# orchestra hall addition

minneapolis, minnesota

"re-inventing the existing in order to preserve the past"
by grant carlson

# ORCHESTRA HALL ADDITION: MINNEAPOLIS, MN

A Design Thesis Statement Submitted to the
Department of Architecture and Landscape Architecture
Of North Dakota State University

By

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In Partial Fulfillment of the Requirements
For the Degree of
Bachelor of Architecture

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Fargo North Dakota

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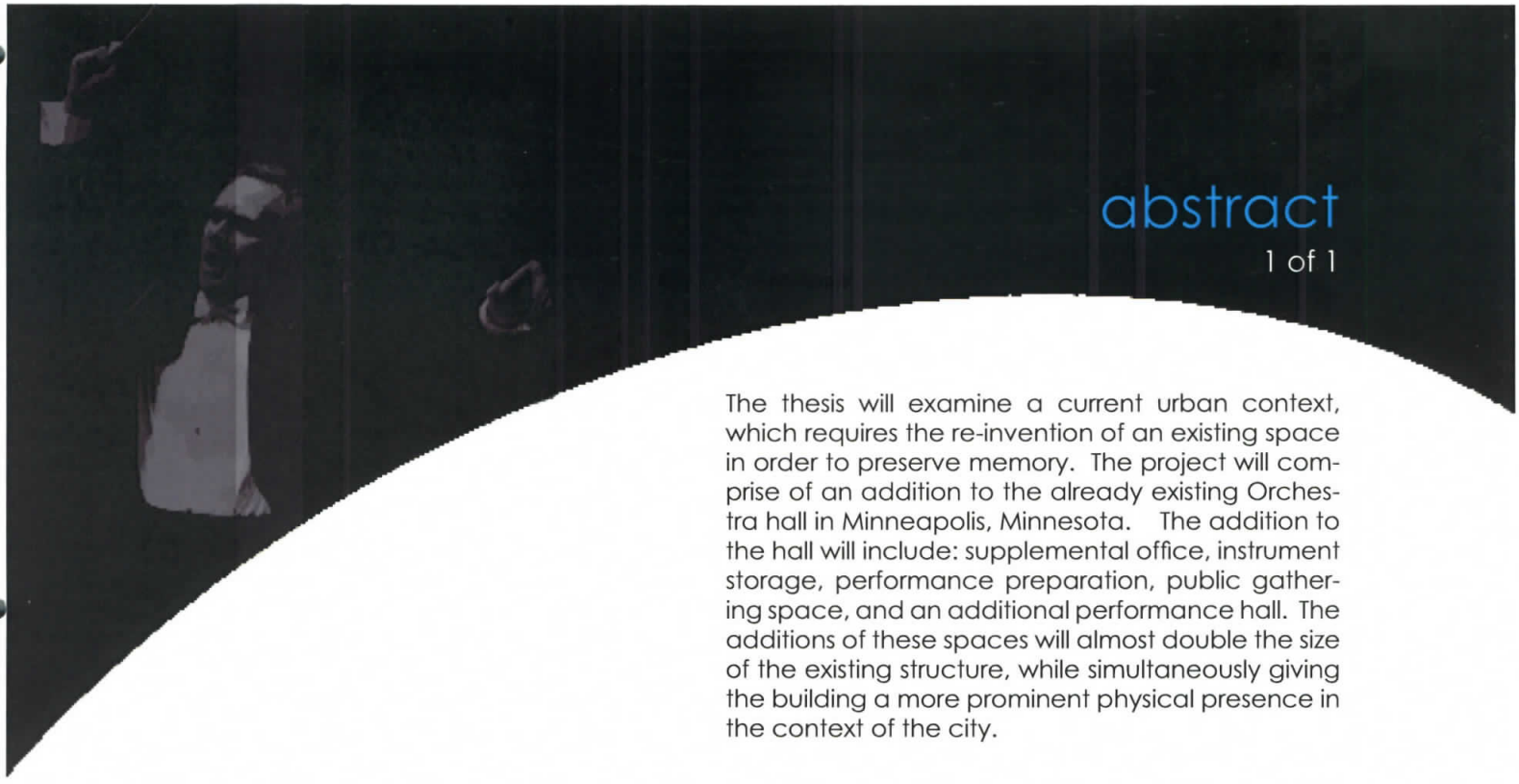

# abstract

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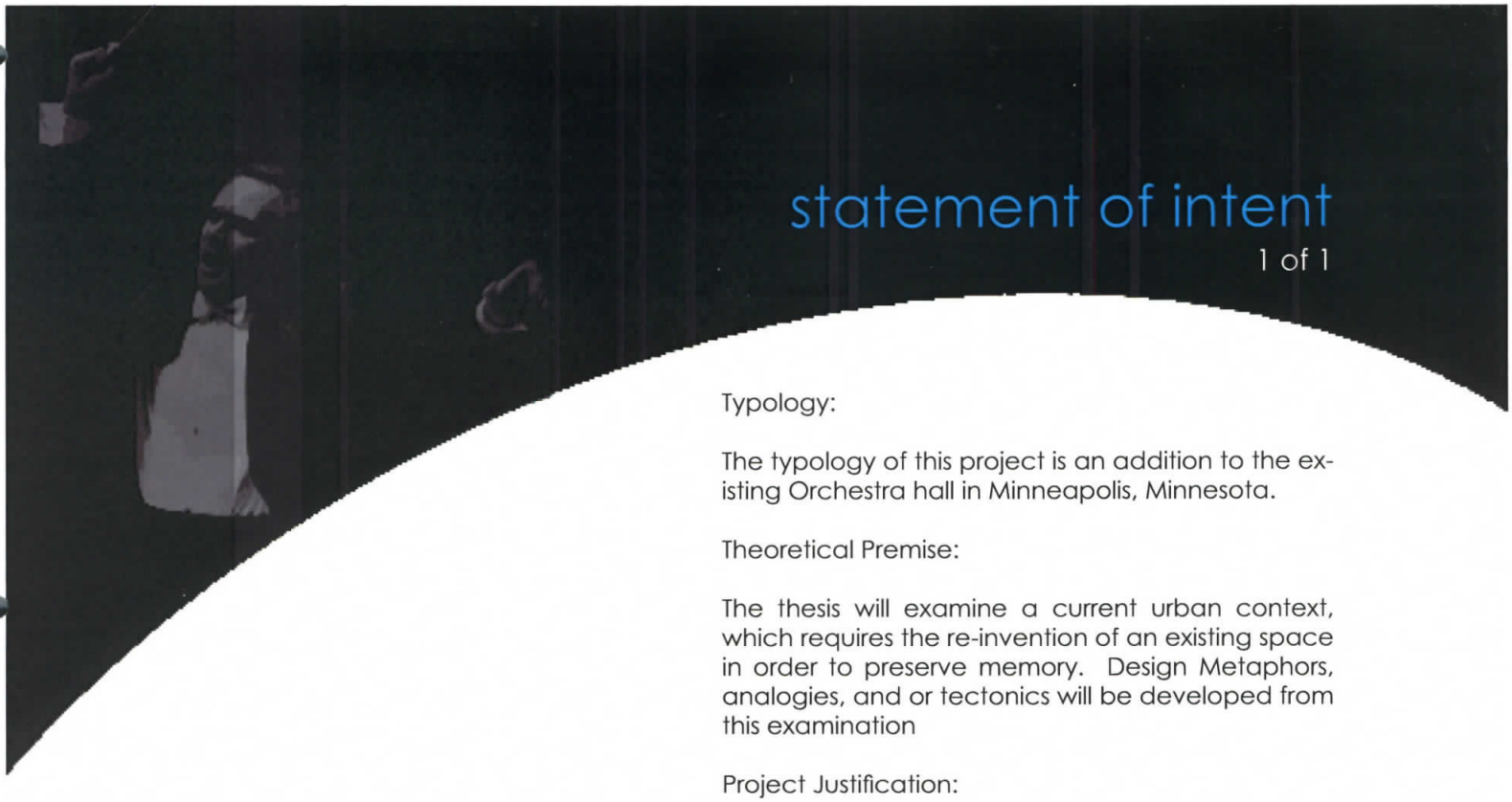
The thesis will examine a current urban context, which requires the re-invention of an existing space in order to preserve memory. The project will comprise of an addition to the already existing Orchestra hall in Minneapolis, Minnesota. The addition to the hall will include: supplemental office, instrument storage, performance preparation, public gathering space, and an additional performance hall. The additions of these spaces will almost double the size of the existing structure, while simultaneously giving the building a more prominent physical presence in the context of the city.



