic, harmonious, rhythmic, progressive, timeless and classical. The main emphasis in this design will be placed on the expression of musical theories as architectural elements such as space, form and texture. This will be accomplished by studying the way music is created and applying that method to the design of architectural space.

The importance preserving an urban cultural center will be another point of emphasis. Fargo and West Fargo are growing extremely quickly at their borders. Unfortunately, the heart of the city is suffering due to the outward migration of people and commerce. By choosing a site in the middle of the downtown area, I will help prevent urban sprawl, and promote pedestrian traffic and street level business. The site I have chosen used to be the home of a coal-fired power plant that powered buildings in a large area of what is now known as downtown. The project I'm proposing would serve a similar purpose, but instead of providing power, the Center will provide entertainment for the downtown area and beyond.



# Research Results



# THEORETICAL RESEARCH

Architecture and music are very firmly based on similar theories. My research has focused mainly on rhythm, form, harmony, and time. All of these are terms that are common in both architectural design and music composition.

## Rhythm

Rhythm can be defined as “movement characterized by a patterned repetition or alternation of formal elements or motifs in the same or a modified form”. Music without rhythm is chaotic, at best. Conversely, architecture without rhythm tends to be dull. Both fields require rhythm to promote interest, comfort and familiarity. Rhythm can be expressed architecturally by any number of elements the same way every musical instrument can be used to produce a rhythm. This leads one to believe that rhythm is a very important design factor which should be considered at every decision making point.

## Form

Form is defined as “the manner of arranging and coordinating the parts of a composition so as to produce a coherent image”. In architecture, form is either the outward expression of design decisions or the inward articulation of spaces, while in musical compositions form is the structure that leads a musician through the piece. Architecture is impossible without form, as even undesigned, vernacular structures have a form when finished. Music follows the same idea, since even if a song is as short as possible, it has a form. Every song has a beginning and an end, which is the most basic expression of musical form. Included in the expression of more complex musical forms is the idea of phrasing. Phrasing involves the subdivision of long lines of a melody into more sensical, manageable groups, much like the structure system of any building. In both architecture and music the structure or phrasing can define the form if the designer lets it.



## Harmony

Harmony is “the orderly, pleasing, or congruent arrangement of the elements or parts in an artistic whole”. Music and architecture are both possible without harmony, but without it, they are both lackluster. Excitement doesn’t necessarily come with complexity, but oversimplified compositions, both architectural and musical, tend to be boring. Likewise, the expressive elements of a building need not be complex to evoke good emotions. However, expressions of form should all be congruous. Harmony is what keeps all elements of a design in the same realm of expression, the same way it keeps all the notes in a certain phrase of music in the same key.

## Time

Architecturally, “we move in time through a sequence of spaces”. In music, time more closely relates to the accuracy of rhythms or the actual tempo of the composition. One could say in relation to music: “we move in time through a sequence of phrases”. Since, as I stated earlier, phrases are simply smaller bits of the whole design, or individual spaces. The musical definitions of time (rhythmic accuracy, tempo) are still relevant to architecture. An expression of architectural elements designed to have a rhythm must be designed with a certain level of accuracy for it to be successful in articulating the desired rhythm. Tempo can be used to regulate rhythms in architecture to either excite or relax the users and visitors.

## Composition

Composition is “the arranging of parts or elements into proper proportion or relation so as to form a unified whole”. It can also be described as the synthesis of rhythm, form, harmony and time. Composition represents the emotive expression of the theories behind both music and architecture. Each of these theories on its own is only one part of the larger complete expression. While it’s possible for rhythm, form, harmony and time to draw out emotions individually, it is when they are combined that the true feeling of the design, be it architectural or musical, becomes clear.



## Recording Studio

## General Construction Guidelines

### TYPOLOGICAL RESEARCH

Recording studios are inherently difficult to design simply because they are very specialized. Putting a studio in a mixed-use structure only complicates the design. Many steps need to be taken during the design phase to isolate the studio spaces both acoustically and physically from the rest of the building. This not only keeps the loud sounds created in the studio from escaping into the building and out into the surrounding environment, it prevents sounds created outside the studio from creeping in and potentially ruining a recording session. Following are some technical guidelines on how to accomplish this goal.

Sound transmission should be reduced as much as possible. This is done with the aid of dense massive materials and sound absorbing materials. Every construction material has a sound transmission class, or STC. The higher a material's STC, the less it transmits sound. Typically, divisions between studio spaces and other spaces should have an STC of 50 or higher. This is achieved through combining materials that have far lower STC ratings individually. For example: a one-half inch thick sheet of gypsum board has an STC of 28, but a 2x4 stud wall with two layers of gypsum board and a layer of heavy soundproof material on each side yields an STC of 45. The STC of a stud wall is increased even more if the layers of gypsum board and soundproofing material are separated from the studs by a resilient steel channel. Adding fiberglass insulation to the wall construction is helpful, as is doubling the wall by building two partition walls back to back with a one-inch space between corresponding studs. This will all be covered in more detail in the section entitled "wall construction".

Decoupling is another method of reducing sound transmis-

## Primary Construction

sion. Decoupling is simply eliminating the possibility for sound to be transferred mechanically through a wall, floor or ceiling. Common methods of decoupling include adding air space between two individual partitions, using resilient channels between layers of construction materials and floating a floor on some form of isolation hardware. These methods are all discussed in more detail in the sections called “floor construction” and “ceiling construction”.

There are many construction options available to the designer of a recording studio. These range from simply soundproofing a normally built 2x4 or 2x6 stud wall to building a ‘room within a room’. The ‘room within a room’ design is by far the best option for new construction, so it is the option I will develop here.

Building a ‘room within a room’ is the best choice because it physically separates studio spaces from the rest of the building. Since the interior room doesn’t make contact with any structural elements, no sound can be transmitted mechanically, and very little can be transmitted acoustically.

The room in which the isolated studio spaces will be constructed needs to be constructed slightly differently than it would be for normal spaces. Since the studio in my design will be in the basement, I will focus on the necessary steps to preparing a concrete wall for a room within a room design.

Concrete is a non-forgiving material when sound absorption is considered. In order to make the base room more hospitable for an enclosed studio, it is necessary to fir out from the finished concrete wall with some thickness of stud wall, and then install fiberglass insulation in the new, built out wall. Any wall sheathing should be left off to allow the insulation to absorb any sound that is transmitted into the space between the double partition walls. All joints between walls and floor should be sealed with soundproof sealing caulk.

## Floor Construction

In order for a room within a room design to be successful, everything needs to be as separated physically as possible. The first step in isolating the interior room is decoupling the room’s floor from the foundation. This is achieved through

## Interior Wall Constrcution

the use of a device that can be loaded with springs, or made of a rubber compound. These devices essentially act as shock absorbers, dampening any vibrations before they can be transmitted out of the room that is being isolated. Once the dampening devices are in place, the floor can be built-up as any other floor would be. Floor joists are laid out on the dampeners, insulation is placed between them, and then the subfloor is installed. The floor joists can be smaller than one would normally use since, because the joists are essentially sitting on the concrete floor, there is no effective span. Steps need to be taken to assure that the subfloor is impervious to sound. One rule of thumb is to alternate the direction of the long dimension of subfloor materials so that every other layer's seams are at ninety degrees to the one below it. Another step is to place a layer of soundboard between a layer of plywood below, and a layer of Medium Density Fiberboard above, to effectively seal every possible seam. All seams on every layer should be sealed with a soundproof caulk.

Floor coverings should be considered carefully. If carpet is to be installed, the thickest, most dense pad available should be used to help in sound absorption and decoupling. Wood flooring should be laid over an additional layer of soundboard, to decrease the transmission of sound through the floor system.

The walls of the recording and control room spaces are very specialized. A regular stud partition wall is constructed on the finished, isolated floor system. The wall is then insulated with fiberglass batting. The side of the partition wall facing the finished exterior wall is left open, allowing the fiberglass insulation to fully absorb any sound that is transmitted into the inside of the double wall. Resilient channel is attached horizontally to the studs at twenty inches on center. The channel serves as another decoupling device between the stud wall and the layers of sheathing. A layer of 5/8-inch gypsum board is attached to the steel channel, then a layer of soundboard followed by another layer of gypsum board. Again, all seams should be alternated and sealed with caulk. Before attaching any decorative baseboard, the gap between wall sheathing and flooring should be sealed as well.

## Ceiling Construction

The ceiling also needs to be isolated from the rest of the building. This is achieved by spanning the studio spaces only between the isolated interior walls. These joists should be a minimum of an inch below the floor joists of the floor above. Construction of the rest of the ceiling system is the same as the interior wall construction. The ceiling is insulated, and resilient channels are attached to the joists followed by a layer of gypsum board, a layer of soundboard and another layer of gypsum board. Again, all joints should be alternated and sealed.

## Doors

Since the decision to use a room within a room design has been made, doors become a problem. Attaching a door to each wall, interior and exterior is an acceptable solution, but not just any door will do. Exterior doors are the best choice, since they are already insulated. Attaching a layer of soundboard to the sides of the doors that will be facing each other is a good idea.

## Windows

Windows should be completely sealed. In a room within a room system, a single pane window in each wall yields the best results in sound isolation. The largest space possible should be left between the two panes of glass to allow for the natural dampening of sound produced by the air. Exterior windows should be avoided, if possible. If there is a need for an exterior window, it too should be doubled to avoid the transfer of sound to outside spaces. Glass block is also a good option since it is basically two pieces of glass surrounding a vacuum.

## HVAC Considerations

Heating and cooling systems pose a major problem since they need to penetrate all spaces to provide air circulation. If possible, all isolated spaces should be fed with air directly from the main trunk of the supply ducts. This allows for silencing at the end of each secondary supply duct instead of just a general silencer near the source of the noise. Connecting two rooms with one stem of the HVAC system is a situation to avoid at all cost. This situation leads to sound being transmitted easily from room to room. Where ducts pass through the space between double walls, they should be flexible to maintain decoupling. Air conditioning condensers should be the type that can be installed remotely, outside the building.

## DESIGN GUIDELINES

While it's a good idea to keep the recording rooms and the control room separate physically, there is an obvious need to have visual contact among recording engineers and musicians. This creates problems in devising a workable floor plan. The necessity of a window between the control room and the live room is one that drives the layout of the entire studio. These two rooms must be adjacent, or the studio simply won't work. Another problem is created by the nature of sound to reflect back and forth between parallel surfaces. Some reflection of sound is acceptable, but too much can easily ruin the space's acoustical character. Preventing these reflections, known as "standing waves", is accomplished by designing the live room without parallel walls. A standard value for calculating the angles of live room walls is multiples of twelve degrees. Purposefully designing the live room to be asymmetrical is also a good idea. The control room, on the other hand, needs to be designed to promote a symmetrical listening environment for the recording engineer, who is ultimately in charge of making the recordings sound correct. To propagate the symmetry of music recorded in stereo, the control room should be designed to be as symmetrical as possible, but still have no parallel walls. The ceiling should angle up away from the front wall at an angle of ten to fifteen degrees.

## RENAISSANCE ZONE GUIDELINES

### Vision

“Downtown Fargo’s Renaissance Zone is an economically vital, culturally rich mixed-use district where there are well-designed public and private spaces for residents, visitors, employees, and employers, and where an appreciation for the district’s historic character and natural amenities is paramount.”

### Goals

“Above all else, putting vitality back in the downtown means getting people to go there and to use it. It is imperative that we work together to make the downtown Renaissance Zone a place people not only need to go, but a place people want to go.”

### Guidelines

#### Activity Generators

Develop activity-generating enterprises along the Renaissance Zone’s major commercial corridors: Broadway/Roberts Street and NP/1st Avenues.

The addition of a restaurant/bar on the ground level of my proposed design will promote foot traffic throughout the day. A small outdoor performance area will also promote pedestrian traffic on and around the site.

#### Walkable Districts

Create “walkable districts” that integrate a wide range of activities and land uses, including cultural attractions; thus encouraging on-street activity and interaction while discouraging unnecessary auto traffic, parking problems, and congestion.

By choosing a downtown site and filling it in, I will be creating a more pedestrian-friendly environment, and a more walkable streetscape with fewer gaps in the collective façade.

## Ground Floor Uses

Reserve ground floor land uses to those that will encourage streets to come to life – shops, offices, cafes, restaurants and other “public” facilities.

The ground floor of my design will be devoted entirely to the restaurant and bar, as well as an outdoor space for performance or dining.

## Neighborhood Center

Make Broadway Fargo’s “Main Street” – a pedestrian-friendly, mixed-use magnet that anchors downtown neighborhoods. It is a natural neighborhood center because it is a connection between the MeritCare and Island Park areas, as well as between the west side and riverfront districts.

My design will be a place to work, play, perform, eat, drink, practice, and record. A very diverse group of people will visit the building every day, promoting intermingling of all who visit downtown Fargo.

## Transportation Issues

Manage downtown transportation, accessibility and parking issues in a manner that will allow for further commercial development and will make the entire area more user-friendly.

## Safe Streets – Safe Neighborhoods

Encourage safe streets and safe neighborhoods by relying on and utilizing the “natural surveillance” of lively and

active streets.

By allowing for outdoor performances on the site, my design will promote an active street situation.

### User Needs

Encourage projects that consider the needs of their users, in addition to the needs of downtown users in general.

My design will not only respond to the needs of its various users, but to the needs of the downtown community as a whole. By providing a plaza adjacent to that of NDSU downtown, I'll make a strong connection with existing public space, and allow for increased interaction among passers-by.

### The Place to Be

Make downtown the entertainment/cultural/recreational center of the city: "If you're looking for something to do – downtown is the place to be." Make downtown a key destination for visitors/conventioners and a key destination for residents.

Is there a better place to be than in a bar listening to a live band? If there is, I haven't yet found it. An upscale restaurant is also an important destination for visitors and residents of the downtown area.

### A Place Like No Other

Highlight the unique historic character of the Renaissance Zone by placing a high value on historic preservation and overall awareness of the history of the area.

My design will be aware of the historical fiber present in the Renaissance Zone, but will at the same time look forward.

## Spruce up the Area

Encourage artists to use place-based artwork to spruce up buildings and the entire area in a way that brings a sense of community pride and excitement to downtown Fargo.

The plaza between my design and NDSU downtown will be an ideal place for all types of art, from sculptural to musical, to be displayed.

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Design spaces, facilities and features that will attract people to the area both day and night, on weekdays and weekends, and during all seasons of the year.

## Connections and Coordination

Coordinate public and private efforts to ensure that projects enhance, rather than detract from the connectivity of the area. Strong connections between people, places and things to do are vital to creating a strong sense of community.

# Project Goals



## GOALS

This project is intended to provide a place for musicians to practice, create and perform music. My goals within that premise are to express architecture through the use of music theory, provide a nexus for Fargo's music scene, and do my part to help the downtown area.

### Expression

The expression of architecture through the use of music theory will be accomplished by studying the four points of music I've chosen to focus on: Rhythm, Form, Harmony and Time. By studying the correlation of these terms between architecture and music, and their relationships among themselves, I will discover ways of expressing music as sets of architectural elements.

### Nexus

Providing a nexus for Fargo's music scene will be accomplished simply by location in downtown. Much of Fargo's live music happens downtown, so placing what could be the center of the music scene there is an obvious choice. Also, it's necessary to fill in the gaps in the urban streetscape in that area. This location also provides pedestrian visibility, and easy access to the building for all types of transportation; public, personal, pedestrian or otherwise.

### Revitalization

Placing the project downtown also fulfills my desire to help with the reinvention of downtown Fargo. The reconstruction happening on Broadway and nearby cannot be ignored. The Old Broadway, Hotel Donaldson, and NDSU Downtown are all great examples of what can happen in the area if people are willing to help it along. A new building in the same vicinity could only expedite the process of revitalizing the downtown area.

# Historical Context



## Recording Studio

### HISTORICAL CONTEXT

The first recording of a human voice occurred on December 6, 1877. Thomas Edison recorded “Mary had a little lamb” on the first of his tinfoil cylinder recording devices. This was the match that started a fire that spread and eventually involved every aspect of entertainment. For any serious musical artist to be taken seriously in the professional music community, they need to have some form of recording of their work. Recordings are the key to a band getting gigs, getting signed, and they represent the band’s only hope of making any money, since without a recording of some kind, you have nothing to sell.

Historically, recording studios have been designed without a thought towards the people who would be using them. Studios are designed for sound quality first, and for human comfort last. Unfortunately, it’s people that use these spaces, and those people need to be as comfortable as possible to make music to the best of their ability.

“The recording studio might be one of the least pleasant of all human environments. A typical contemporary studio has no windows. The control room pretends to be air-conditioned, kept cool if only for the comfort of the equipment in it, and if it really works the powerful fans always seem to blow freezing cold air down the back of your neck. Our human environment is compromised in the same way as professional kitchens, which are often not air-conditioned, lest the food cool too quickly. There is a carefully controlled, claustrophobia inducing acoustic in both recording and monitoring areas. The control-room floor shape accommodates a row or two of chairs facing the monitor speakers, with perhaps a large sofa on the back wall the only concession to bodily comfort. Rarely is it possible to sit in a social group; orientation is always toward the speakers and

the industrial wasteland of the mixing console surface. At least one large black leather executive chair will pander to the presumed self-importance of the record producer, the person who hired the place on behalf of the record company that pays the bills. Surely this cannot be anyone's idea of a comfortable and productive work environment? How did this torture chamber evolve?"