# statement of intent



Typology:

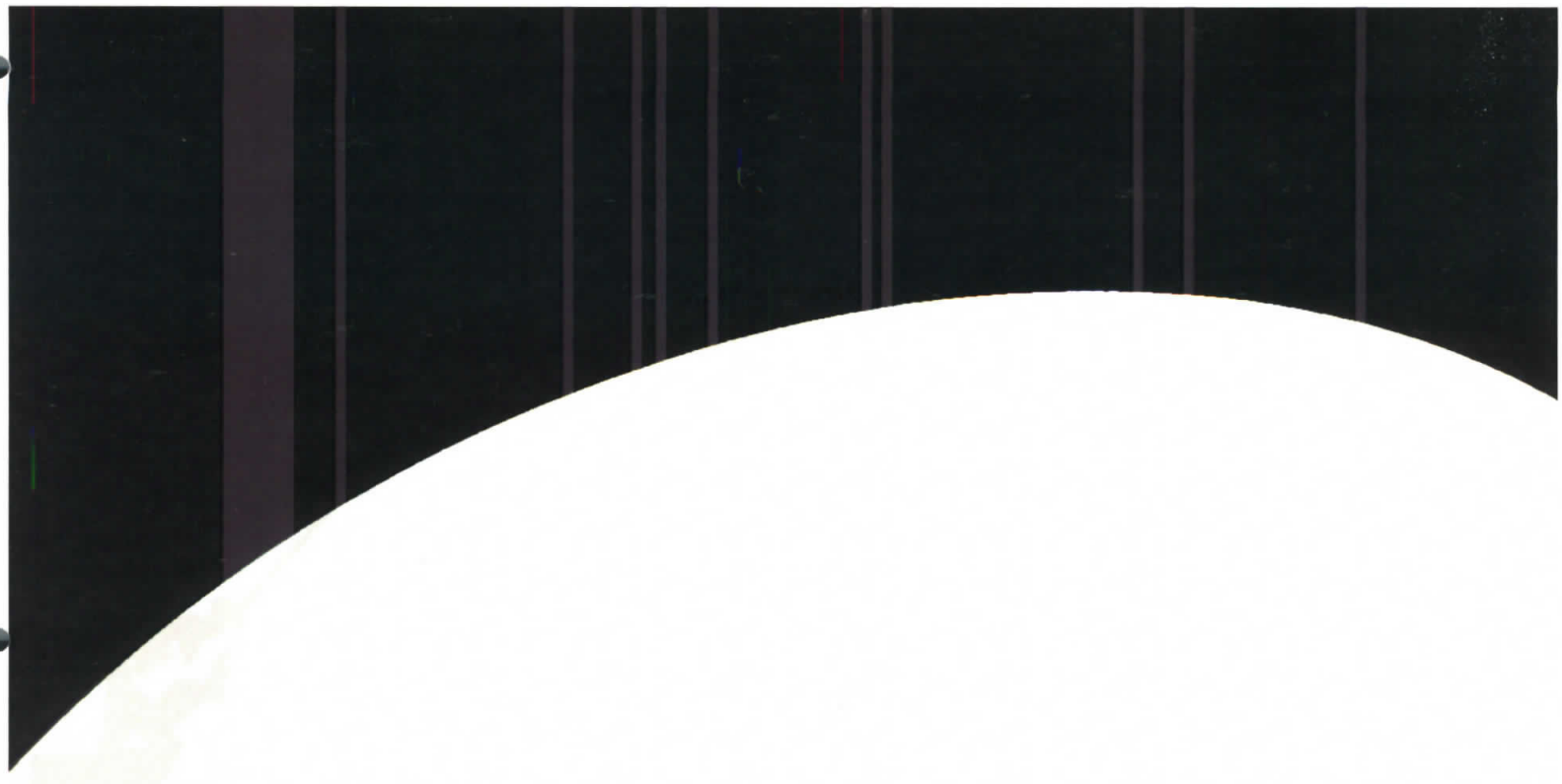
The typology of this project is an addition to the existing Orchestra hall in Minneapolis, Minnesota.

Theoretical Premise:

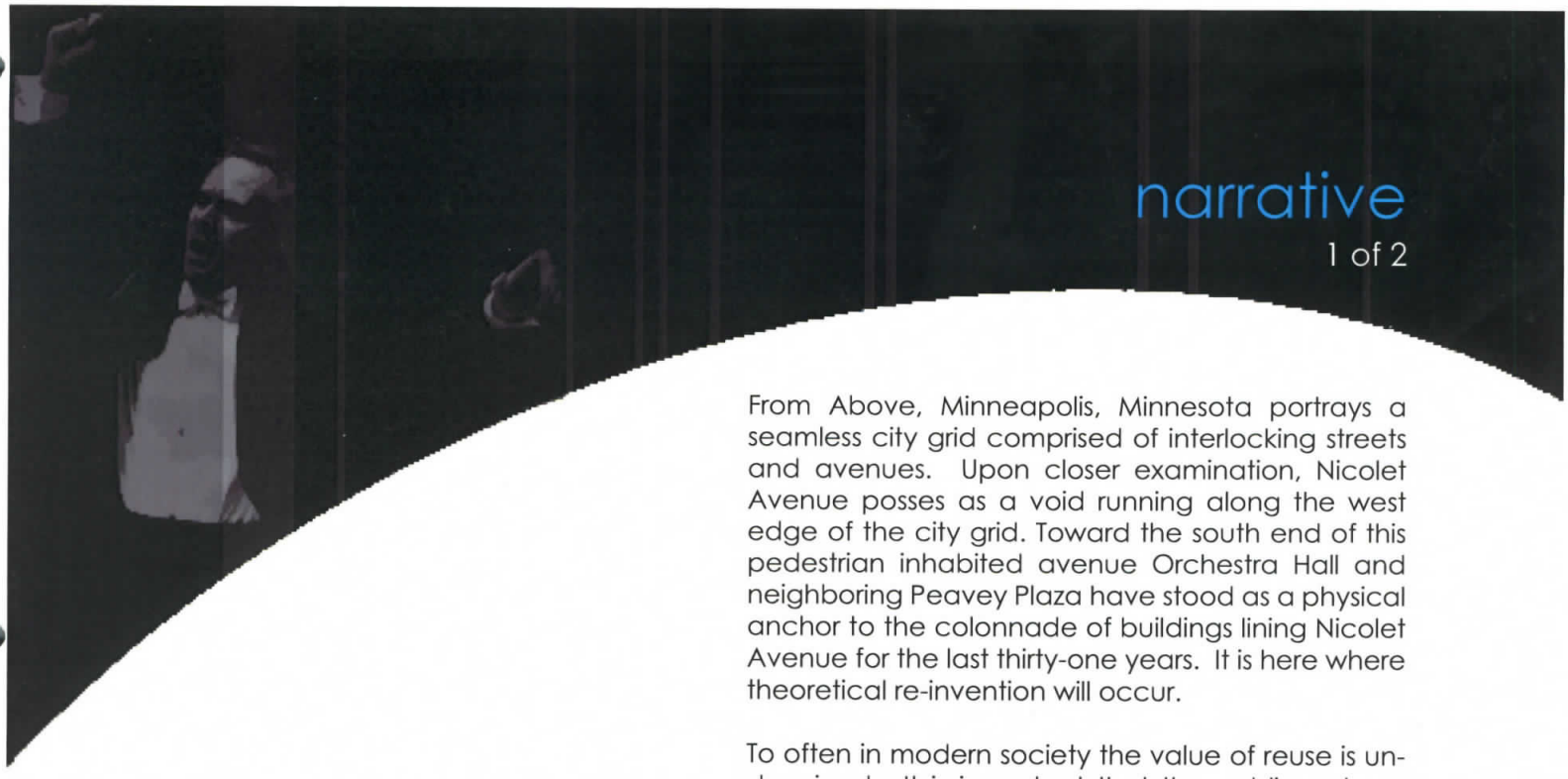
The thesis will examine a current urban context, which requires the re-invention of an existing space in order to preserve memory. Design Metaphors, analogies, and or tectonics will be developed from this examination

Project Justification:

Although Orchestra Hall's physical performing hall is of adequate characteristics, the surrounding context is insufficient for present day expectations. Supplemental office, instrument storage, performance preparation, and public gathering spaces are all needed. In addition, hall administrators also seek after a secondary performing hall of smaller proportions.
Because the hall is an architectural landmark it is imperative that the addition draw from and enhances that which is already there. The hall is enclosed by an interrelated fabric of neighboring structures so an addition must be carefully inserted in to the existing environment with out disturbing current conditions.