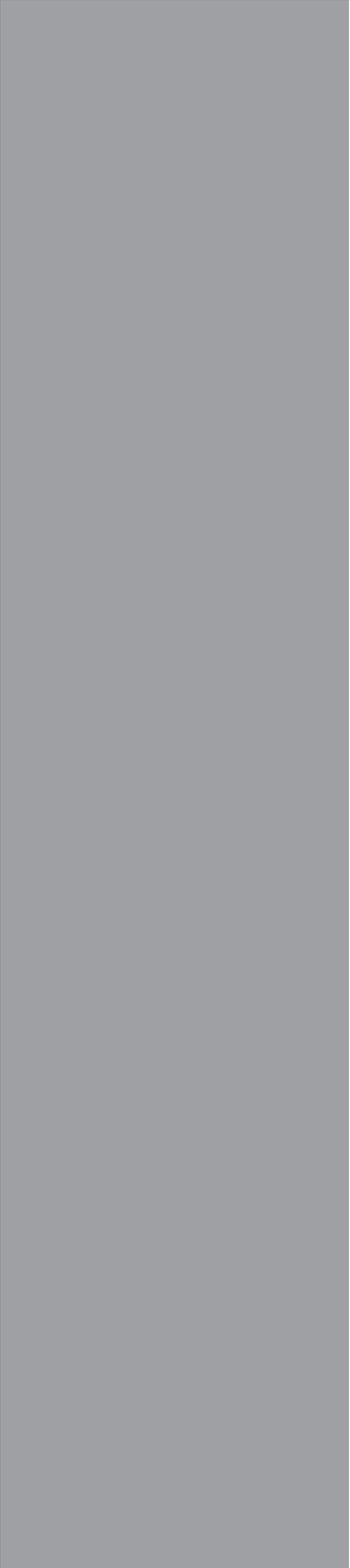
This excerpt taken from "Music in the Machine" paints a bleak picture of the lack of human oriented design that goes into a modern recording studio. It is slightly dramatic, but for the most part, it's accurate. Most recording studios built in the recent past are designed not for the end user, the recording artist, but for the perfect propagation of sound. There must be a suitable compromise between the perfect acoustical environment and the perfect human environment. My studio will strive to be more hospitable to musicians and sound engineers by designing for the human first, and the ear second. Of course, acoustics will still be considered, but the emphasis will be on human comfort. The studio is a place for people, after all.

## Site History

The site chosen for this program has a long and interesting history. The first structure to be built on the site was the Headquarters Hotel. The Headquarters Hotel was far more than just a hotel. It was a mixed-use building that served as the Northern Pacific train station, a restaurant, barber-shop, convention center and hotel. The hotel was built in 1872 and burned down in September of 1874. It was rebuilt shortly after with the addition of a third floor. One of the few buildings to survive the fire of 1893, the Headquarters Hotel finally burned down in 1897. At that point in the building's life, it had started to show signs of disrepair and wasn't really missed by the citizens of Fargo.

The site was left vacant until the Fargo Gas and Electric Company built a coal-fired power plant there. In 1903 Fargo Gas and Electric Company merged with Edison Electric to form the Union Light Heat and Power Company, who in 1907 updated the power plant. In 1916, and then again in 1925, the power plant was completely rebuilt. In 1938, a \$1 million investment allowed the plant to generate electricity exclusively from lignite coal. In the 40s the plant burned 75,000 tons of coal a year and supplied steam heat to 160 customers and gas service to 8000 customers in the area. It also provided electricity to 10,000 customers in Fargo and surrounding communities. The power plant was demolished in the early 70s and the site has been a parking lot since.

# Site Issues



## SITE ISSUES

Downtown Fargo is in the middle of an extensive regeneration process. The formation of the renaissance zone and allocation of funds for historical building façade restoration have made it possible for many building owners to return their structures to their original condition and appearance. To turn my back on this movement by choosing a suburban site would be undeniably wrong. Not only would I be ignoring the wonderful conditions that exist downtown, but I would be contributing to the problem that resulted in neglected buildings and ultimately to the need for renovation in the first place: urban sprawl. The most basic solution to this ever-increasing problem is to build in the center of the city instead of the edge. This is exactly what I plan to do.

The site I have chosen lies between NDSU Downtown and The Old Broadway building on the south side of NP Avenue. This area is currently a large parking lot. While there is a need for a nominal amount of parking in the downtown area, there are better solutions than paving a row of empty lots. The downtown area of Fargo would benefit greatly by ‘filling the gaps’ in the urban fabric by removing these kinds of parking lots and replacing them with multi-level parking structures which could be located on the periphery of downtown. While my program will come far from filling the entire site, it is my hope that by building there, other designers would follow suit and suggest to their respective clients that downtown is the right place for their development.

## Physical Context

The site is surrounded on all sides by development. To the west is NDSU downtown, to the north is N.P. Avenue and its 600 block, to the east is a parking lot and Old Broadway, and to the south is the Northern Pacific depot. The chosen site has no buildings immediately adjacent to it.

## Buildability

The site is currently a parking lot, and has been developed in the immediate past. The site has proven to be suitable for development.

## Views

Since the site is free of adjacent structures, views to and from the proposed design will be unobstructed in all directions. Although none of the views from the building could be considered excellent, the only view that is offensive at all is to the east, looking at the alley behind the businesses that face Broadway. The view to the south is basically unobstructed all the way to Island Park. To the west, the site overlooks NDSU downtown's plaza, and to the north, the site offers a view of a row of businesses. An opportunity exists to make three or more sides of the building iconic and expressive.

## Sustainability

The current condition of the site as a parking lot can only be improved. There is an opportunity to increase the permeability of the area by adding some green space and reducing paved area. Sustainable design is something that has been ignored in urban construction in Fargo. There is an opportunity with this site to have a large solar gain from the south, since the southern façade will always be open to the sun.

## Weather

Wind is typically from the north in the winter and from the south in the summer. Since the main access to the site is from the north, some site planning steps will need to be taken to shield the building, and its visitors from the elements.

## Noise

Noise on the site is substantial. The train tracks to the south play host to approximately eighty trains a day, and the street to the north is busy through much of the day and night. A vegetation wall to the south will help reduce the noise from the incessant train traffic.

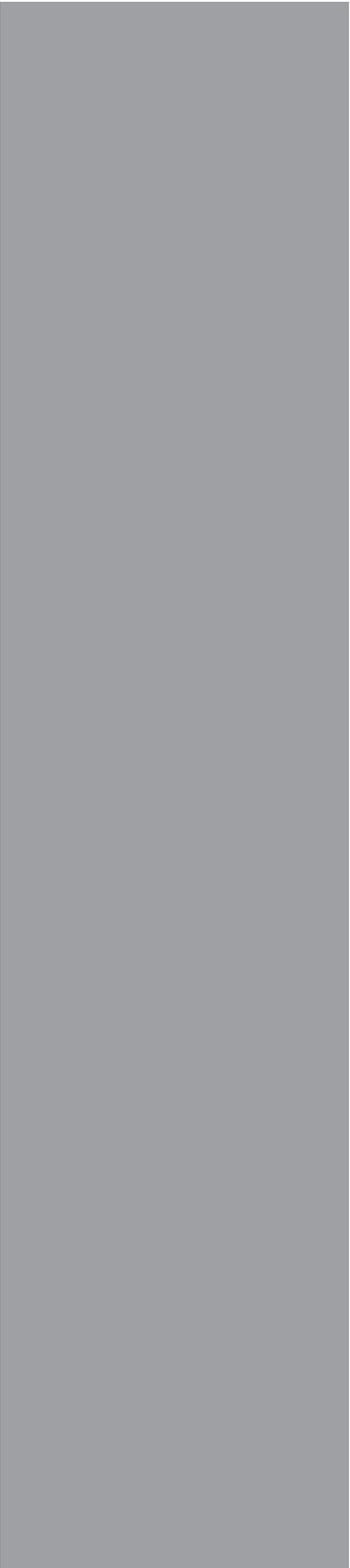
## Development

Development to the west or north is impossible. Development to the east would block views from the building, and reduce the sun's access to that side. Both of these negatives would be outweighed by the positive impact that filling in the large gap on the 600 block of N.P. Avenue would have on the downtown area as a whole. My design will allow for development to the immediate east. Development to the south, however unlikely, would pose a greater problem. Since most of the sunlight in Fargo comes from the south, a building immediately south of the proposed design would be detrimental to any solar gain.

## Solar Exposure

Barring any future development, the site has significant solar exposure from the southeast to the southwest. During early winter mornings and late winter evenings, the site is shrouded in shadows cast by the Old Broadway and NDSU respectively. There are no shadows on the site from the south

# Site Analysis



# SITE ANALYSIS

## Context



figure 1

This aerial photo shows the site in its context. The Red River of the North lies to the east, and Island Park is to the south. This image shows the proximity of the site to the rail tracks and NP Avenue. Both of these right of ways are major sources of noise from heavy traffic.

## Noise



figure 2

The right of ways shown highlighted in red are major sources of noise from heavy traffic. Specifically, the railroad tracks are a serious issue. On an average day, this track serves eighty trains. Each train is required to blow their horn at each crossing. Some sort of barrier, either structural or vegetative will need to be installed between the finished building and these tracks.

## Views of the site

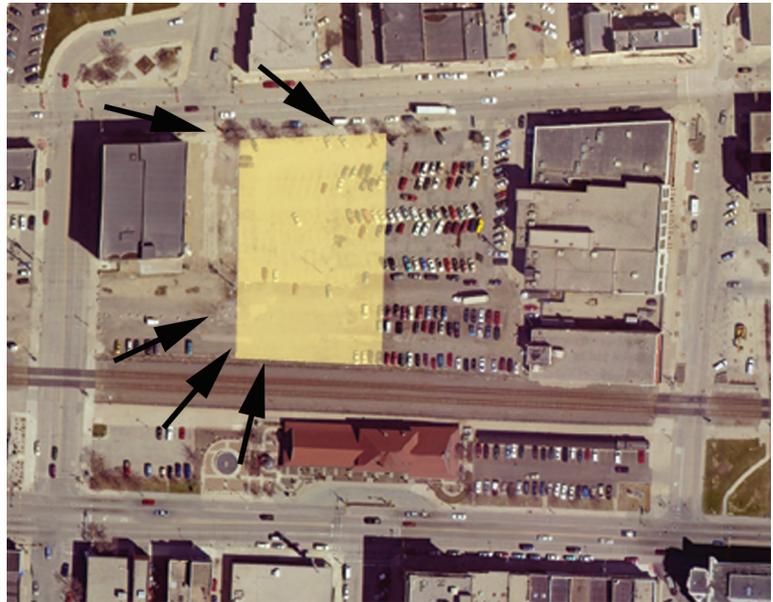


figure 3

The black arrows show unobstructed views of the site. These are areas of the building that will need special aesthetic attention.

## Service access



figure 4

The blue area shows the area of the site to be developed as a service access. This will keep loading and unloading traffic off of busy NP Avenue. It will also drive the space planning for the stage, loading dock, freight elevator and bar, since these are the spaces that will be reached through the service access.

## Green spaces



figure 5

This graphic shows the areas to be developed as public green spaces. This design will mirror the space that NDSU has provided for a plaza, ultimately doubling it. A strip of green will be installed along the north side of the building as well, providing an inviting streetscape while simultaneously humanizing the scale.

## Staff / Visitor parking



figure 6

The blue area above will be reserved for staff parking to minimize the impact to the already restrictive on street parking situation. There will also be room here for a number of bands to safely store their band vehicles between shows.