proposal



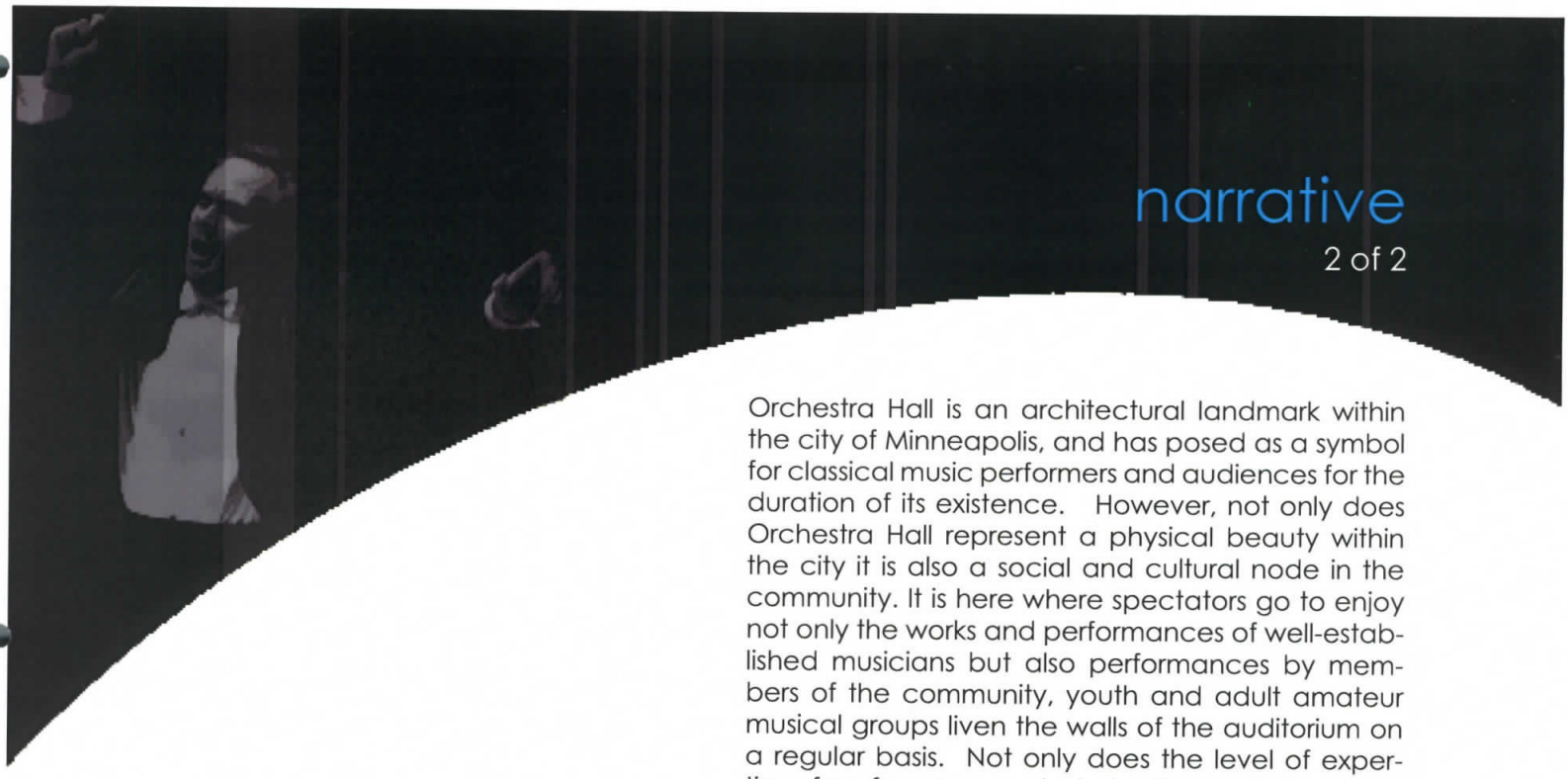
# narrative



From Above, Minneapolis, Minnesota portrays a seamless city grid comprised of interlocking streets and avenues. Upon closer examination, Nicolet Avenue posses as a void running along the west edge of the city grid. Toward the south end of this pedestrian inhabited avenue Orchestra Hall and neighboring Peavey Plaza have stood as a physical anchor to the colonnade of buildings lining Nicolet Avenue for the last thirty-one years. It is here where theoretical re-invention will occur.

To often in modern society the value of reuse is undermined. It is important that the public not neglect the importance of recycling. As designers we must lead by example. How many times are relatively newly constructed buildings demolished only to construct a new form atop the ruble of the last one? How long will that structure last before that is replaced? The re-invention of space is an idea that is invaluable and must be utilized on a more common basis. Not only are we preserving the physical existence of these forms but also the memories associated with them. When deconstruction occurs, not only are walls collapsed but the reminiscences are as well.

Unlike many building typologies, a performance hall is one that creates both dynamic spaces and design opportunities. As mentioned the hall's function cannot be summed up with one specific function so why limit the buildings physical properties to static characteristics? This reiteration of movement and transformability is what makes this building typology appropriate for a theoretical premise dealing with re-invention. In addition to dynamic functionality, physical building traits associated with performance halls often take on exciting and vibrant forms that may not be present in other such civic, utilitarian, or commercial building types which exhibit limited room for creativity.



# narrative



Orchestra Hall is an architectural landmark within the city of Minneapolis, and has posed as a symbol for classical music performers and audiences for the duration of its existence. However, not only does Orchestra Hall represent a physical beauty within the city it is also a social and cultural node in the community. It is here where spectators go to enjoy not only the works and performances of well-established musicians but also performances by members of the community, youth and adult amateur musical groups liven the walls of the auditorium on a regular basis. Not only does the level of expertise of performers very, but also the music typology. Although classical music is the hall's forte, the hall also welcomes pop, jazz, and performances for children. This manipulation of function ensures the hall's existence and prosperity for future generations to come.

Amongst the busy and active city life of Minneapolis a feeling of tranquility is present at the south portion of Nicolet Avenue. Here sounds of violins and trumpets murmur in the background contributing to the serene mood. For over three decades Orchestra Hall has provided the musical backdrop for not only Peavey Plaza and Nicolet Avenue but also the entire region of the Midwestern United States. This is the location for a theoretical premise examining re-invention.

# user/client description



Orchestra Hall, which has been the physical home for the Minnesota Orchestra since 1974, is a non-profit organization, which is primarily funded by private donation. This characteristic of the organization not only may limit construction budgets, but also may effect space organization due to operational practices.

The design solution for this project must incorporate the needs defined by the user/client groups. The Minnesota Orchestra, administrative personal, and the audience members are users/clients of primary concern. The design must be sensitive to the needs of these groups.

Each user group requires their own programmatic requirements;

**The Minnesota Orchestra** is one of the primary groups to use the building. There is a need for access to the performing stages, practice rooms, locker rooms, and reception areas. Members of the orchestra's peak time of usage are during the day and night. Practice rooms are used during the day and the performance halls are used at night for scheduled concerts. As mentioned, locker rooms are used in preparation for performances, and reception areas are used for post performance gatherings. Orchestra member's need for parking is achieved by the use of neighboring garages that are available because of after business hours use.