# Solar Access

Summer morning  
9:00 am



figure 8

Summer evening  
5:00 pm



figure 9

Winter morning  
9:00 am



figure 10

Winter evening  
5:00 pm



figure 11

## Inclimate Weather

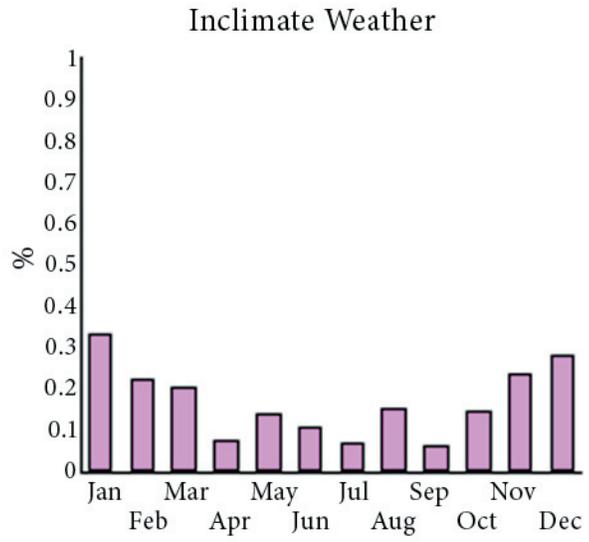


figure 12

## Precipitation

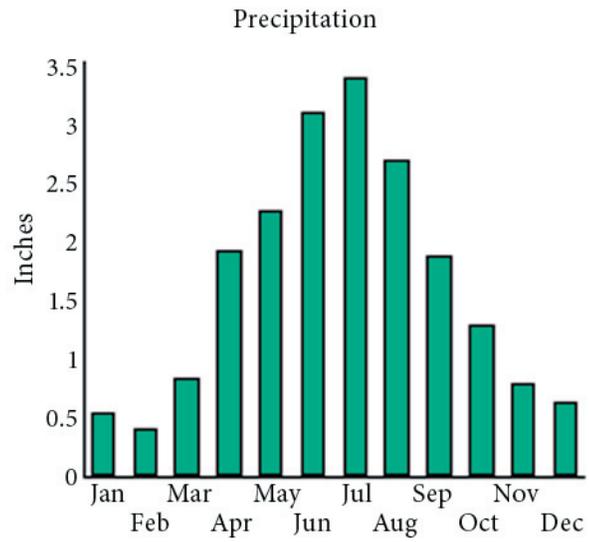


figure 13

## Average Temperatures

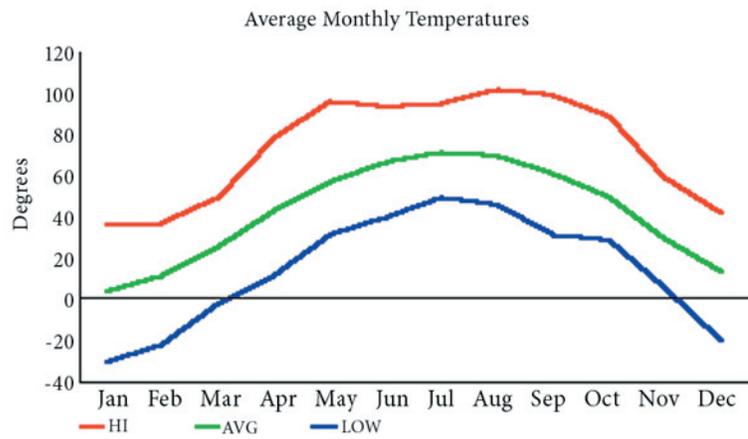


figure 14

## Average Wind Speeds

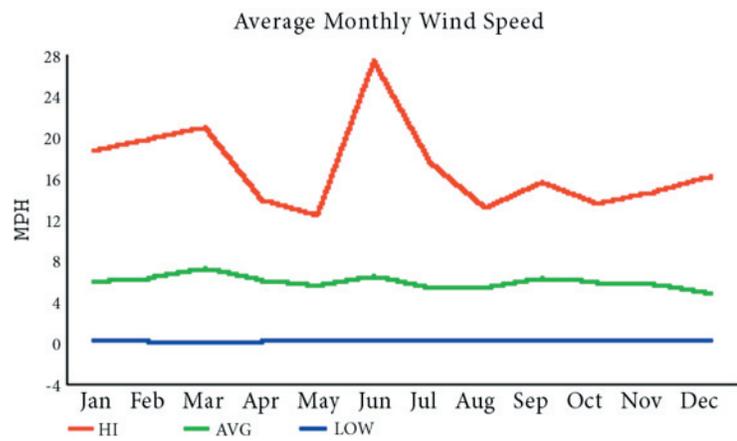


figure 15

# Wind Roses

Winter

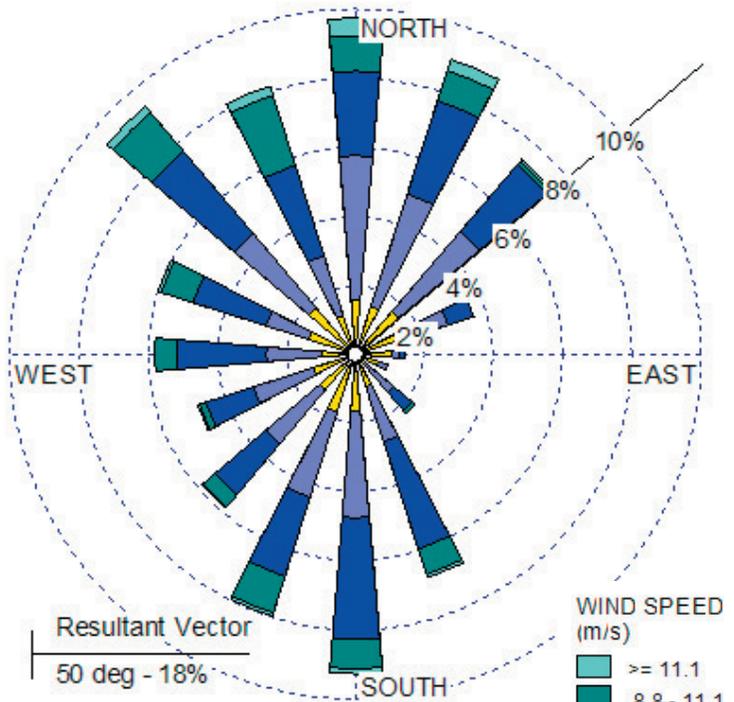


figure 16

Spring

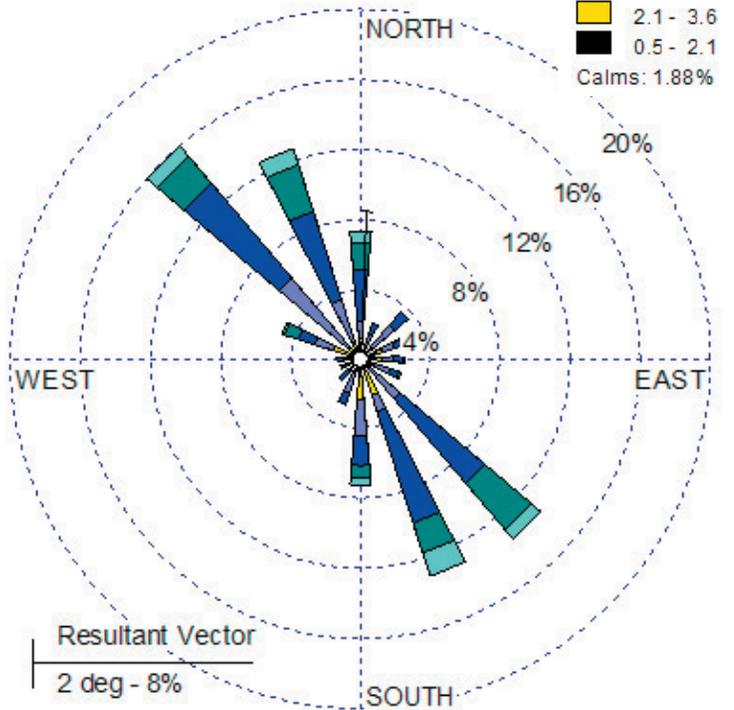


figure 17

Summer

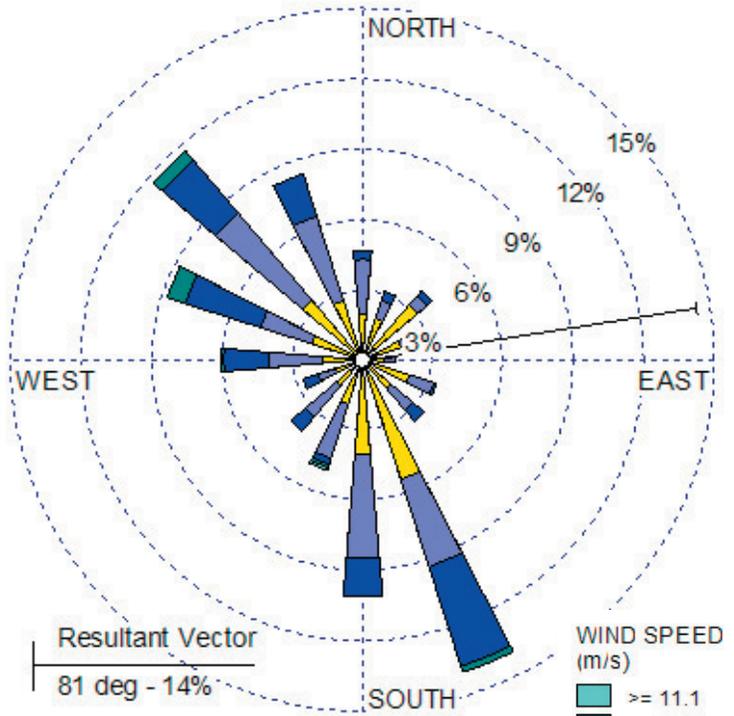


figure 18

Fall

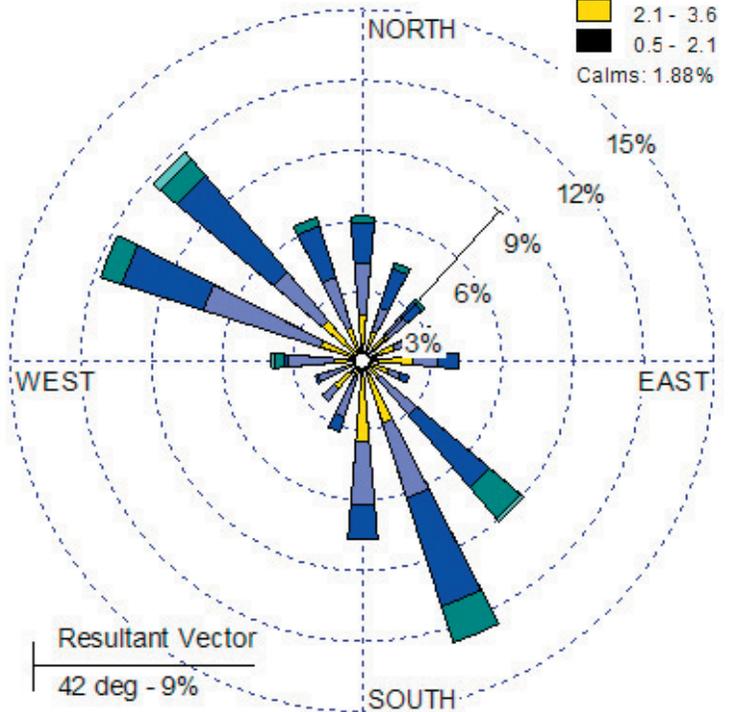


figure 19

# Space Allocation



## Space Studio Control Room

### Quantitative

Area: 400 sf

Occupancy: 5

Description: The control room serves as the nerve center for the recording studio. It acts as the center point from which musicians have access to the studio's lounge or the live room and isolation booths.

### Technical

- Acoustic isolation and decoupling
- Silenced HVAC
- Separate, capable source of AC power
- Sound dampening materials on the walls and ceiling
- Non-rectilinear, but symmetrical design

### Qualitative

The control room should be inviting and comfortable, but still be an environment that allows the engineer to work effectively. The desk and console should be well lit. Seating should be comfortable and large enough to seat everyone in whatever group is recording.

## Space Live Room 2 / Studio B

**Quantitative** Area: 400 sf

Occupancy: 10

Description: Studio B is more of an informal, smaller live room for quick setup and teardown situations like demos or single track recordings. Usually something to be avoided in live room design, the rectilinear shape of this room will add a unique sound to any recording made here.

- Technical**
- Acoustic isolation and decoupling
  - Silenced HVAC
  - Separate, capable source of AC power
  - Sound dampening materials on the walls and ceiling
  - Adjustable lighting
  - Air exchange at a higher than normal rate
  - Audio connection with the control room, for talk back

**Qualitative**

## Space Live Room

**Quantitative** Area: 600 sf

Occupancy: 15

Description: The live room is the main room in which music is recorded. It needs to have direct access to the control room, and the isolation booths. The live room should also have unobstructed access to the freight elevator to aid in loading in and out.

- Technical**
- Acoustic isolation and decoupling
  - Silenced HVAC
  - Separate, capable source of AC power
  - Sound dampening materials on the walls and ceiling
  - Non-rectilinear, asymmetrical design
  - Adjustable lighting
  - Air exchange at a higher than normal rate
  - Audio connection with the control room, for talk back

**Qualitative** The live room needs to sound good before all else. It should also be an open space that can accommodate any group of musicians up to a certain size. The lighting should be adjustable in order to set the mood to whatever the musicians require. Colors should be subdued, but still lively.

**Space** Isolation booths (2)

**Quantitative** Area: 80 sf each

Occupancy: 1 each

Description: Isolation booths separate instruments that tend to “bleed” into the mix. One isolation booth is for the drums, the other is for vocalists. The vocal isolation room is necessary to provide warmth in the vocal tracks.

**Technical**

- Acoustic isolation and decoupling
- Silenced HVAC
- Variable sound dampening materials
- Direct sight line with the control room window(s)
- Audio connection with the control room, for talk back

**Qualitative**

Isolation rooms, when treated incorrectly, tend to feel like prison cells. At least one wall of the booth should be transparent, if possible. At minimum, the door should be glass.

## Space Lounge / Kitchenette

### Quantitative

Area: 120 sf

Occupancy: 6

Description: The studio's lounge is a place for recording artists to take a break from the discomfort that the studio provides. The kitchenette provides a place to chill beverages, or microwave a snack.

### Technical

- TV, DVD, video games, stereo system, etc.
- Couches, chairs, table
- Internet access
- Refrigerator, microwave, etc.

### Qualitative

The lounge must be as inviting and comfortable as possible. It's not uncommon for musicians to work late into the night, so the lounge sometimes becomes a place to sleep. Providing something for musicians to do while they're not recording is essential. Watching television or a movie, playing video games or just listening to a CD can help a musician take his mind off the task at hand for a while.

**Space Rest room**

**Quantitative**

Area: 80 sf

Occupancy: 1

Description: The studio rest room should be close to the live room, lounge and control room. It should include a shower, toilet, urinal and sinks.

**Technical**

- Plumbing for fixtures
- Easy to clean materials

**Qualitative**

Since the goal of this studio is to maintain a comfortable, non-commercial atmosphere, even the rest rooms should be designed to that point. Materials and lighting should be warm and inviting, not sterile. The rest room should feel like it is in a house.

## Space Stage

### Quantitative

Area: 400 sf

Occupancy: 10

Description: The stage is the place where musicians perform. It will be adjacent to the dancefloor and serve as a focal point in the bar.

### Technical

- Sturdy, durable construction
- 220 volt electrical system
- Permanently installed sound system, with remote mix station and side stage monitor board
- Permanently installed light system
- Drum riser

### Qualitative

The stage is where bands are either made, or broken. Stages need to be rugged, and look like it. To change the atmosphere for smaller acoustic shows, the lights can be dimmed and the addition of rugs or candles to the stage makes a significant environmental difference.

**Space** Dance floor

**Quantitative** Area: 300 sf

Occupancy: 150

Description: Dance floors provide a space for people to stand or dance near the stage to watch a band or DJ. The dance floor can also be used for seating, either for a show, or for dining or a reception.

**Technical**

- Stage lighting (strobos, moonbeams, beacons, etc.)
- Durable flooring material

**Qualitative** The dance floor should be exciting and fun. Since the dance floor is basically a two-dimensional entity, excitement is implied with lighting and sound.

## Space Bar

### Quantitative

Area: 350 sf

Occupancy: 4 bartenders, 30 patrons

Description: The bar is where any alcoholic beverages are sold. It should be close enough to the stage and dancefloor so people won't have to miss the show to get a drink, but far enough away from the noise so no one has to yell to place an order. The bar should be adjacent to the coolers.

### Technical

- Plumbing for various sinks
- Specialized lighting
- Cash registers
- Coolers

### Qualitative

The bar needs to be an environment of its own. It should be slightly brighter than the seating areas around it. The bar should advertise itself as the place where people should go to get a drink.





**Space Storage**

**Quantitative** Area: 200 sf

Occupancy: N/A

Description: Coolers for the bar should be close to the loading dock to ease the process of unloading deliveries. Storage for dry goods should be in the same area.

**Technical** - Floor level, walk in coolers

**Qualitative** Storage areas need to be well-lit, dry and organized.



**Space** Rest rooms (mens, womens)

**Quantitative** Area: 2 @ 120 sf

Occupancy: 6 each

Description: Rest rooms in a restaraunt or bar are very important. The should be big enough to accommodate a few people at a time to prevent lines from forming.

**Technical** - Plumbing for toilets, sinks, etc.

**Qualitative** The restrooms in a bar or restaraunt are an oppourtunity to be expressive with design details. In a program this big, the only place the patrons will really ever interact with the building on a personal scale is in the rest rooms. They are a design oppourtunity not to be ignored. The quality of design in a rest room is sometimes interpreted as a sign of the level of attention to detail in the rest of the facility. Materials should be fine and construction needs to be very good.

## Space Rehearsal rooms

**Quantitative** Area: 4 @ 600 sf

Occupancy: 1 band each

Description: Every band needs a place to rehearse. Unfortunately, in a city that enforces a ten o'clock noise ordinance to a terrifying degree, it's tough to find an appropriate place to practice. These rooms will be available for bands to rent.

**Technical**

- Sufficient AC power for a full band
- Sound isolation and decoupling
- Internet access
- Controllable lighting
- Overhead door access to a large hallway and the freight elevator

**Qualitative** Rehearsal rooms need to be very adaptable to suit any type of band. They should be well-lit, open spaces with no obstructions. Each room should have enough power to supply everything a band would use on stage including amplifiers, and lights. Carpet should be rugged and low to allow for rolling equipment to be moved easily.

**Space** Rest rooms for rehearsal area

**Quantitative** Area: 150 sf

Occupancy: 3

Description: Since bands take breaks as a group, having a rest room big enough for more than one person is essential. A shower is also a nice option, since bands often rehearse at night, and don't always make it home before class or work. Each rehearsal room will include its own rest room.

**Technical** - Plumbing for toilet, urinal, sink and shower

**Qualitative** These rest rooms need not be anything to look at. They are simply there to support the rehearsal spaces and make the band's time in the rehearsal room as efficient as possible.

## Space Office (7)

**Quantitative** Area: 7 @ 120 sf

Occupancy: 1 each

Description: These are general offices for booking agents, and record executives. They should be close to the president's office, the conference room and the reception area.

**Technical**

- Internet access
- Connectivity with the receptionist
- Multiline phone system

**Qualitative** Offices need to be as inviting as possible to anybody who doesn't normally work in them. These offices will be visited daily by members of bands, or other musicians looking for someone with the necessary connections to get them the shows they need. Each office will have a desk, a desk chair and two guest chairs. The offices should be well lit, mainly with natural light from outside.

## Space Reception area / lobby

**Quantitative** Area: 150 sf

Occupancy: 1 receptionist, 4 guests

Description: The reception area is the place where guests needing to speak with a record executive or booking agent can wait until their appointed time. It is also where the receptionist fields phone calls, and handles general emails. The reception area should be adjacent to the conference room, copy room, listening room and rest rooms.

**Technical**

- Internet access
- Connectivity with offices
- Multiline phone system
- Refrigerated water dispenser

**Qualitative** Everything in the reception area should be inviting and friendly. The seating in the lobby area should be as comfortable as possible. The lobby should be well lit and have a view out of the building.

## Space Listening room

**Quantitative** Area: 170 sf

Occupancy: 12

Description: The listening room is a room where group of people can listen to a demo of a new prospect band, or hear the finished product of a band's work in the studio for the first time.

**Technical**

- Sound isolation and decoupling
- High quality stereo equipment
- Video projector and screen
- Acoustically designed, non-rectilinear, symmetrical

**Qualitative** This room should be relaxing. It should almost feel detached from the rest of the spaces. Dark colors and warm lighting should be used to enhance the isolated feeling of the listening room. Large, comfortable seats should be provided for executives and musicians

**Space** Conference room

**Quantitative** Area: 500 sf

Occupancy: 20

Description: The conference room is the main meeting room for both the record label and the booking agency. It should be near the reception area and lounge.

- Technical**
- Internet access
  - Connectivity with the receptionist
  - Multiline phone system
  - Video projector and screen
  - Audio equipment

**Qualitative** The conference room should resemble the lobby area in theme. A modern style with good lighting and inviting materials would be appropriate. Like the executive offices, the conference room should project an image of success by employing only the finest materials and furnishings. The visitors to the conference room should be impressed.

**Space Lounge / Kitchenette**

**Quantitative** Area: 130 sf

Occupancy: 7

Description: The employee lounge is a place for workers to take breaks, have lunch, or just get a glass of water.

**Technical**

- Refrigerator, microwave, toaster, etc.
- Television, radio

**Qualitative** The lounge should be comfortable, but not more comfortable than the offices. It should be a place to come to, get what is needed and leave, not a place to linger.

## Space Copy room

**Quantitative** Area: 130 sf

Occupancy: 2

Description: The copy room is a place for the copy machine, networked printers and a fax machine. It is also a room that can be used for storage of small amounts of printer paper, envelopes, and other items that are needed on a regular basis. The copy room will also house the network servers and other computer equipment.

**Technical**

- Copy machine
- Color and black and white printers
- Fax machine
- Network servers

**Qualitative** The copy room is a work oriented space so it should be well lit and utilitarian. There's no need for any creature comforts or nice materials.



**Space** Freight elevator

**Quantitative** Area: 50 sf

Occupancy: NA

Description: The freight elevator is basically a room that moves among floors. It will be used to move equipment down to the studio and up to the rehearsal rooms.

**Technical** - Elevator

**Qualitative** NA



**Space** Loading dock / receiving

**Quantitative** Area: 400 sf

Occupancy: NA

Description: The loading dock and receiving area are spaces that cross from inside to outside the building. The dock should be immediately adjacent to the freight elevator. The stage should be close to the receiving area.

**Technical** - Overhead door

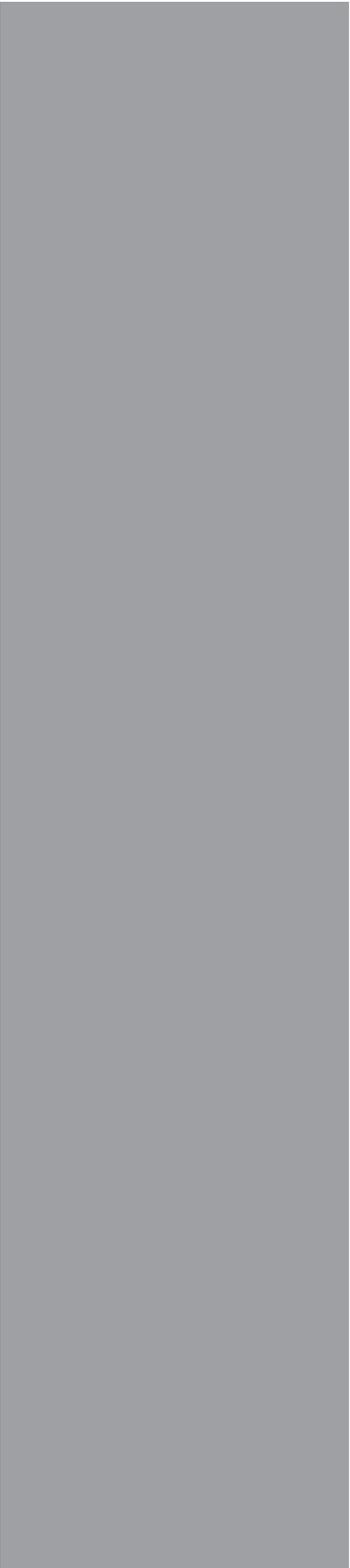
**Qualitative** The loading dock needs to be well lit, and organized well spatially. An inefficiently designed loading dock will only lead to lost time and money. The distance from the roll-up door to the freight elevator should be as short as possible.