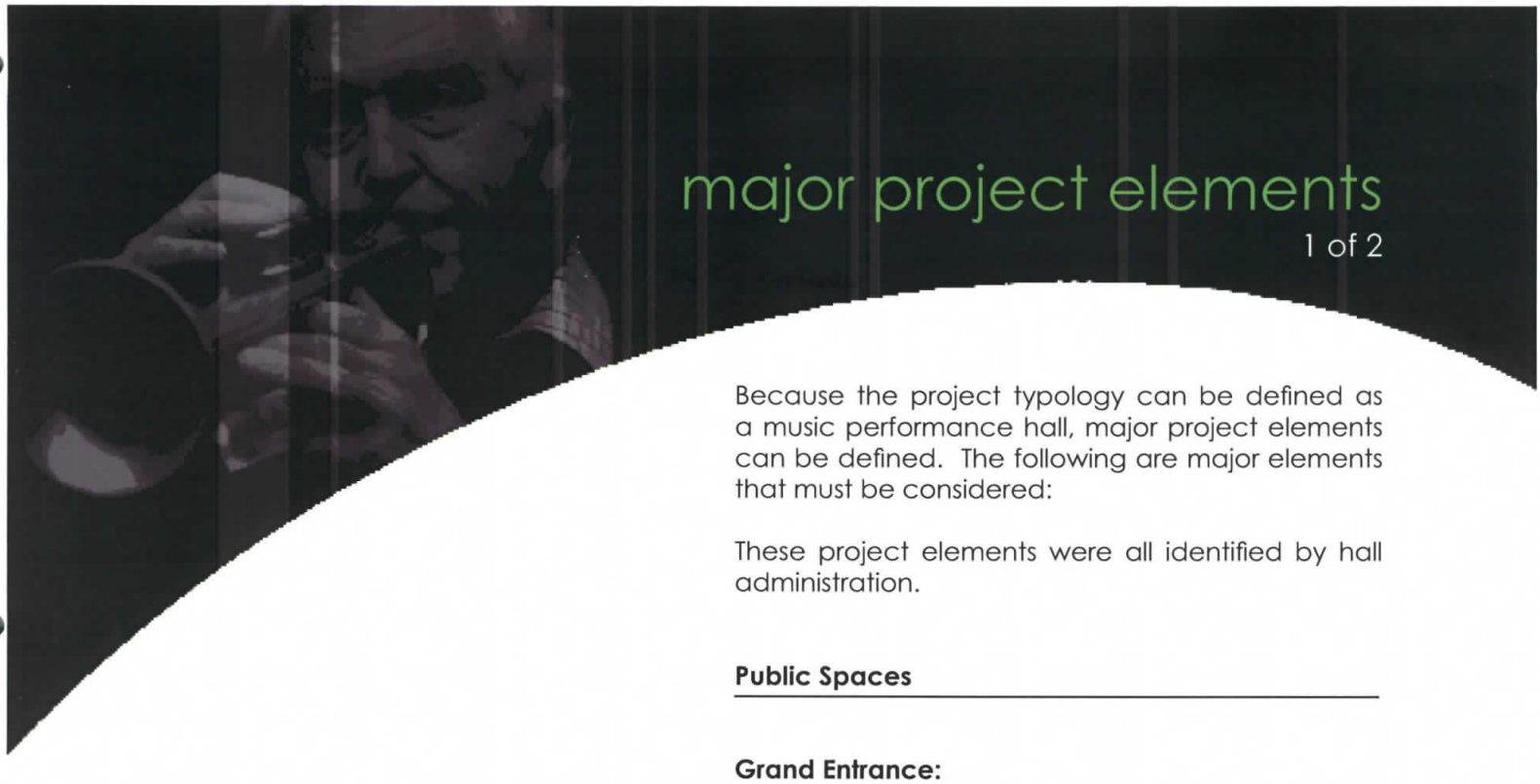
**Audience members** are the second primary user of the building. Although the peak usage time for the audience is in the evening for performances, a ticket office needs to be accessible during the day. Audience member's need for parking is achieved by the use of neighboring garages that are available because of after business hours use.

# user/client description



**Administrative personnel** have certain programmatic requirements that are unique to their usage. Their primary time of usage is during regular business hours (8am to 5pm Monday thru Friday). It is important that these individuals have access to the entire building. The most used spaces by this group will be office and meeting space. Because this group inhabits the building during the day, parking is needed for these individuals. Currently they occupy the parking garage to the west and the small parking lot to the south.

| User/Group | Time of Use |
|---|---|
| **Minnesota Orchastra Members:** | |
| | 9am to 5pm |
| | 7pm to 12am |
| **Audience Members:** | |
| | 10am to 4pm |
| | 6pm to 12am |
| **Administrative Personnel:** | |
| | 8am to 5pm |



# major project elements



Because the project typology can be defined as a music performance hall, major project elements can be defined. The following are major elements that must be considered:

These project elements were all identified by hall administration.

## Public Spaces

**Grand Entrance:**
Although the current main entrance is of substantial grandeur, it is of unsatisfactory scale. Circulation patterns are inefficient prior to and following performances.

**Additional performance hall:**
The current hall is adequate for large performance, but an additional 500-seat hall is needed.

**General Meeting rooms:**
Meeting rooms for both performers and spectators are needed for post performance gatherings.

**Ticketing office:**
A larger ticketing office located near administrative offices is needed.

**Coat Check:**
There is currently no coat check area for guests.

**Restrooms:**
Additional restrooms are preferred along the east corridor.

# major project elements



## Private Spaces

**Staff Lounge:**
There is currently no staff lounge and dinning area.

**Practice rooms:**
Additional practice rooms are needed.

**Instrument & equipment storage:**
Additionl storage for instruments and equipment is needed.

**Music library:**
There is currently no music library in the hall.

**Dressing rooms:**
Current dressing rooms are of unsatisfactory scale.

**Service area:**
Current service area and loading dock require un-orthodox parking by trucks for drop-off and delivery.

# site information



**Region: Minnesota**
Along the north boarder of the Midwestern United States, Minnesota is the most northerly state (except Alaska). Minnesota's land area is 84,068 sq mi and population is 21st largest in the country at 4,919,479 (2000 census). The regions largest industries include: farming (corn, soybeans, sugar beets, wheat, dairy products), paper pulp, and mining (iron ore). Although St. Paul is the State capitol, Minneapolis is the largest city in the state.

**City: Minneapolis**
Not only the largest city in the state, Minneapolis (2000 pop. 382,618) is the largest northern city between Seattle and Chicago and serves as a large air travel hub for the country. Located in the Southeast corner of Minnesota, Minneapolis is in the hart of the "Twin Cities" area, which refers to St. Paul, Minneapolis and surrounding suburbs. The Minneapolis metropolitan area population is 2.7 million (2003) spread over 7 counties.

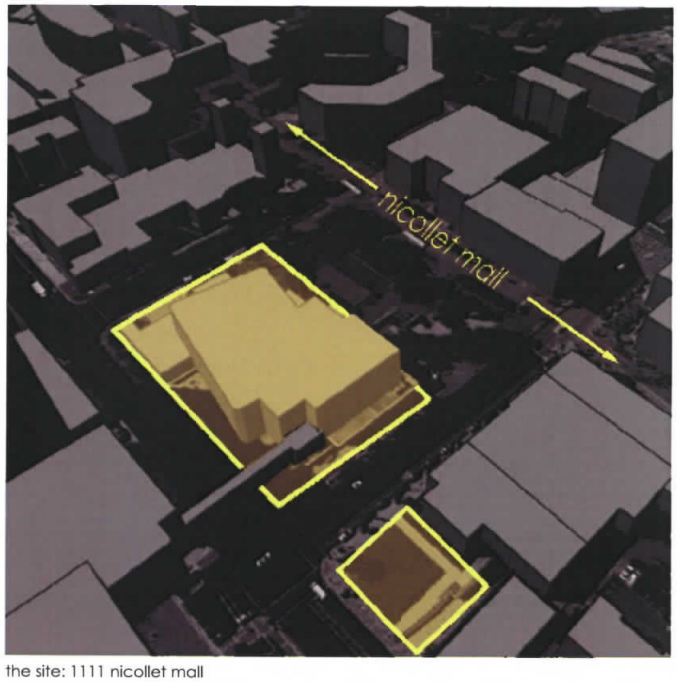
**Site: 1111 Nicollet Mall**
At the South-West corner of the Intersection of 11th street and Marquette Avenue, stands Orchestra Hall. The Hall shares the block with Peavey park (to the West bordering Nicollet Mall). The current site of Orchestra hall is an ideal one. The site provides access to the city, a sense of history through revitalization of the current hall, and a central downtown location with multiple transportation links.