# PROGRAMMATIC REQUIREMENTS

<b>Studio</b>	Control room	400 sf
	Live room	500 sf
	Vocal booth	80 sf
	Drum booth	80 sf
	Support spaces	-
	Lounge / Kitchenette	120 sf
	Rest room	50 sf
<b>Entertainment Complex</b>	Stage	400 sf
	Dance floor	300 sf
	Bar	350 sf
	Storage (coolers etc.)	-
	Rest rooms	2 @ 120 sf
<b>Rehearsal Spaces</b>	4 rooms	4 @ 600 sf
	Rest rooms	4 @ 50 sf
<b>Office</b>	<b>Booking agency</b>	
	4 offices	4 @ 120 sf
	Reception area	
	<b>Record label</b>	
	4 offices	4 @ 120 sf
	Reception area	
	<b>Shared</b>	
	Listening room	170 sf
	Conference/meeting room	500 sf
	Rest rooms	2 @ 50 sf
Lounge / Kitchenette	130 sf	
Copy room	130 sf	
<b>Support Spaces</b>	Freight elevator	50 sf
	Loading dock/receiving	450 sf
	Mechanical room(s)	% of total sf
	Circulation	% of total sf



# Case Studies



# HOTEL DONALDSON / HoDo

101 BROADWAY, FARGO ND



figure 20

The Hotel Donaldson has an intriguing street level demeanor. It is a fine example of what is possible within the constraints of the renaissance zone guidelines. The exterior, which takes note of the historical facade, but doesn't copy it, is brick and glass with exposed steel framing around the glazing. Because of the large amount of glass on the street level, it's easy to see what is going on inside, which is good because the HoDo is always busy.



figure 21

Inside the HoDo is a wonderfully appointed bar. The bar itself sweeps around the corner toward the south entrance, welcoming patrons at all doors. The materials and furnishings are modern, but somewhat timeless. Lighting is provided by low-voltage track lights arranged tactfully in key areas around the space. The north end of the room is occasionally reconfigured to accommodate small, acoustic or low volume electrified bands. The sound quality in the HoDo is surprisingly warm and crisp.

# HOUSE OF ROCK

PLAYMAKERS PAVILION, 2525 9TH AVE SW - FARGO, ND



figure 22

The House of Rock inside Playmakers Pavilion boasts an impressive sound and light system, a large dance floor and two full bars. Completed early in 2004, the House of Rock has quickly become the premier venue in the Fargo-Moorhead area. The sound and light system, responsible for one fifth of the one million dollar budget, has been permanently installed but is infinitely adjustable to suit any group that comes in. It is easily the most complete permanently installed system in the area. The equipment list on Playmakers' web site could be any sound engineers wish-list. The acoustics achieved in this space are surprisingly warm in spite of the large size. Materials were chosen to hinder wild reflections of sound. Nearly every surface is covered in some type of fabric. Seating options range from plush armchairs to bars stools, from near the dance floor to the far corner, to make everyone feel comfortable.



figure 23

Fargo architecture firm Shultz-Torgerson architects is responsible for the design of the House of Rock.



figure 24

Here is an example of the role that lighting can play in the perceived success of any band. The low, moody lighting creates the perfect atmosphere for a slow song. This same song, played to a fully lit dance floor would have an entirely different effect.



figure 25

A good sound system can impact a musician's playing. The house system at the House of Rock allows each band member to have his own monitor mix. This means that if the drummer wants the vocals loud in his monitor, but the guitar player doesn't want to hear the vocals at all, that's what they hear. Hearing what you want or need to hear is one of the most important factors in putting on a good live show.



figure 26

When the House of Rock isn't being rocked by a band, a DJ can operate the fully equipped booth. This booth features turntables, CD players, samplers and just about anything else a DJ could need to entertain a crowd. This is a good feature to have in any venue that is used even when a band isn't scheduled. It opens up more entertainment options and allows the bar's management to draw in different crowds.

# R & E SOUND STUDIO

1064 W ALCOTT AVE FERGUS FALLS, MN



figure 27

R & E Sound Studio is a small studio in the basement of a single family home. The design of the studio is simple, it includes a live room and a control room. The live room is large enough to allow an entire band to set up comfortably with enough room between musicians to properly isolate each instrument on the recording. To physically, and sonically change the size of the room, large movable panels can be arranged to create a temporary isolation booth for vocalists or other delicate tracks. Sound absorption is achieved by using a double wall construction and applying foam panels and other materials to the walls and ceiling. Even though the owner's kitchen is directly above the live room, all but the loudest sounds go unnoticed thanks to the double walls and ceiling. Materials chosen for the live room are cold and utilitarian. The lighting is bright and creates a harsh glare. Although the acoustics are quite good, it's not a comfortable room to be in for long periods of time, which is unfortunate because recording is a tedious process. My band spent over forty hours in this room.



figure 28



figure 29

The control room is larger than one would expect in such a simple design. The spaciousness is necessary since the studio offers no lounge spaces. The control room becomes the lounge, and sometimes even gets used as an impromptu isolation booth if two singers have a hard time harmonizing together. Several desk chairs arranged behind the engineer's console provide a place to relax between takes, and a large couch off to the side becomes a great place to nap during breaks.

# MARIN CIVIC CENTER

NORTH SAN PEDRO ROAD AT U.S. 101 SAN RAFAEL, CALIFORNIA

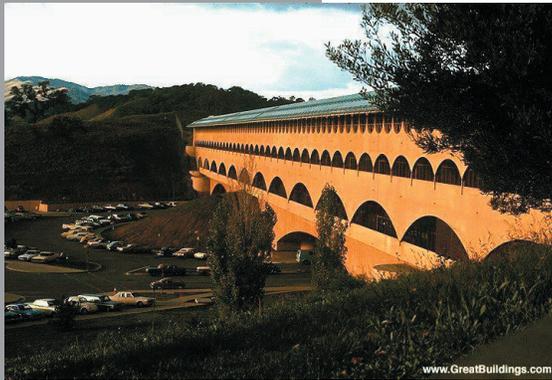


figure 30

“We will have [culture] only when we know what constitutes a good building and when we know that the good building is not one that hurts the landscape, but is one that makes the landscape more beautiful than it was before that building was built.”

-Frank Lloyd Wright

This building is probably the finest example of musical theory expressed physically as architecture. One can almost hear the rhythms being beat out by the facade. The three upper arcades fall into a 6:3:1 pattern that, if transcribed onto a drum chart, could be played as a jazz waltz. The larger arches even evoke a longer tone like that of a bass, while the upper arcades are more reminiscent of a snappier instrument like a snare drum, or cymbals.

The interior is equally harmonious. The rhythms created by the stacked walkways are more subtle, but still present. It's almost as if the building has a pulse, and that pulse is visible inside.



figure 31

# Appendices



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## STATEMENT OF INTENT

The music scene in Fargo is growing at an amazing rate. This is due in part to the help of local radio stations, Universities and programs such as “Third Thursday” and open jam nights. Unfortunately, the number of venues for independent bands is not growing as fast. Some crucial venues have even been torn down recently. There is also a complete lack of professional recording studios in the area. In order to keep the creative energy on the rise, Fargo needs to nurture the budding local artists and help them get out of the garage and into the studio.

I propose the design of a multi-use building that will include a full professional recording studio, a bar large enough to support a sizable live show, rehearsal rooms available for bands to rent, and enough office space to support a record label and a booking agency. The immense construction cost of the recording studio will be subsidized partially by the revenue generated by leasing the office floors and rehearsal rooms. The client for this project is a wealthy Fargo native who made a living in the music industry and wants to now make it easier for other Fargo based musicians to do the same. He also has an interest in maintaining the continuity of downtown Fargo and nurturing that area’s potential for an explosion of music. The site I have chosen to host this building is between the Old Broadway and NDSU Downtown, south of NP Avenue. This site is ideal because many establishments in that area already support local bands. Bars such as Lauerman’s, Billiards, The Sidestreet, The Empire, Veterans of Foreign Wars, The American Legion, The Moose Lodge and other businesses like coffee shops frequently have bands on stage. Many of those establishments have bands playing two or three times a week. The building I propose would not only add to this list, it would serve as a

nexus for the entire music industry in Fargo.

As a musician, specifically a drummer, I find rhythms especially intriguing. Rhythm will be the defining concept behind the design. I will examine how rhythms are overlapped with increasing complexity to form a polyrhythm which is then combined with others to create music that may sound simple, but is actually very complicated. I will then use these musical theories as a point of departure for the design. The fundamental principle of this design is that architectural forms and spaces can be generated by musical rhythm.

# PROPOSAL

## **Design Thesis Proposal**

*Center for Independent Music*

Presented by: Russell Pfaff

### **A. Title**

Center for Independent Music

### **B. Building Typology**

The building type of the Center for Independent Music will be a mixed-use urban infill building. The uses will include rehearsal, recording, and performance spaces for musicians as well as office spaces for various supporting staff. It will also house a bar and restaurant.

### **C. Theoretical Basis or Unifying Idea**

Since the main use of the Center will be to enhance the skills of musicians, rhythm will be a strong basis for design. Rhythm is a necessary component of most types of music. Music, in its most basic form is nothing more than a repeated pattern of sound. While it is possible to have music without a beat, it is very uncommon. In the same sense, architecture without rhythmical definition is possible, but the result couldn't be interesting. I will examine how rhythms can drive the development of spatial relationships and experiences.



In music, the meter, tempo and related rhythms are referred to as *time*. In architecture, there exists the idea of the fourth dimension. This theory suggests that architectural forms and spaces are experienced not just in terms of height, width and depth, but also as a sequence of events in *time*.

The idea of time is interpreted very differently between the disciplines of architecture and music. However, time is an integral part of both fields. I will concentrate on bringing these two related but very diverse concepts together in my design. I will examine how rhythms are overlapped with increasing complexity to form a polyrhythm which is then combined with others to create music that may sound simple, but is actually very complicated. My design will demonstrate how rhythm, the most basic musical component, can be interpreted as not only a visual design component, but also as a space defining element, and ultimately a sequence of architectural experiences.

## D. Project Justification

The music scene in Fargo is growing at an amazing rate. This is due in part to the help of local radio stations, Universities and programs such as “Third Thursday” and open jam nights. Unfortunately, the number of venues for independent bands is not growing as fast. Some crucial venues have even been torn down recently. There is also a complete lack of professional recording studios in the area. In order to keep the creative energy on the rise, Fargo needs to nurture the budding local artists and help them get out of the garage and into the studio.

## E. Emphasis

Many words used in music are also used in architecture. I don't think it is a coincidence that music and architecture can both be melodic, harmonious, rhythmic, progressive, timeless and classical. The main emphasis in this design will be placed on the expression of musical theories as architectural elements such as space, form and texture. This will be accomplished by studying the way music is created and applying that method to the design of architectural space.

The importance preserving an urban cultural center will be another point of emphasis. Fargo and West Fargo are growing extremely quickly at their borders. Unfortunately, the heart of the city is suffering due to the outward migration of people and commerce. By choosing a site in the middle of the downtown area, I will help prevent urban sprawl, and promote pedestrian traffic and street level business. The site I have chosen used to be the home of a coal-fired power plant that powered buildings in a large area of what is now known as downtown. The project I'm proposing would serve a similar purpose, but instead of providing power, the Center will provide entertainment for the downtown area and beyond.

## F. Site Information

Downtown Fargo is in the middle of an extensive regeneration process. The formation of the renaissance zone and allocation of funds for historical building façade restoration have made it possible for many building owners to return their structures to their original condition and appearance. To turn my back on this movement by choosing a suburban site would be undeniably wrong. Not only would I be ignoring the wonderful conditions that exist downtown, but I would

be contributing to the problem that resulted in neglected buildings and ultimately to the need for renovation in the first place: urban sprawl. The most basic solution to this ever-increasing problem is to build in the center of the city instead of the edge. This is exactly what I plan to do.

The site I have chosen lies between NDSU Downtown and The Old Broadway building on the south side of NP Avenue. This area is currently a large parking lot. While there is a need for a nominal amount of parking in the downtown area, there are better solutions than paving a row of empty lots. The downtown area of Fargo would benefit greatly by ‘filling the gaps’ in the urban fabric by removing these kinds of parking lots and replacing them with multi-level parking structures which could be located on the periphery of downtown. While my program will come far from filling the entire site, it is my hope that by building there, other designers would follow suit and suggest to their respective clients that downtown is the right place for their development.

## G. Major Project Elements

- Recording studio
- Bar / Restaurant
  - Stage
- Rehearsal Spaces
- Two individual office suites
- Outdoor spaces to be adjacent to the NDSU downtown plaza
- Restrooms
- Storage
- Mechanical
- Support spaces (freight elevator, special closets for audio equipment, etc.)

- Circulation spaces
- Loading dock
- Minimal off-street parking (Possible addition of a parking structure)

## H. User / Client Description

A variety of people will use the building on a daily basis. A staff will be required to run a booking agency. Another group of people will be employed to run an in-house record label. Some tasks, such as phone operation and public relations may be shared between the two offices. The bar and restaurant will employ a full wait staff including bartenders, servers and cooks. A managerial staff will be necessary to handle the day to day operation of the food and beverage service. An entirely separate group of employees will be needed to run the recording studio. This group of very specialized people will include engineers, producers and general technicians to operate the equipment. It would be possible, and very likely, for many of the clerical staff from both the record label and the booking agency to obtain the skills to run the studio. A janitorial and maintenance staff will work to keep the bar and restaurant clean.

In addition to employees, the building will also be frequented by musicians, either to rehearse, use the recording facilities, or perform in the bar. Access to the rehearsal spaces will need to be through a separate, secure entry to prevent bar patrons from wandering into private areas of the building.

The bar and restaurant will also be visited by local patrons on a daily basis.

## I. Design Methodology

Exploration of musical theories and how they can

be related to architecture will dominate the initial research phase. Once it becomes more clear which musical ideas are most related to architecture, more pointed research can take place. Case studies of successful recording studios and music venues will reveal how I can apply my desired conceptual theories.

Close examination of existing and historical site conditions will also play a role in preliminary design choices. Neither the history of the site, nor the current condition of the site can be ignored.

## **J. Realization of the Design Method in the Design Process**

The expression of music as architecture will be considered during every design decision, as will the underlying idea of time as an organizational element. Rhythms will be incorporated both as visual design cues and spatial organization patterns. Tenants, musicians, visitors and patrons will be comfortably inundated with the notion that music and architecture are two very parallel fields of thought.

## **K. Schedule of Work Plan**

### **Fall Semester 2004 – Research phase**

Week 1 (Oct. 4 – 8)

7 Thesis proposal due  
*Research and case studies*

Week 2 (Oct. 11 – 15)

14 Critic preference slips due  
*Research and case studies*  
*Gather site information and images*

Week 3 (Oct. 18 – 22)

21 Primary and secondary critics

announced  
*Research*  
*Start defining the program*

Week 4 (Oct. 25 – 29)  
28 Last day of AR/LA 561  
*Research*  
*Continue work on the program*

Week 5 (Nov. 1 – 5)  
*Research*  
*Continue work on the program*

Week 6 (Nov. 8 – 12)  
11 Veterans' Day Holiday  
*Work on draft of the program*  
*Research*

Week 7 (Nov. 15 – 19)  
15-19 Final week of AR/LA 571 design  
studio / presentations  
*Work on draft of the program*  
*Research*

Week 8 (Nov. 22 – 26)  
24 Draft of the program due to primary  
critic  
25-26 Thanksgiving Holiday  
*Gather site information*  
*Site inventory / analysis*

Week 9 (Nov. 29 – Dec 3)  
*Finalize the thesis program*

Week 10 (Dec. 6 – 10)  
*Finalize the thesis program*  
*Meet with critics to discuss changes to  
program*  
9 Final draft of thesis program due to  
primary critic  
10 Final day of classes

Week 11 (Dec. 13 – 17)  
Fall semester finals

Week 12 (Dec. 20 – 24)

*Read compiled research materials  
Begin to form conceptual design ideas*

Week 13 (Dec. 27 – 31)

*Research  
Develop further on concepts*

Week 14 (Jan. 3 – 7)

*Research  
Develop further on concepts*

### **Spring Semester 2005 – Design phase**

Week 15 (Jan. 10 – 14)

11 Classes begin  
*Identify site and program elements that may  
drive form*

Week 16 (Jan. 17 – 21)

17 Martin Luther King, Jr. Holiday  
*Begin to form loose design conclusions /  
alternatives*

Week 17 (Jan. 24 – 28)

*Represent 3-4 conceptual design alternatives  
graphically*

Week 18 (Jan. 31 – Feb. 4)

*Choose and develop one conceptual design*

Week 19 (Feb. 7 – 11)

*Solidify spatial arrangement*

Week 20 (Feb. 14 – 18)

*Study structure, circulation and aesthetic  
character*

Week 21 (Feb. 21 – 25)

21 President's Day Holiday  
*Materials, elevation studies  
Begin model work*

Week 22 (Feb. 28 – March 3)  
*Resolve wall sections, details, and materials*

Week 23 (March 7 – 11)  
Mid-semester project reviews  
*All main decisions have been made*

Week 24 (March 14 – 18)  
Spring Break  
*Finalize all design issues*

### **Packaging phase**

Week 25 (March 21 – 25)  
*Storyboard presentation boards*  
*Decide what drawings to include in final presentation*  
*Begin work on presentation drawings*

Week 26 (March 28 – April 1)  
*Continue work on presentation drawings*  
*Finish presentation model*

Week 27 (April 4 – 8)  
*Presentation drawings*

Week 28 (April 11 – 15)  
*Presentation drawings / board assembly*

Week 29 (April 18 – 22)  
*Finalize presentation drawings, boards and models*

### **Presentation phase**

Week 30 (April 25 – 29)  
25 Thesis projects due at 4:30 pm in MU ballroom  
26-27 Thesis projects on display in MU ballroom  
28 Thesis reviews begin  
29 Draft of Thesis document due to primary critics

Week 31 (May 2 – 6)

5 Last day for thesis reviews

6 Last day of classes

Week 32 (May 9 – 13)

Spring semester finals

12 Final Thesis document due at 4:30  
pm in the AR/LA office

13 Commencement at 4:00 pm in the  
Fargodome

## L. Documentation of the Design Process

The process of design will be documented through sketches, digital and hand drawings, digital and physical three dimensional models and verbal descriptions.

## M. Bibliography / Resources

### Books

Cavanaugh, W. J. & Wilkes, J. A. (1999).

*Architectural acoustics: Principles and practice.*

New York: John Wiley & Sons, Inc.

### Internet sites

A pictorial history of Fargo, North Dakota (n.d.)

Fargo, North Dakota: Its history and images.

Retrieved October 1, 2004, from <http://www.fargo-history.com/index.htm>

Aberdeen recording studios (October 4, 2004)

Retrieved October 4, 2004, from <http://www.aberdeenrecording.com>

## **N. Previous Studio Experience**

### **2<sup>nd</sup> year - Fall (Yergens)**

Form studies  
Dwelling wall  
Bistro - Fargo

### **2<sup>nd</sup> year - Spring (Hatlen)**

Pocket Park/Coffee Shop - Fargo  
Prairie Green – sustainable house  
College of Business Administration - NDSU  
Walking Bridge – design charette

### **3<sup>rd</sup> year - Fall (Elnahas)**

Aging in Place – Fargo  
NDSU Arboretum

### **3<sup>rd</sup> year - Spring (Martens)**

Fluid Motion Center  
NDSU Memorial Union

### **4<sup>th</sup> year – Fall (various)**

Urban Design – Fargo

### **4<sup>th</sup> year – Spring (Booker)**

Mixed use urban development – Moorhead  
San Francisco Highrise

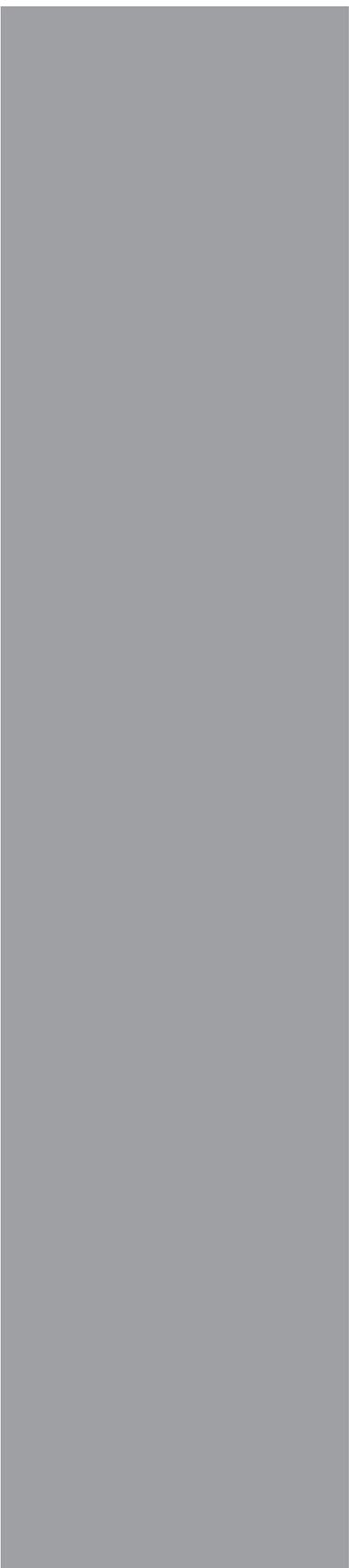
### **5<sup>th</sup> year – Fall (Martens)**

Valley City historical preservation

# TABLE OF FIGURES

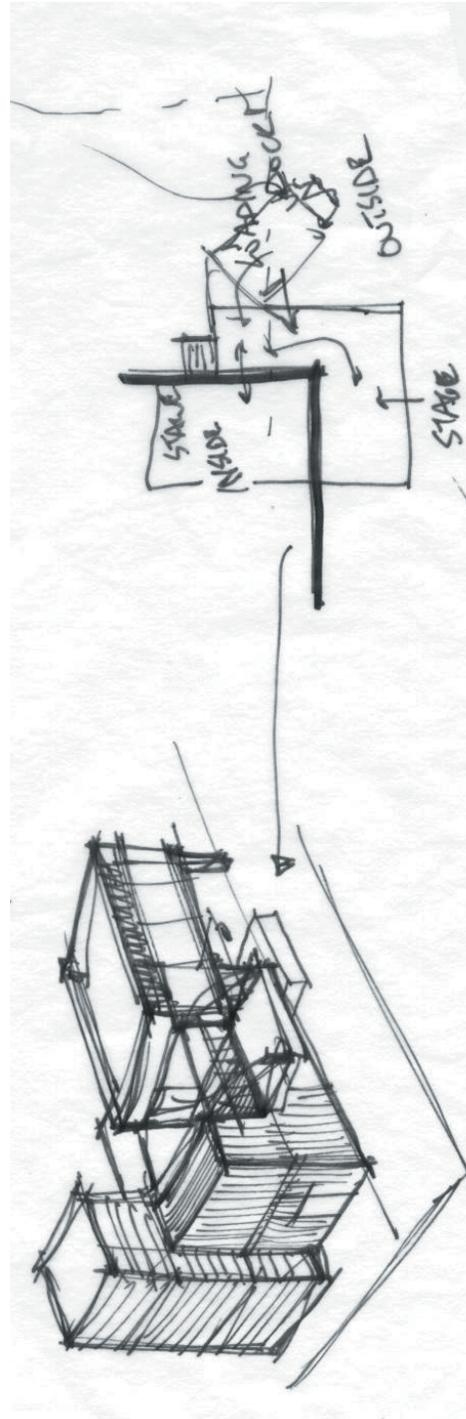
Figure 1 –	Site Overview
Figure 2 –	Noise Analysis
Figure 3 –	Views of the site
Figure 4 –	Service Access
Figure 5 –	Green Spaces
Figure 6 –	Staff / Visitor Parking
Figure 7 –	Solar Access
Figure 8 –	Solar Access
Figure 9 –	Solar Access
Figure 10 –	Solar Access
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Figure 14 –	Average Temperatures
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Figure 18 –	Summer Wind Rose
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Figure 22 –	House of Rock Seating
Figure 23 –	House of Rock Sound Booth
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Figure 25 –	House of Rock Stage
Figure 26 –	House of Rock DJ Booth
Figure 27 –	R & E Studios Live Room
Figure 28 –	R & E Studios Control Room 1
Figure 29 –	R & E Studios Control Room 2
Figure 30 –	Marin Civic Center Exterior
Figure 31 –	Marin Civic Center Interior

# Design Decisions

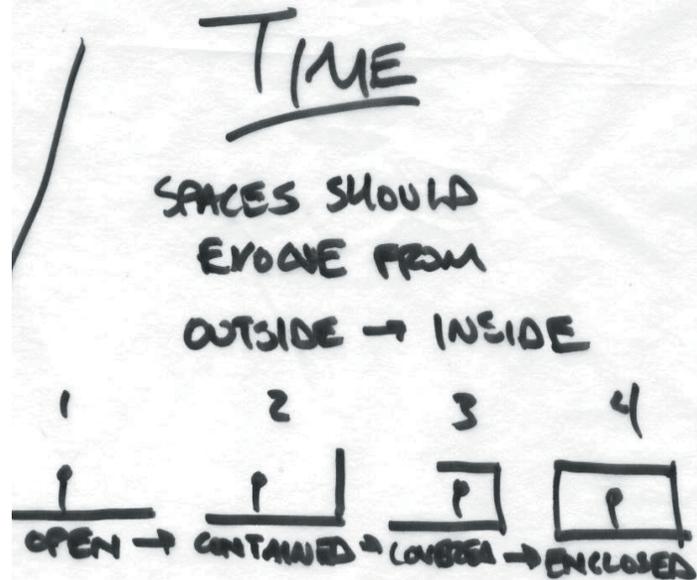


## CONCEPT AND PROCESS SKETCHES

Exterior  
organization  
concept



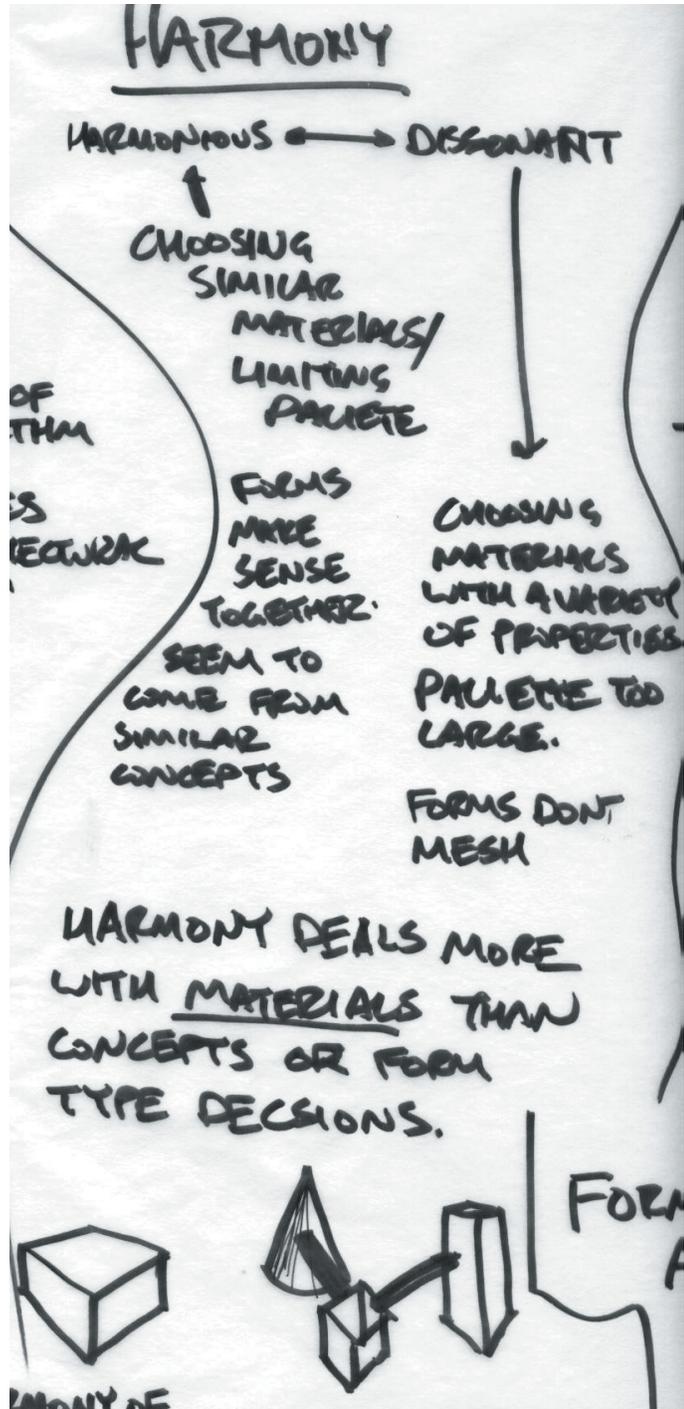
Architectural  
definition of  
time



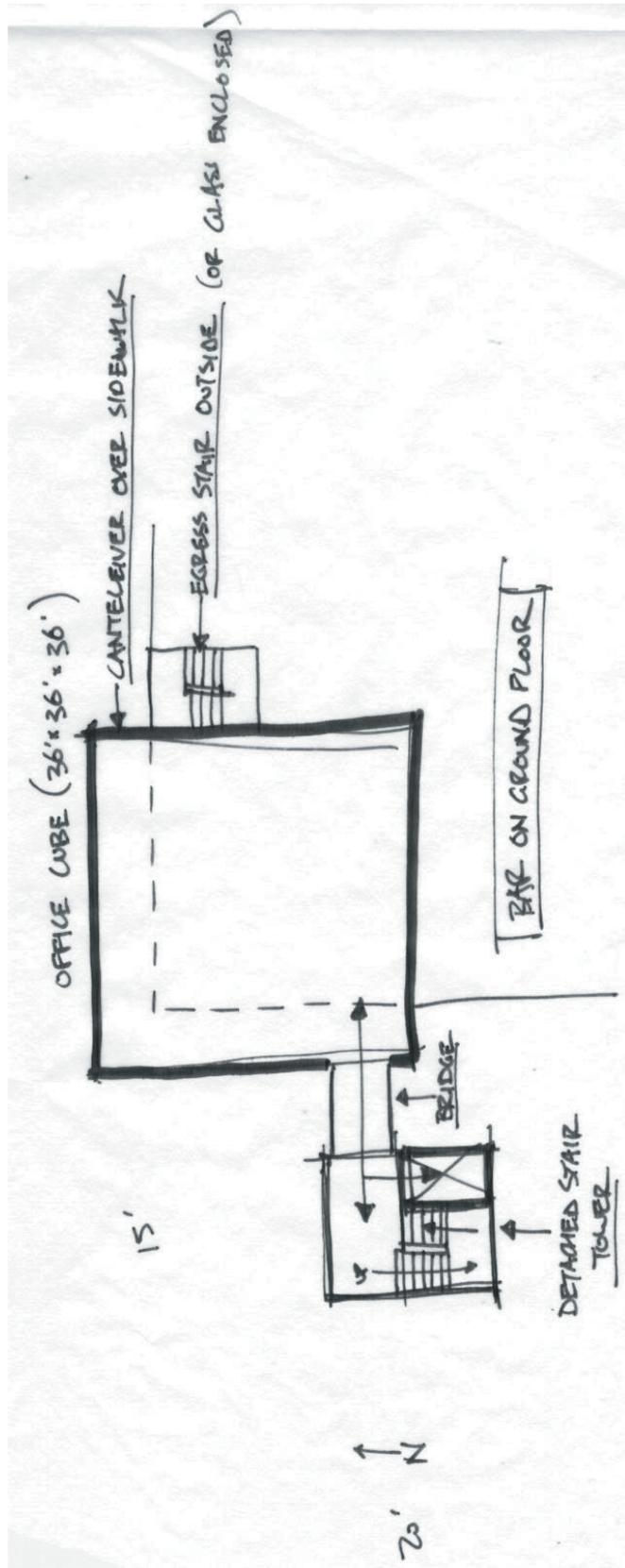
FURTHER ORGANIZES  
ARCHITECTURAL PHRASES (SETS OF FORMS)  
GOVERNED BY RHYTHM  
HAS POWER OVER FORM