# site information






minneapolis, mn




the site: 1111 nicollet mall

# site information



view from northeast

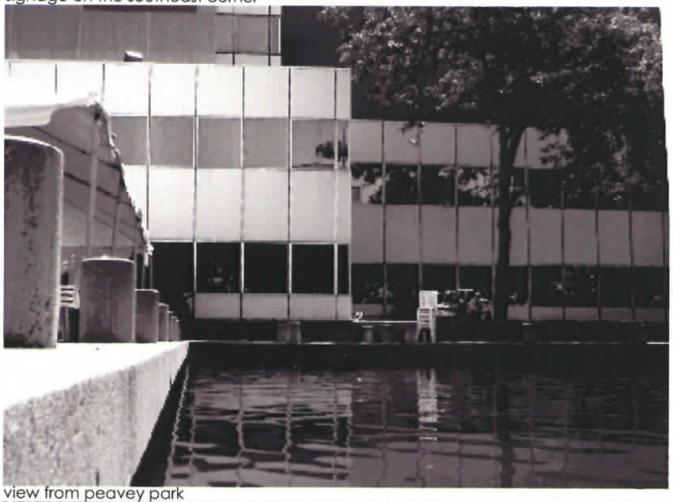
north facade close up

view from neighboring building to the east

# site information

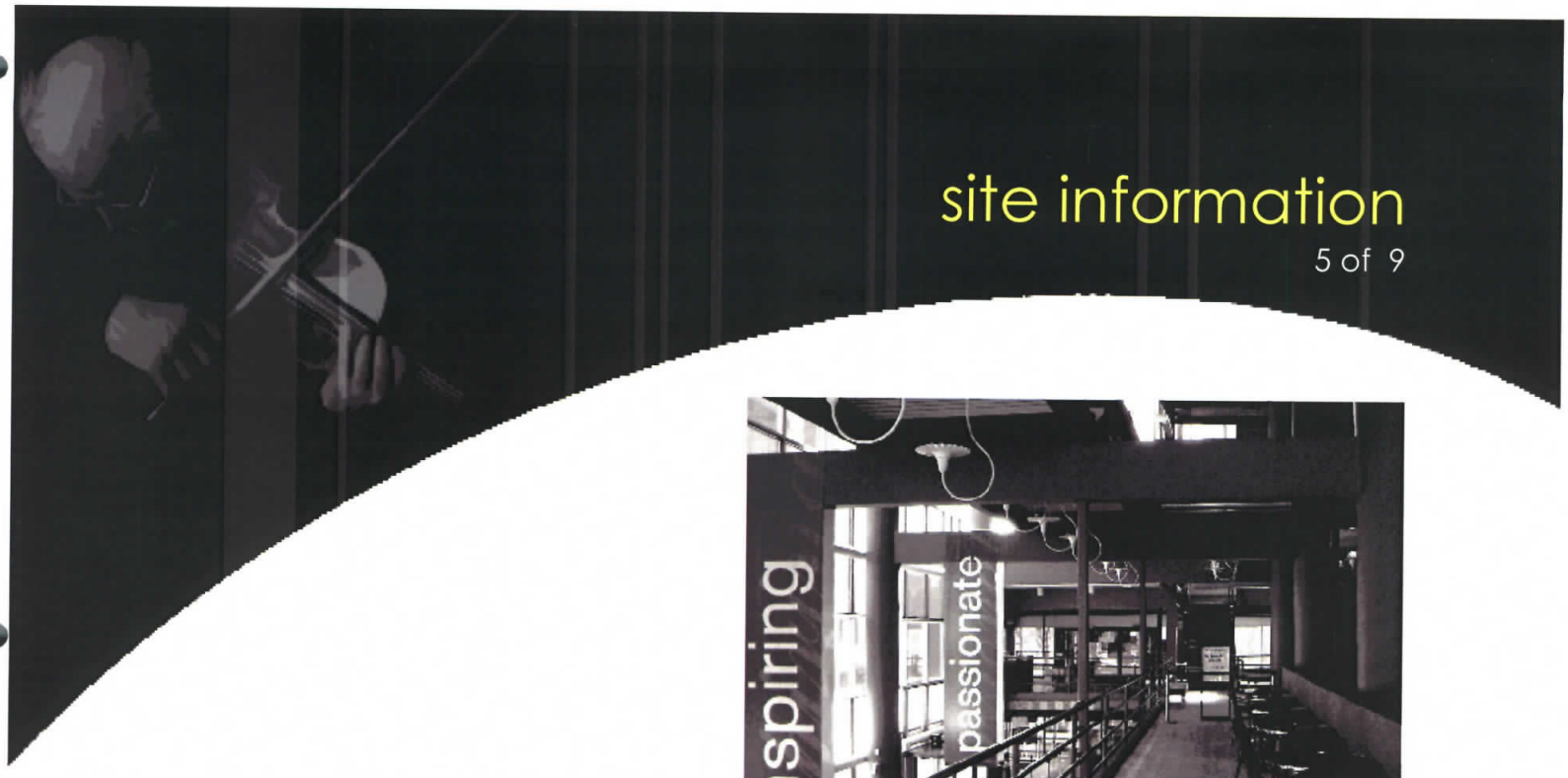



signage on the southeast corner



view from peavey park

view of interaction between peavy park and orchestra hall

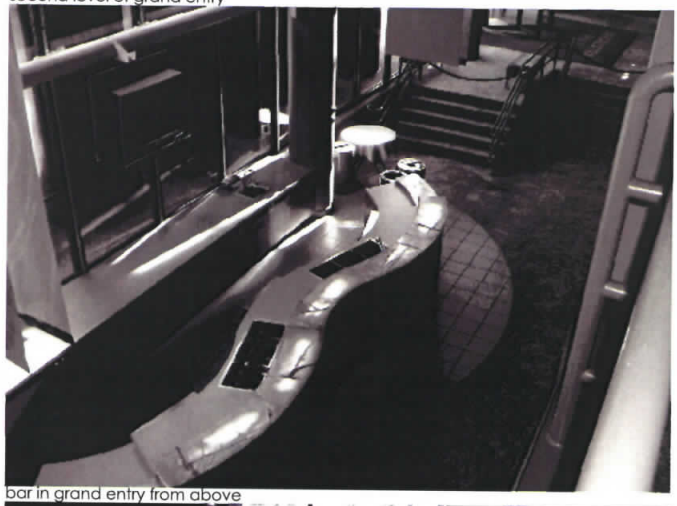


# site information






second level of grand entry



bar in grand entry from above

seating in grand entry

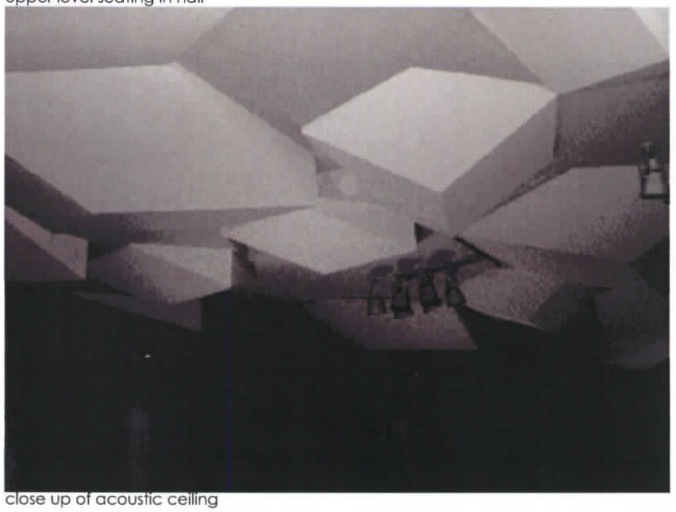
# site information





performing hall from above

upper level seating in hall



close up of acoustic ceiling

# site information



view of neighboring site from above

neighboring site from the east

neighboring site from orchestra hall

# site information



view to the northeast

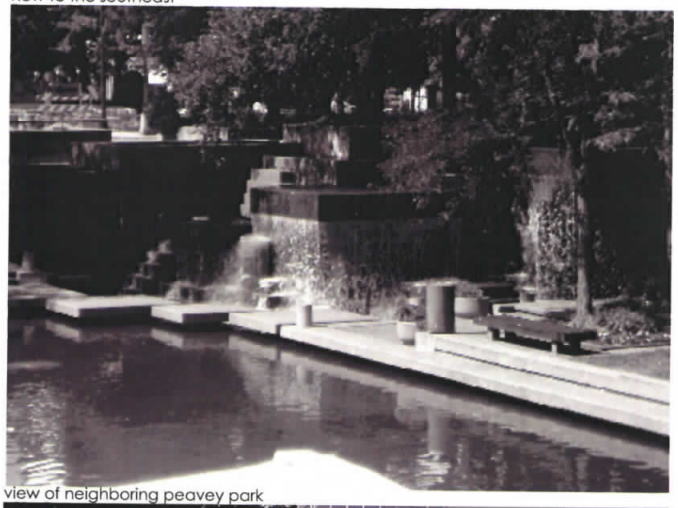
view to the west

view to the south

# site information

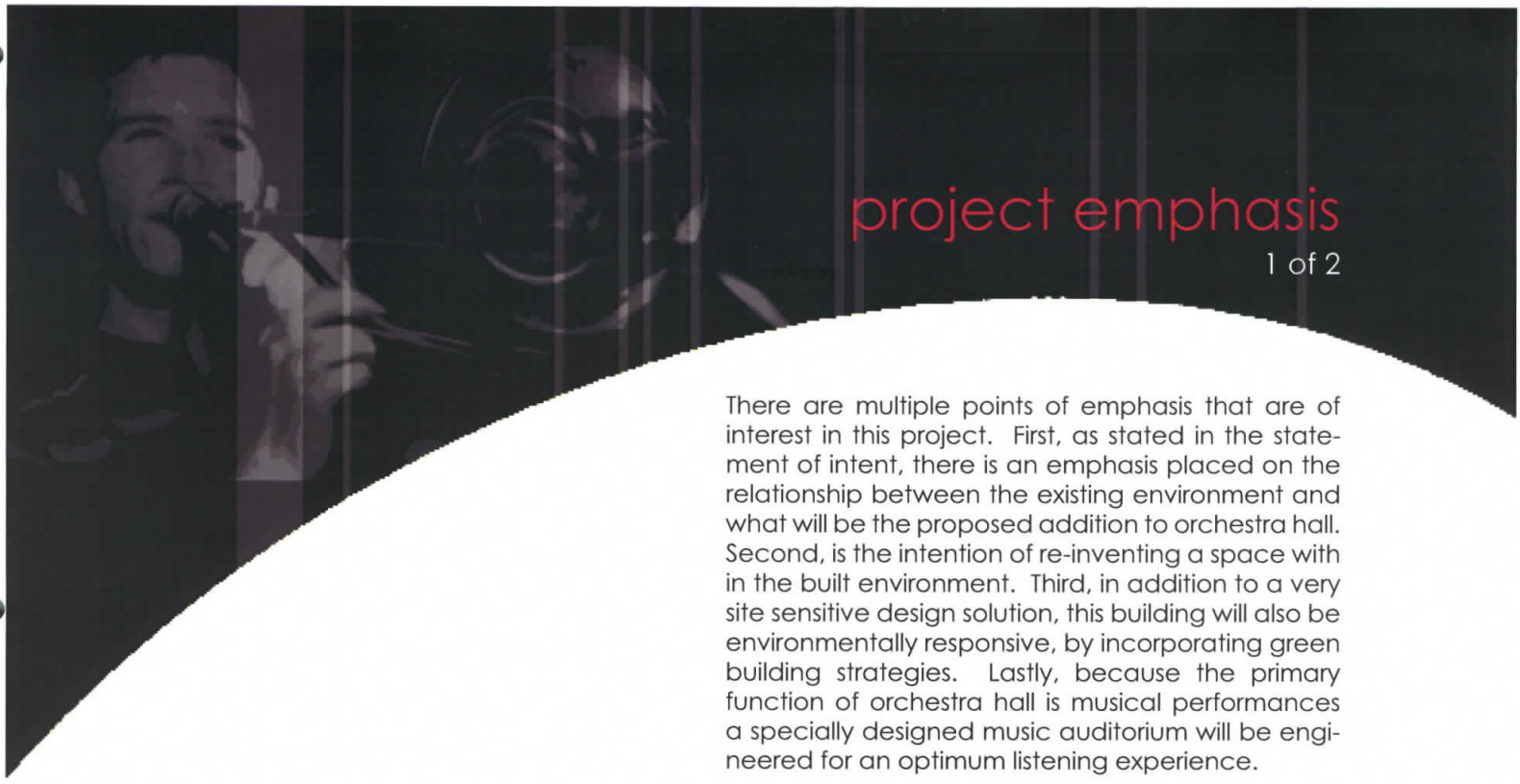



view to the southeast



view of neighboring peavey park

view to the north



# project emphasis

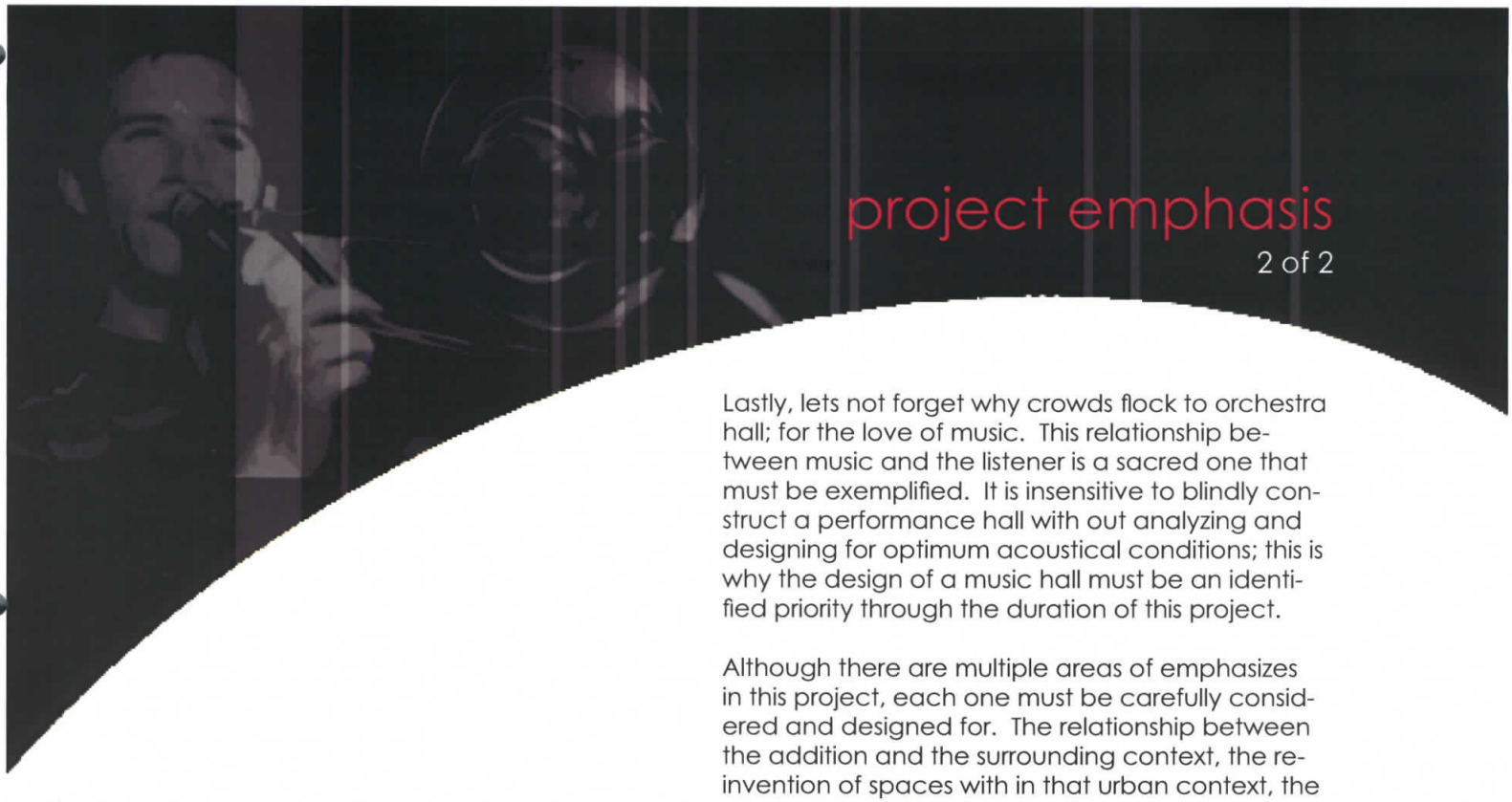