FORM - RHYTHM AND TIME  
ARE INTERDEPENDANT

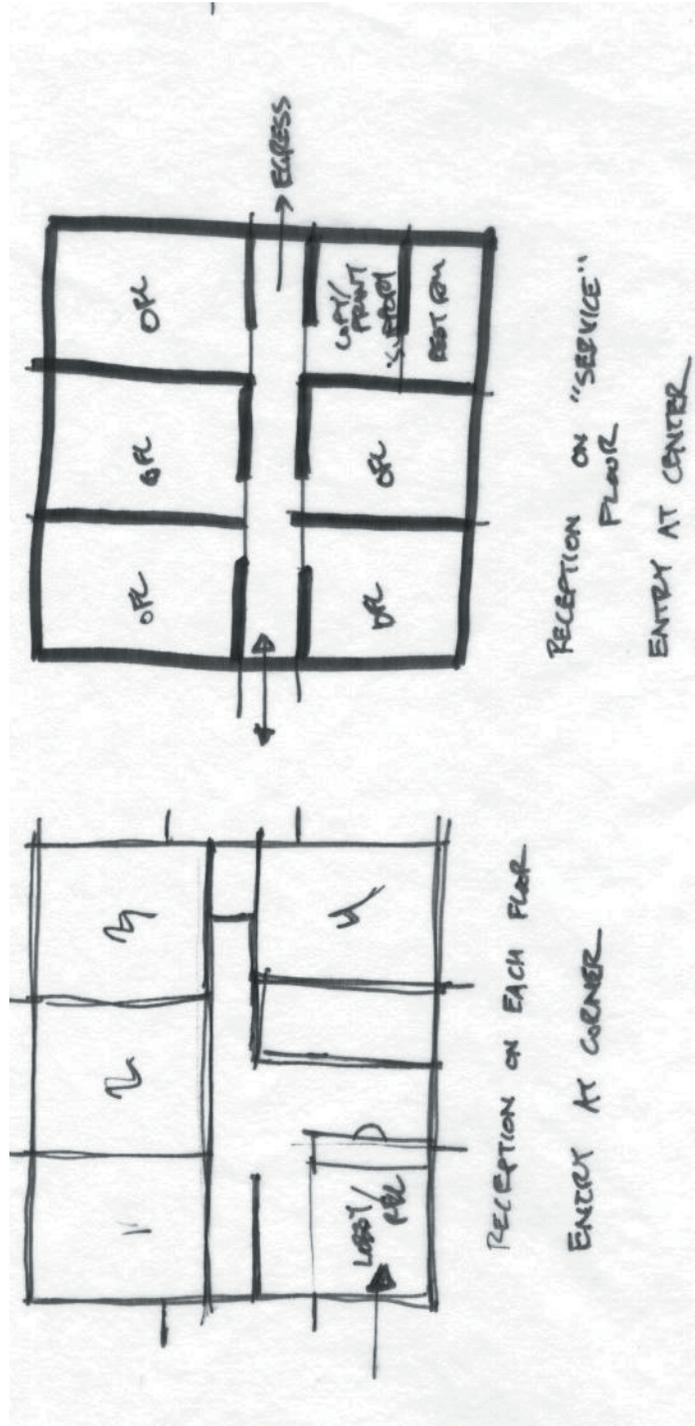
Architectural  
definition of  
harmony

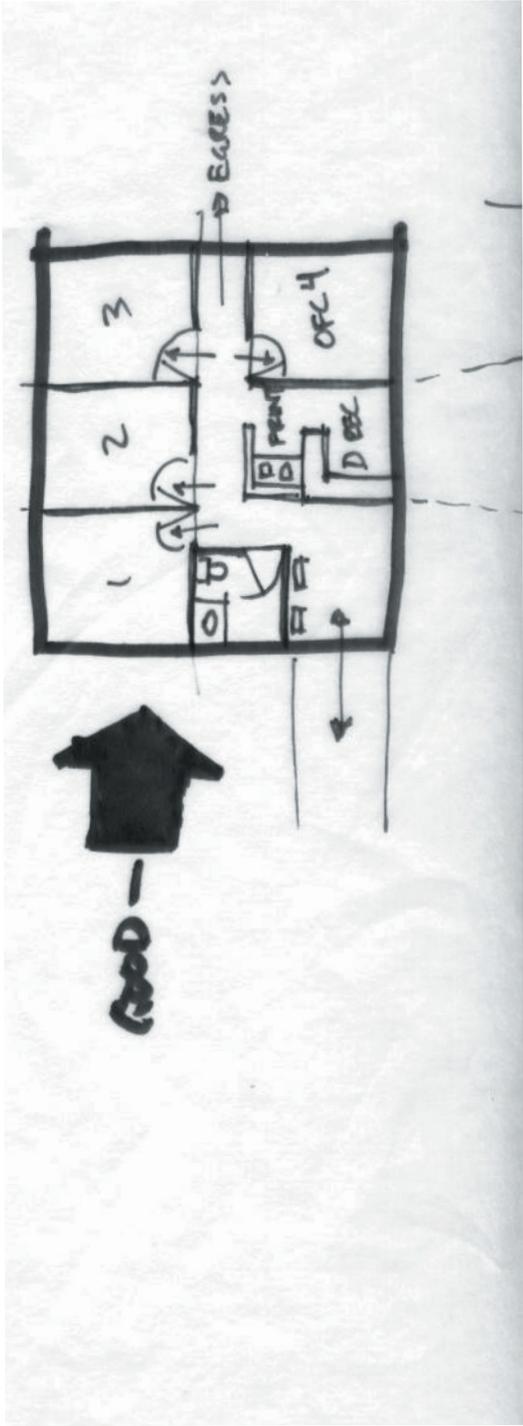


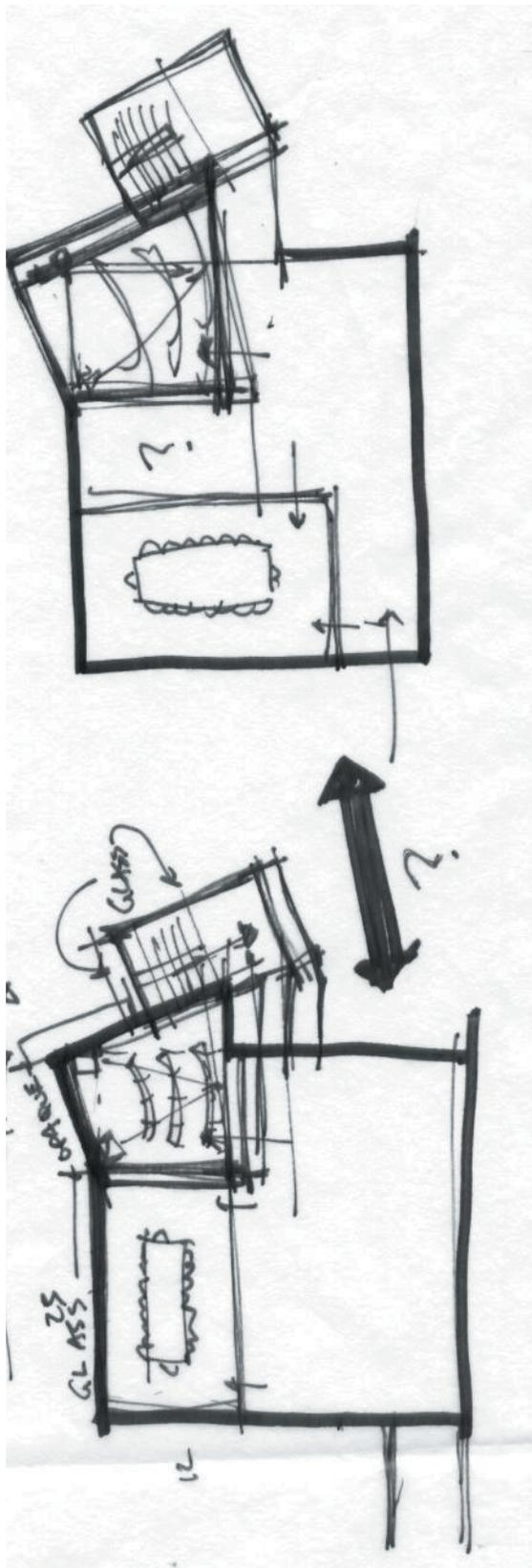
# Office "Cube" Concept



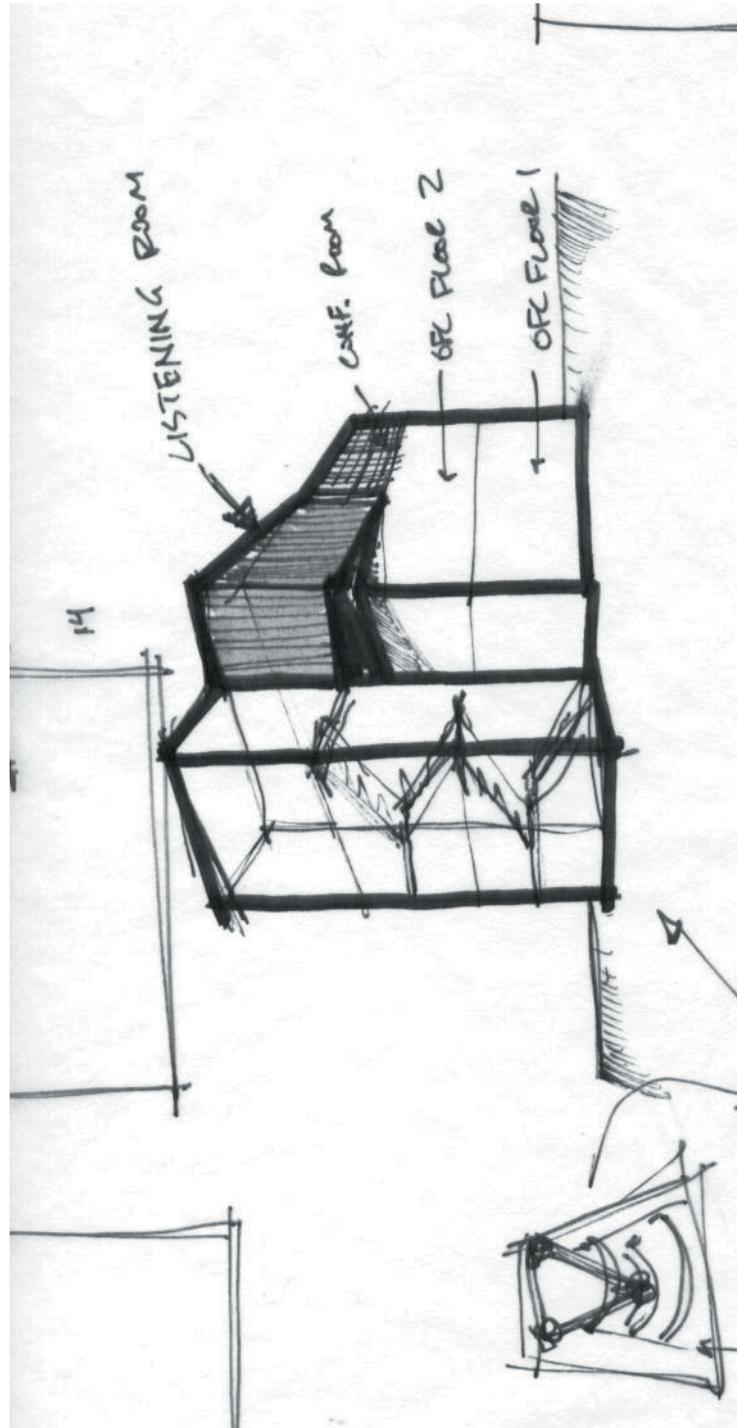
# Preliminary Office cube plans



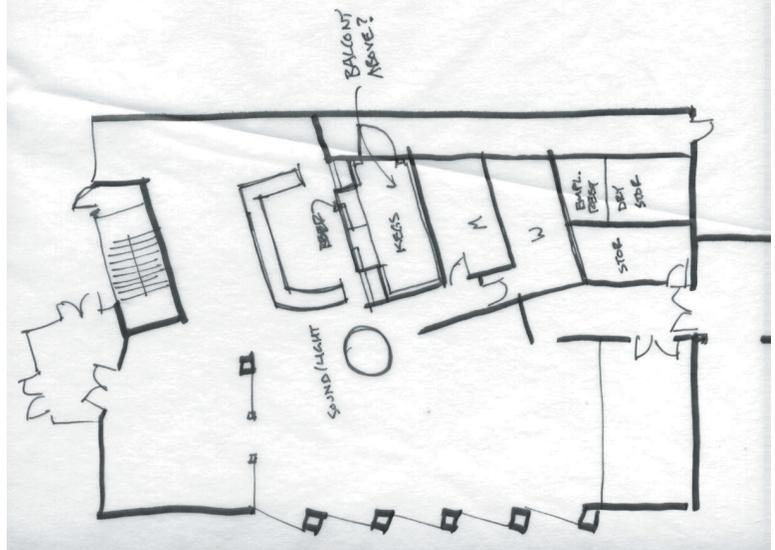
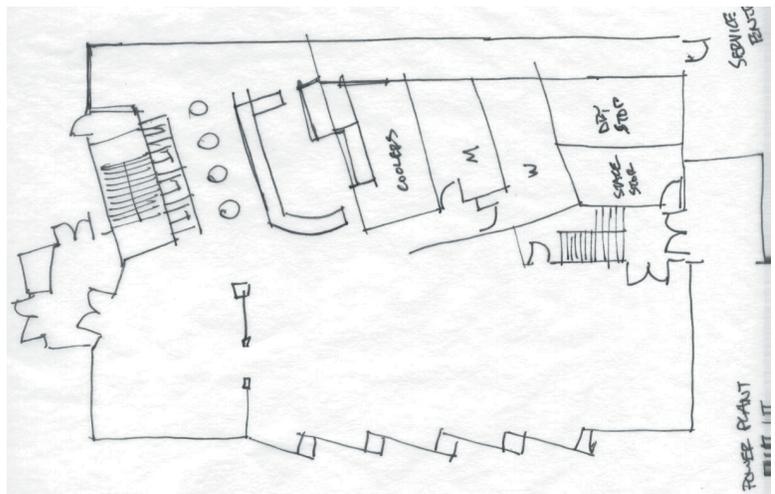
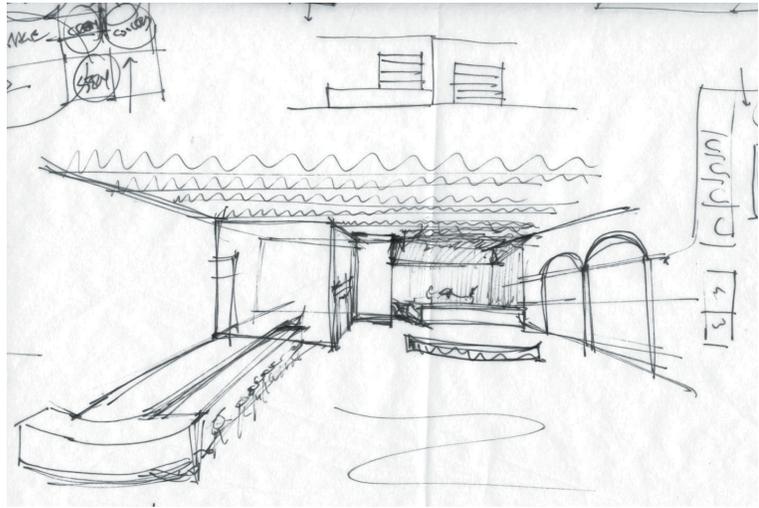




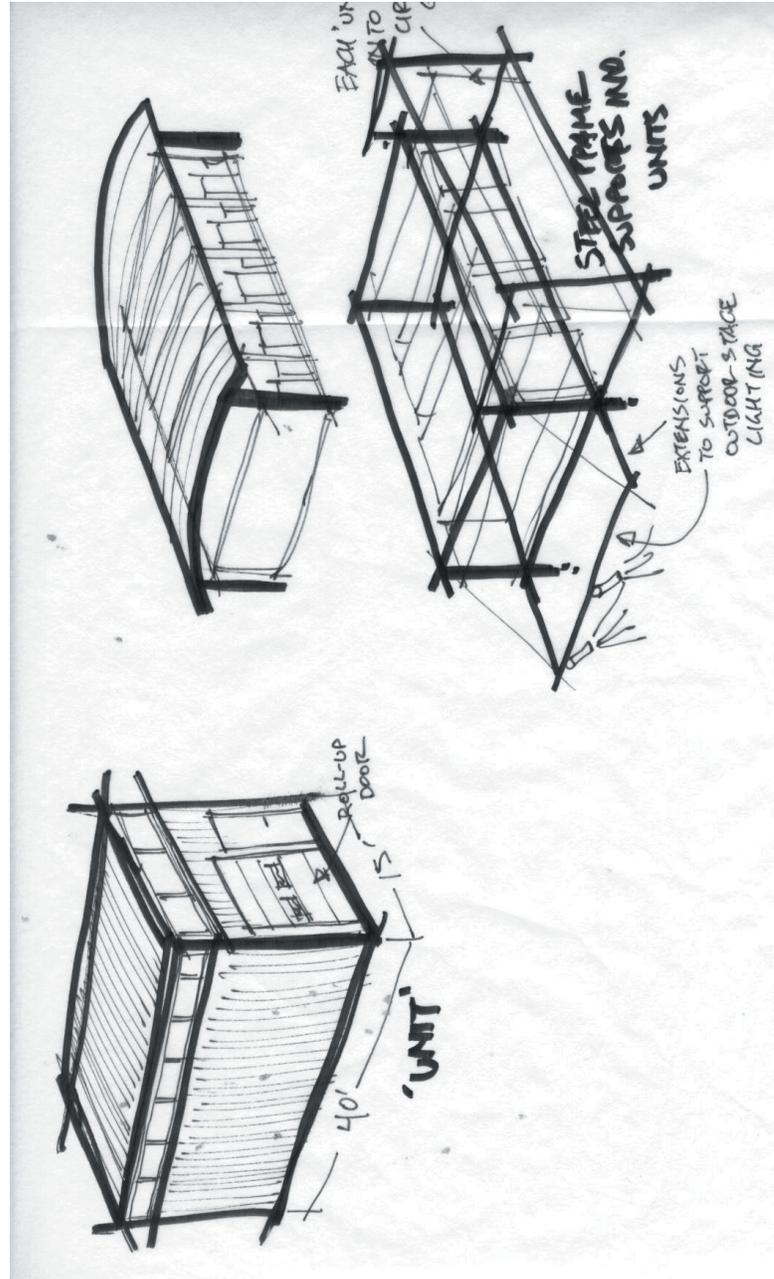
Exterior  
representation of  
conceptual plans



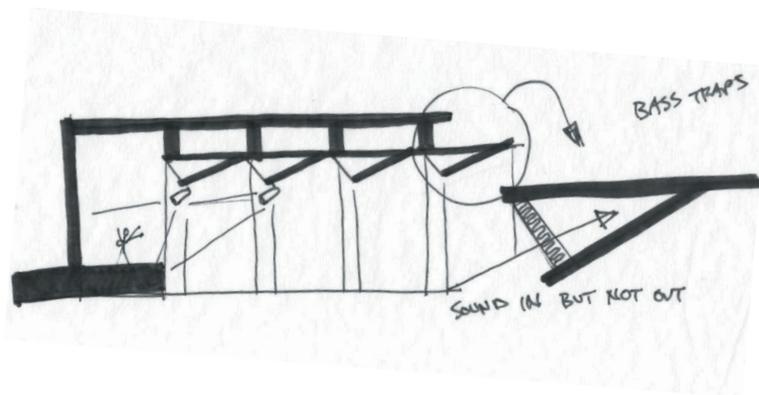
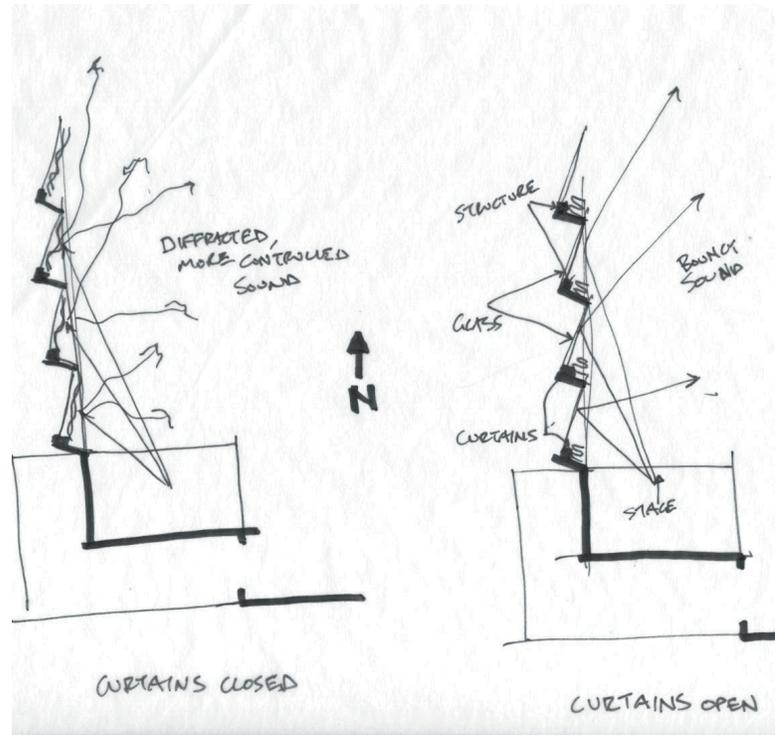


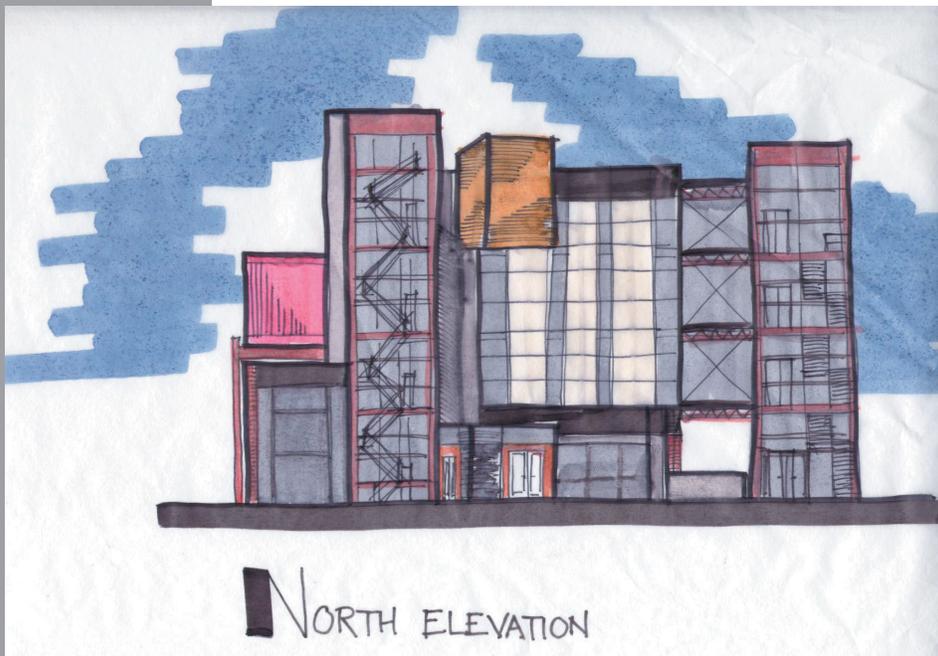


# Concept of rehearsal space support system



# Preliminary sound control sketches

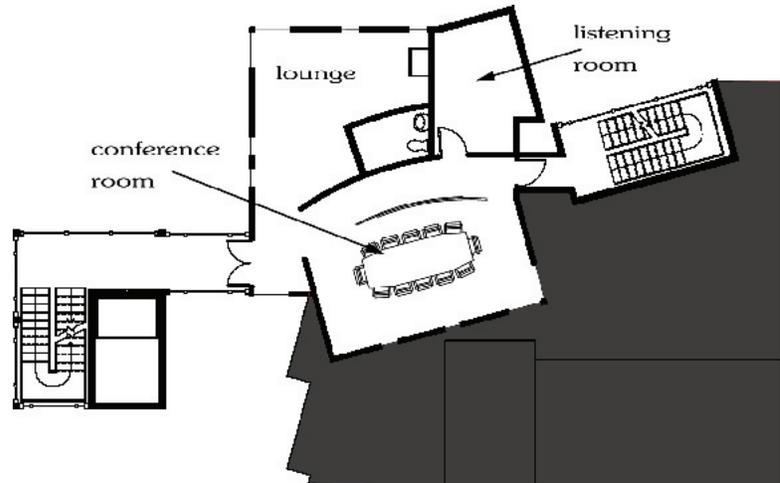




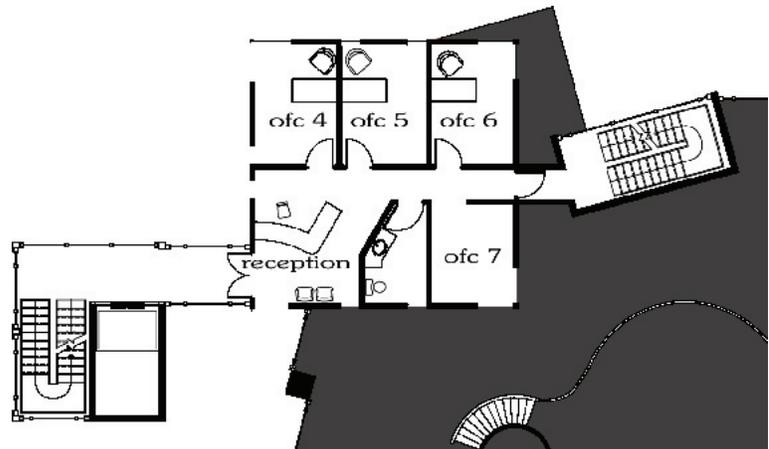
# Office Floor Plans

## FINAL DRAWINGS

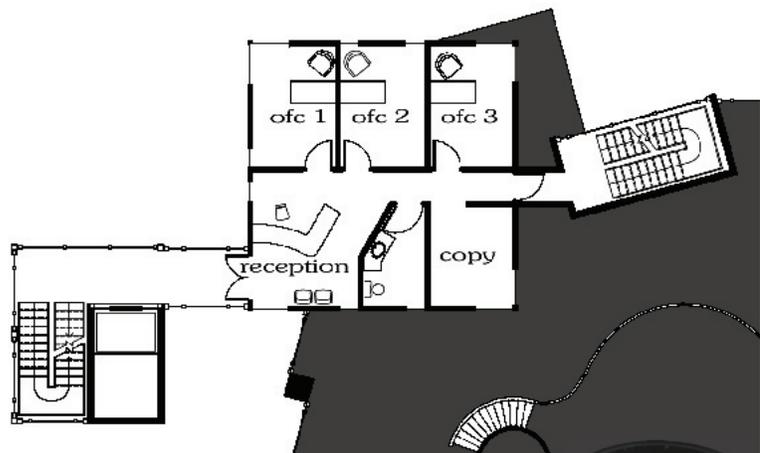
### Fourth Floor



### Third Floor

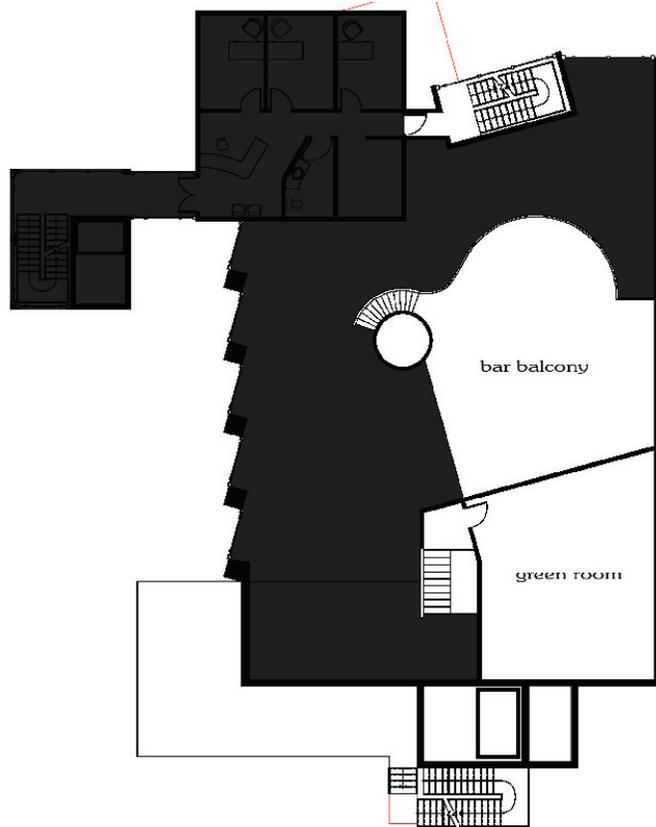


### Second Floor

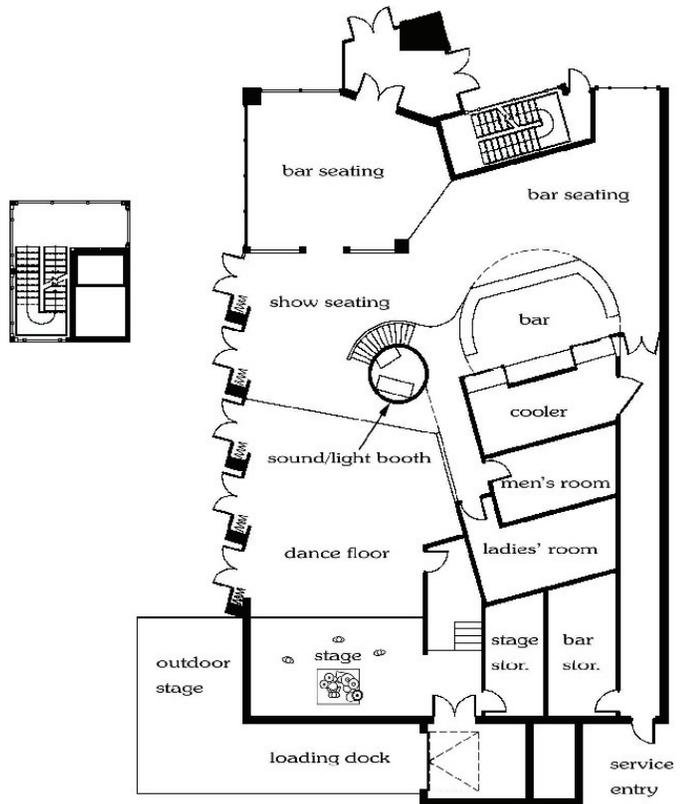


# Power Plant Bar Floor Plans

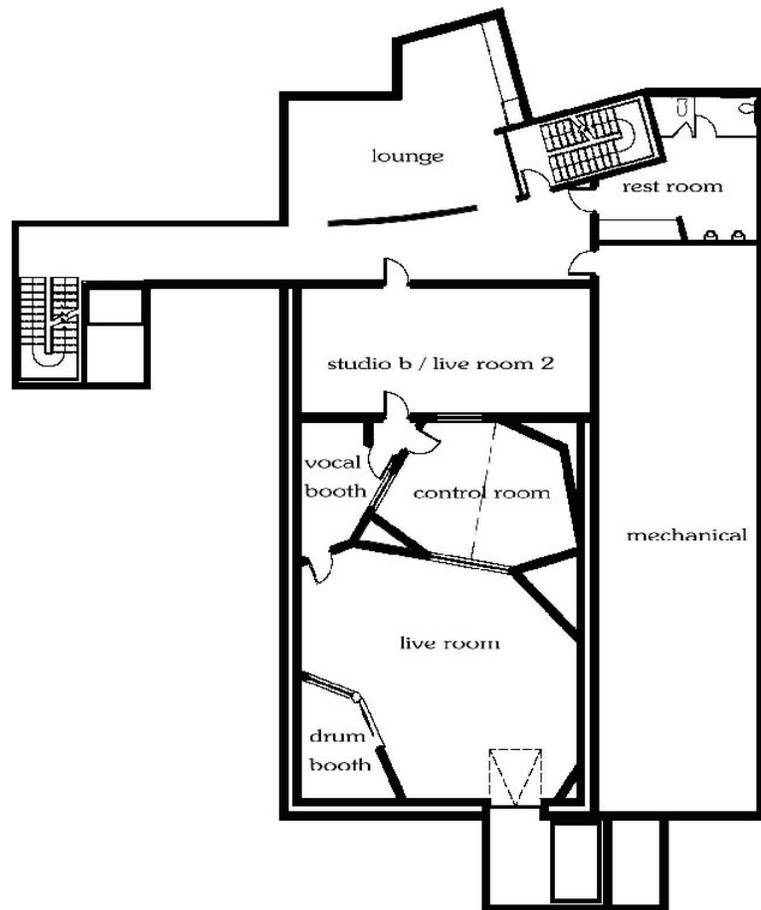
Second level



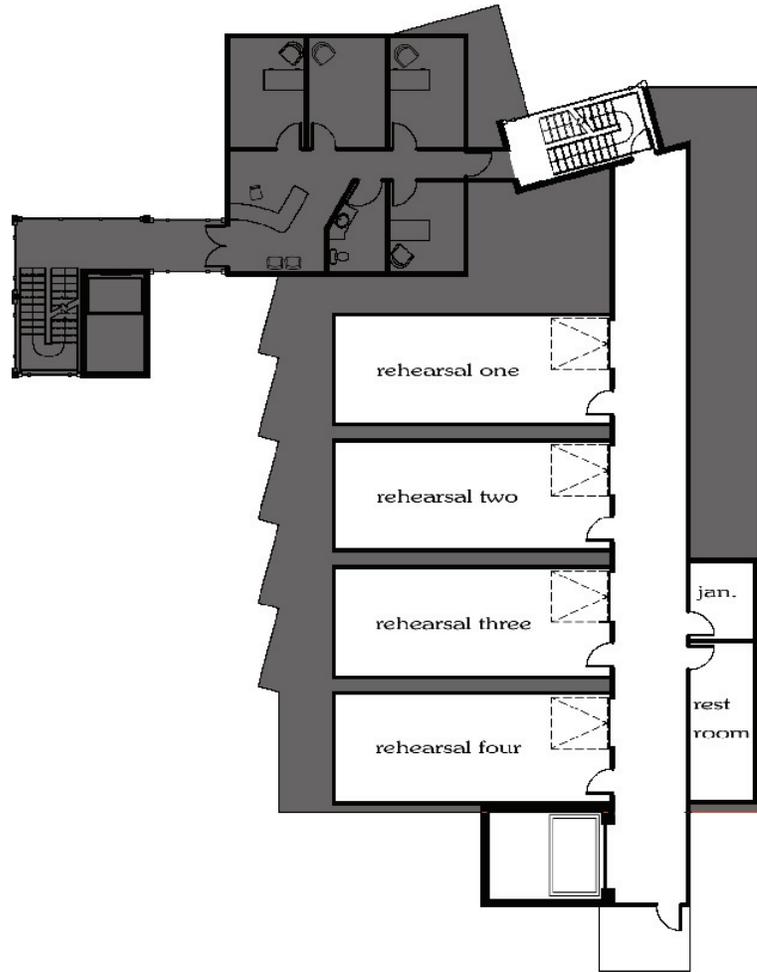
Ground level



# Recording Studio Floor Plan



# Rehearsal Room Floor Plans



## Views of the Recording Studio

# COMPUTER RENDERINGS

All renderings were done in SketchUp over AutoCad three dimensional models.





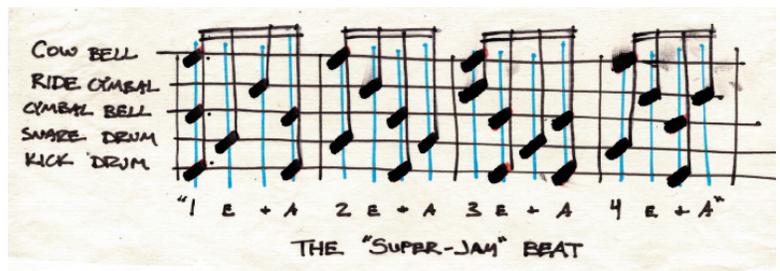
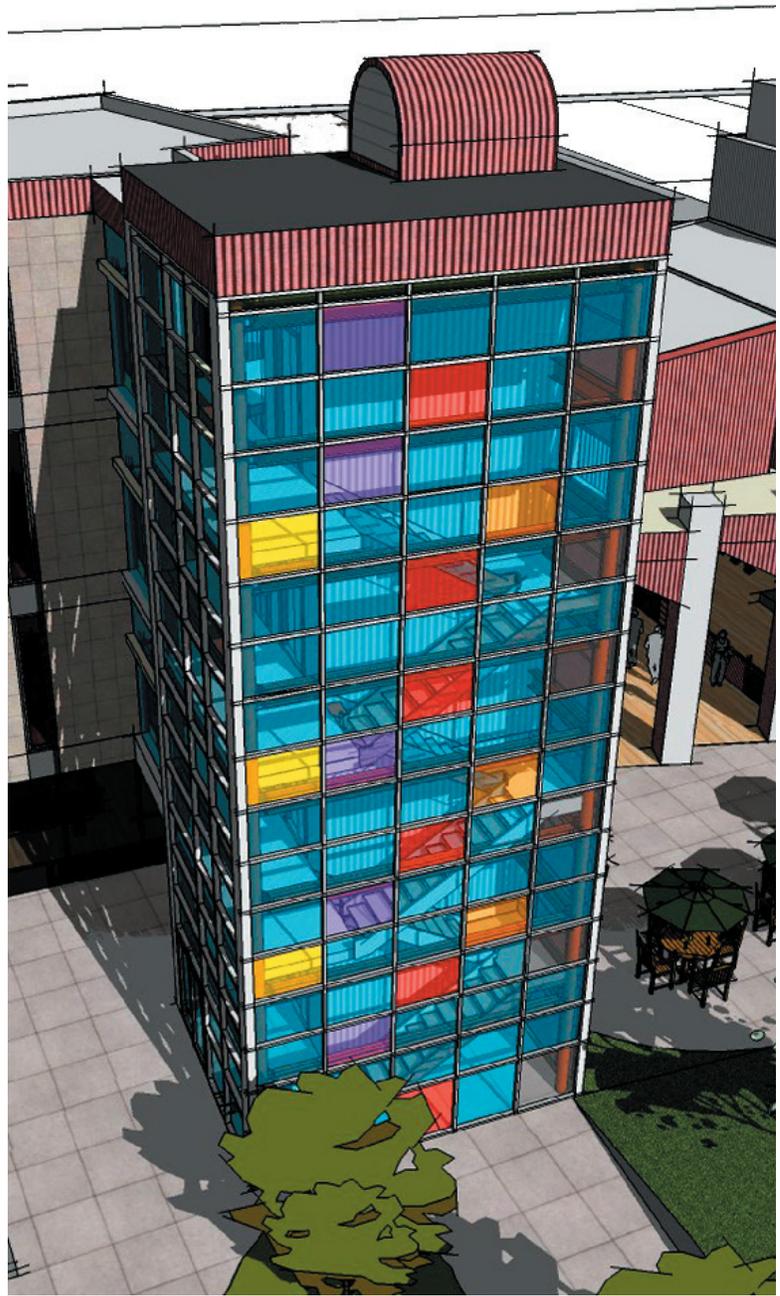
## Views of the Bar

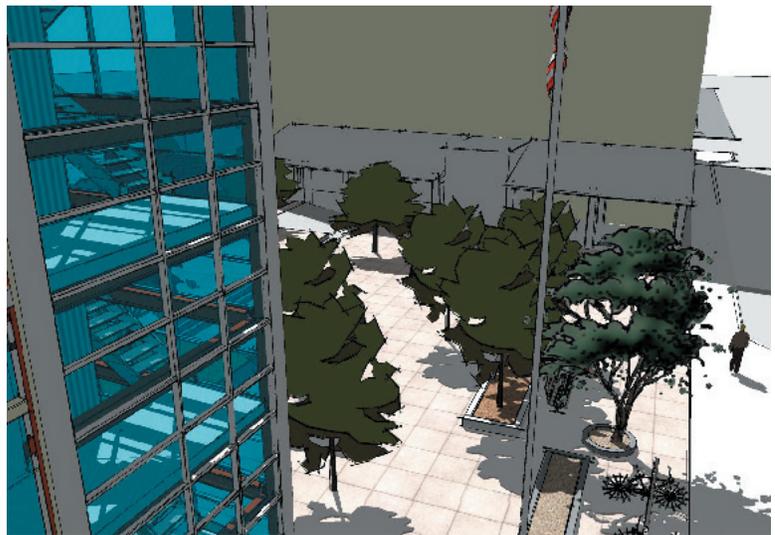


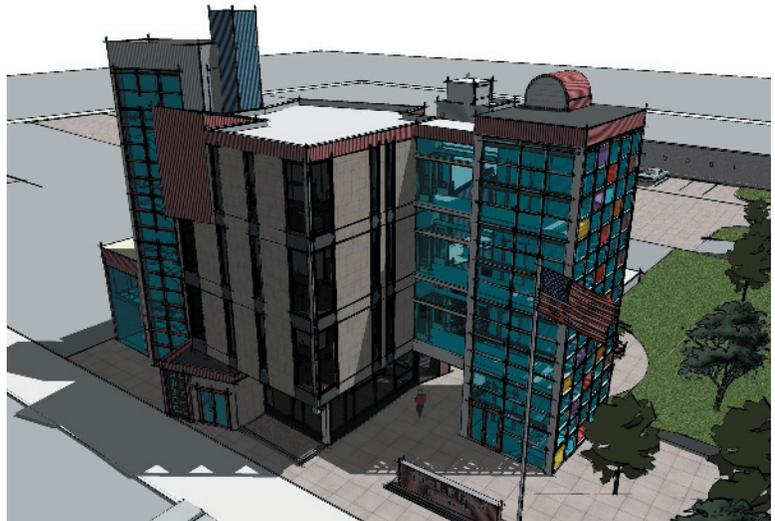


## Exteriors

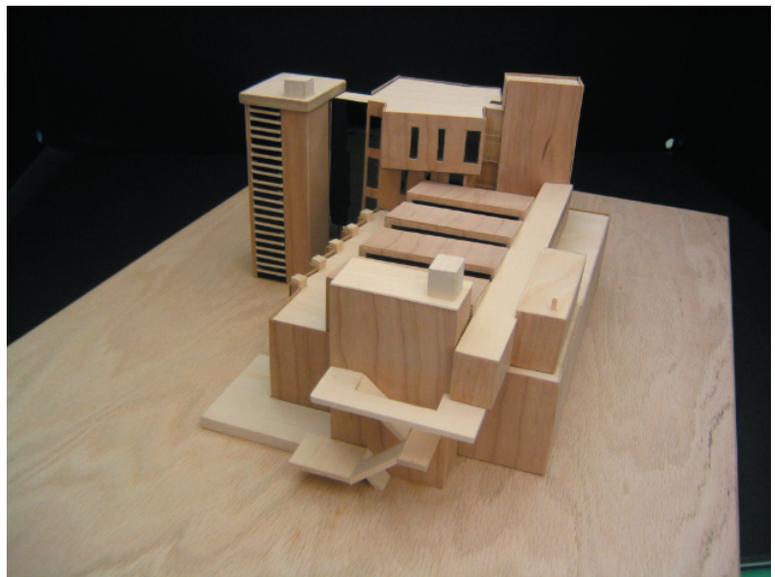


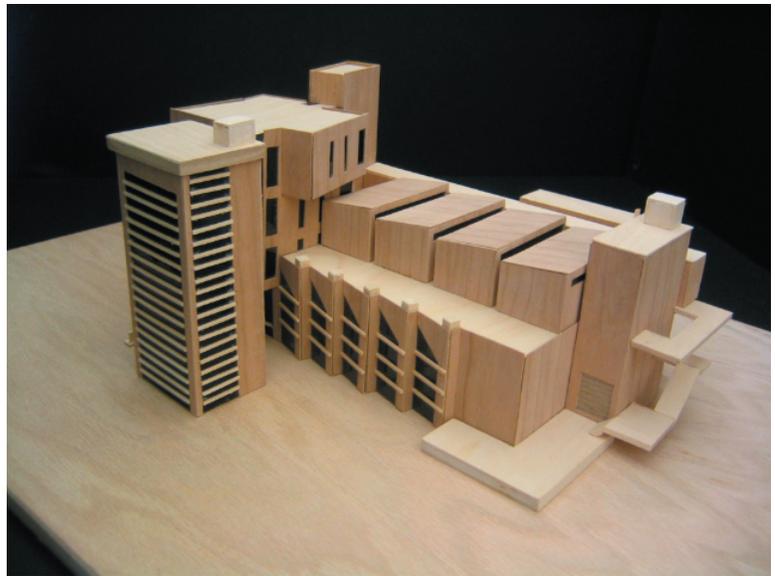






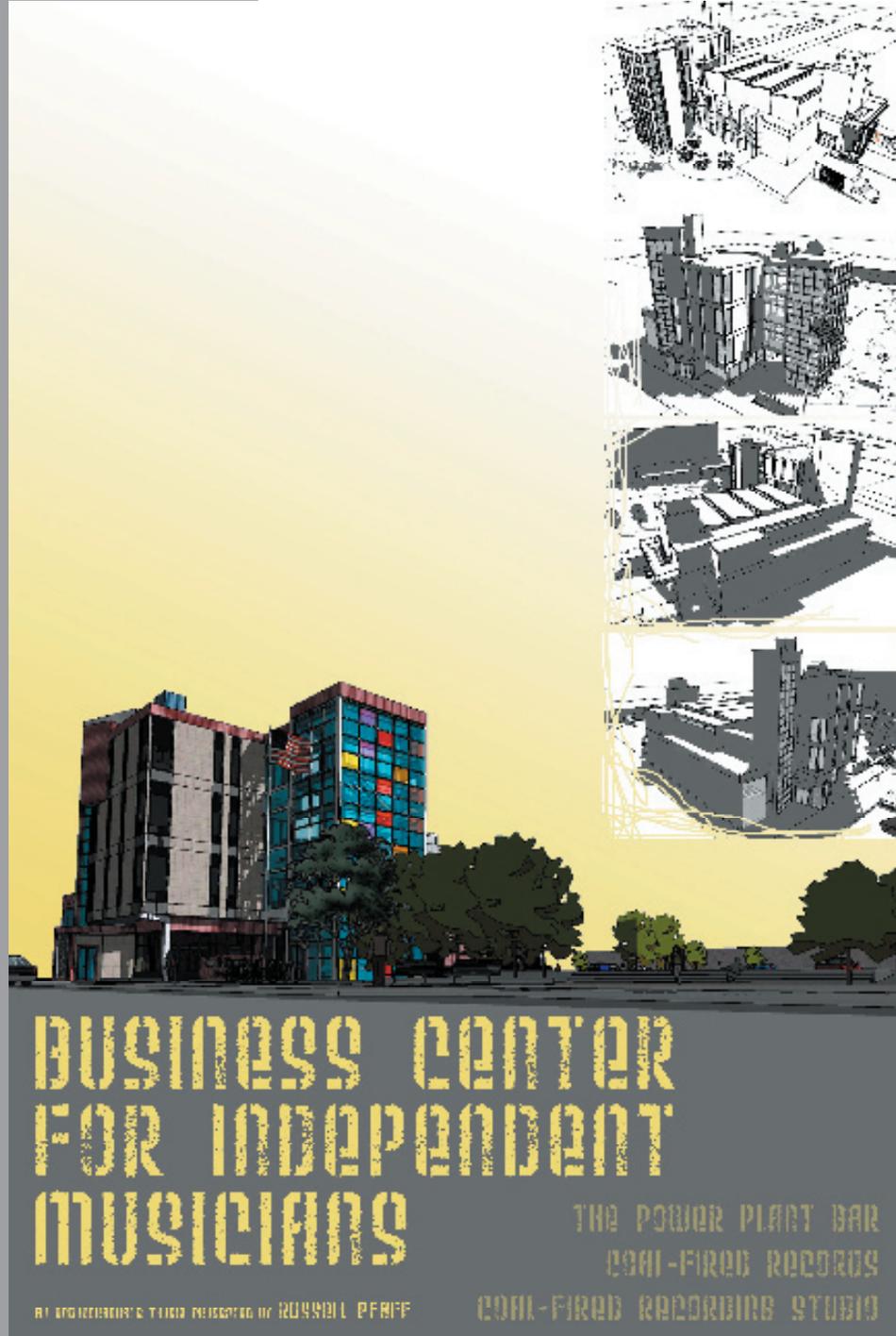
## PHYSICAL MODEL

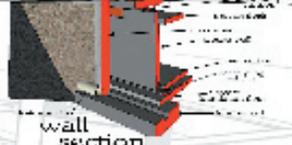
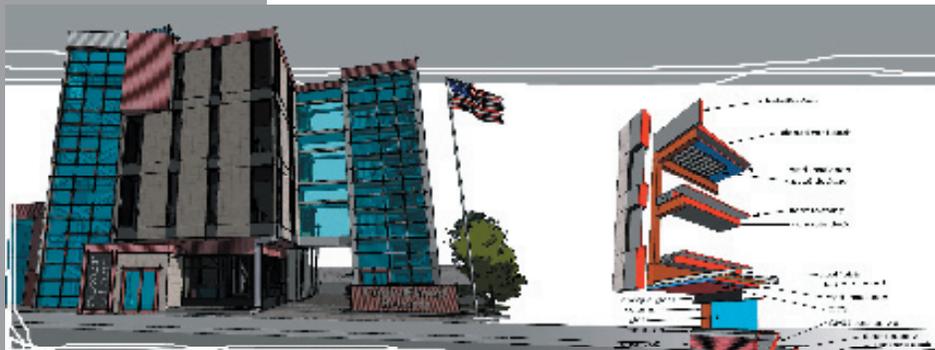






## PRESENTATION BOARDS





wall section

some very specialized systems need to be in place in order to combine a level space like a bar with a quiet space like a recording studio. This wall section shows how the "room within a room" system is assembled.

each vertical column in this curtain wall represents one line of a musical staff. Each cell represents a different percussion instrument. The wall itself is four beats of a drum groove.



**dissonance:**

A combination of tones contextually considered to suggest unrelieved tension and require resolution.

deviation from the expected pattern of form leads to dissonance in architecture.

office "cube"

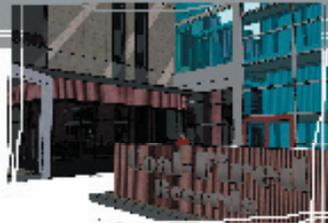


site plan



the site

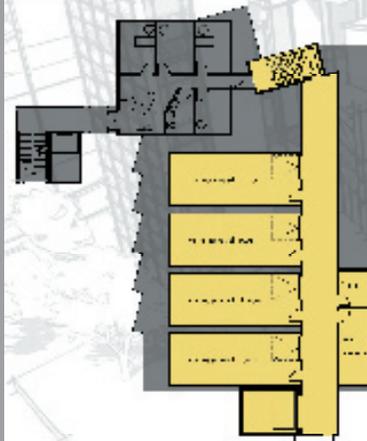
The site is east of EDGE's downtown campus. This design will add to and share the existing plaza which could be used for outdoor shows, or lounge seating.



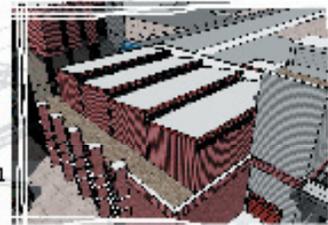
office entry



view from office plaza



The rehearsal rooms are designed to allow four bands to practice simultaneously without interfering with each other. This is accomplished by separating them from each other physically, and with materials.



rehearsal rooms



rehearsal rooms

## dynamics:

of or relating to variation of intensity, as in musical sound



rehearsal



architectural dynamics are provided with the use of angles and repetition to imply motion

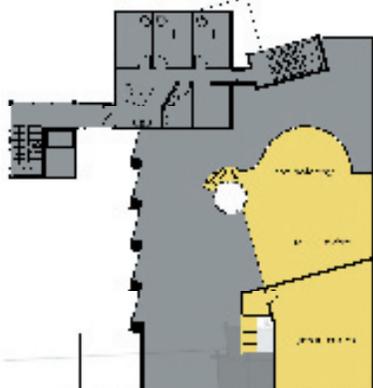
The Power Plant bar offers seating that ranges from private couches to high tables with sight on the dance floor. There's also a loft that features two pool tables and an unobstructed view of the stage.



the power plant's bar

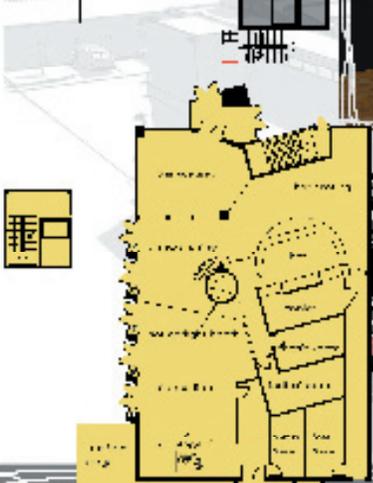


structural detail showing precast concrete beam, steel truss and acoustic curtain system which act as a card over the curtain wall for sound dampening

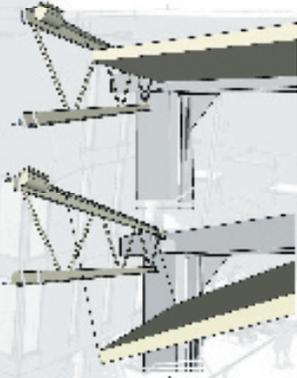


adjustable ceiling

detail illustrating the adjustable ceiling system. this ceiling can be raised to counterbalance sound or lowered to absorb it.



stage with show lighting



spot lights and lighting system

The stage area is equipped with a solid sound system and a non-comprehensive lighting package. Both are controlled from the control table near the bar. The sound system in the club can be patched into the studio below making live recording easy to create.



the bar

## rhythm:

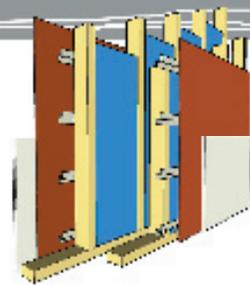
movement or variation characterized by the regular recurrence or alternation of different quantities or conditions

architectural rhythms — are created by repeating an idea regularly

As you can see in the plan, recording studio design is a very complicated field. Every wall in the live room must be at a multiple of 12 degrees from adjacent walls. This is required to put down on the majority of the instrumentation to provide the 'deadest' sound possible. The control room's design is similar, but this room must be symmetrical.



tree drum hood



Detail showing the double wall construction used in every interior wall in the recording studio. This design nearly eliminated some sound transmission, and provides an airspace to decouple each space from the adjacent spaces.

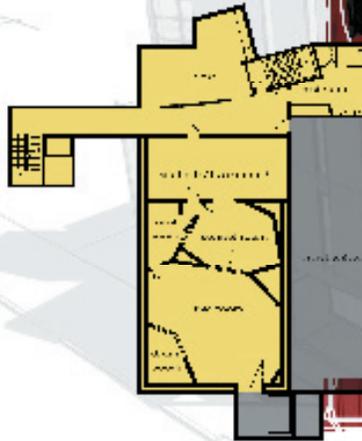


view from control room

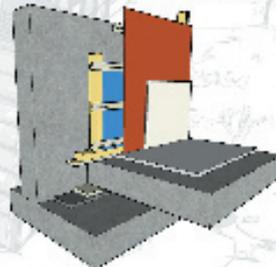


view of control room

Detail showing exterior wall construction for the recording studio. The entire studio is isolated from the foundation treating a 'room within a room' situation.



view from live room



## harmony:

a pleasing combination of elements in a whole

contrasting similar forms, dimensions, or themes provides architectural harmony.

the studio

## Historical Context

## PRESENTATION NOTES

Since the site I chose has relatively poor context to draw from, I chose instead to look at the historical context of the site. There have been two structures on this site in the past. The first was the Headquarters Hotel which was basically a place where people could step off a train, get a drink and make their way into Fargo, or North Dakota itself. The Headquarters Hotel was a nexus for travelers. The next structure to occupy this site was a coal fired power plant that served Fargo, and the outlying areas. I saw the power plant in a similar light as the Headquarters Hotel in that it was a place for a raw material to be dropped off by train, be converted into energy and then dispersed into the city and state. Similarly, my design was to become a nexus for the area's musicians. It was to be a place for musicians to gather, rehearse, perform, record, get promoted and get signed. This design is to musicians what the Headquarters Hotel was for travelers and the power plant was for users of energy.

## Application of Musical Theories

The four musical theories I used were Rhythm, Harmony, Dissonance and Dynamics.

Rhythm is expressed in the western wall of the bar area in the repetition of the saw tooth pattern of glazing and structure. These walls are also divided vertically by three mullion strips to create a very linear, predictable pattern of transparency and opacity. Rhythm is expressed more literally in the west face of the main stair tower. Each different color of glass represents a different percussion instrument. If you were to read this wall from bottom to top, you could play it on a drum set.

Harmony is found throughout the design in the repetition of similar materials. This design employs an extremely limited palette of materials, but by varying the colors and scales, a larger palette is implied. To represent harmony throughout the building I used techniques like using steel

siding as a main surface on the rehearsal rooms, and using the same material as an accent elsewhere in the design.

Dissonance is generally thought of as a bad sounding combination of notes. Since I'm a drummer, I tend to think of musical theories in terms of how they could be interpreted rhythmically so I think of dissonance as an unexpected violation of a pattern. The office cube sets up a predictable pattern of opacity and transparency that is interrupted on the third floor by two obvious gestures: the listening room on the north side and the conference room on the south. Both of these spaces are rotated off the grid to an angle of fifteen degrees and are treated with different materials than the rest of the office cube.

Dynamics are represented in the design mainly in the roofs of the rehearsal spaces. These spaces are supposed to resemble freight containers. Using that idea, I gave them all flat roofs which made the top of the building very static and boring. To give the design a little motion, I sloped the roofs of the rehearsal spaces. Dynamics are also apparent in the visibility of the stairs in each of the stair towers. Angles tend to add interest and motion to a design, so leaving the stair towers visible, and in one case open to the air, makes the design more interesting.

I would like to thank all of the professors and faculty who helped me along the way and especially Ron Ramsay and Steve Martens for encouraging me to "have more fun" with my thesis project.

I would also like to thank my parents for supporting me both emotionally and financially during school and understanding why music is such an important part of my life.

Finally, thanks to all my friends. Without you I wouldn't have made it through these five years of school.

Russell Pfaff

## North Dakota State University Libraries Addendum

To protect the privacy of individuals associated with the document, signatures have been removed from the digital version of this document.