There are multiple points of emphasis that are of interest in this project. First, as stated in the statement of intent, there is an emphasis placed on the relationship between the existing environment and what will be the proposed addition to orchestra hall. Second, is the intention of re-inventing a space with in the built environment. Third, in addition to a very site sensitive design solution, this building will also be environmentally responsive, by incorporating green building strategies. Lastly, because the primary function of orchestra hall is musical performances a specially designed music auditorium will be engineered for an optimum listening experience.

The current urban context is one that is well established with in the city boundaries. To interrupt this mature microenvironment would be counterproductive. It is important to the future of not only the hall but also the downtown area that the addition is one that supplements the surrounding context. This is achieved by first identifying paths, nodes, landmarks, and other forms of significance followed by a design that caters to the needs of these elements. If these existing forms are ignored the result will be an uncomfortable and underutilized hall and block.

To invent something is to give birth to an idea or product, so what is reinvention? Reinvention is the birth of a new use or intention of an existing idea or product. This is precisely what will be emphasized in this project. The blocks surrounding orchestra hall are already defined. As a designer I must redefine some of these spaces in order to alter their intention.

Too often during the design process sustainable design strategies are given a secondary level of importance to space and site planning. This project will emphasize the importance of environmentally responsive design from the beginning. The project site goes far beyond the confines of Minneapolis; global considerations must be examined in order to create successful architecture.



# project emphasis

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Lastly, lets not forget why crowds flock to orchestra hall; for the love of music. This relationship between music and the listener is a sacred one that must be exemplified. It is insensitive to blindly construct a performance hall with out analyzing and designing for optimum acoustical conditions; this is why the design of a music hall must be an identified priority through the duration of this project.

Although there are multiple areas of emphasizes in this project, each one must be carefully considered and designed for. The relationship between the addition and the surrounding context, the re-invention of spaces with in that urban context, the relationship between the project and the environment, and the design of the music performance hall are the prime areas of interest for this project.

**Project Emphasis Summary**

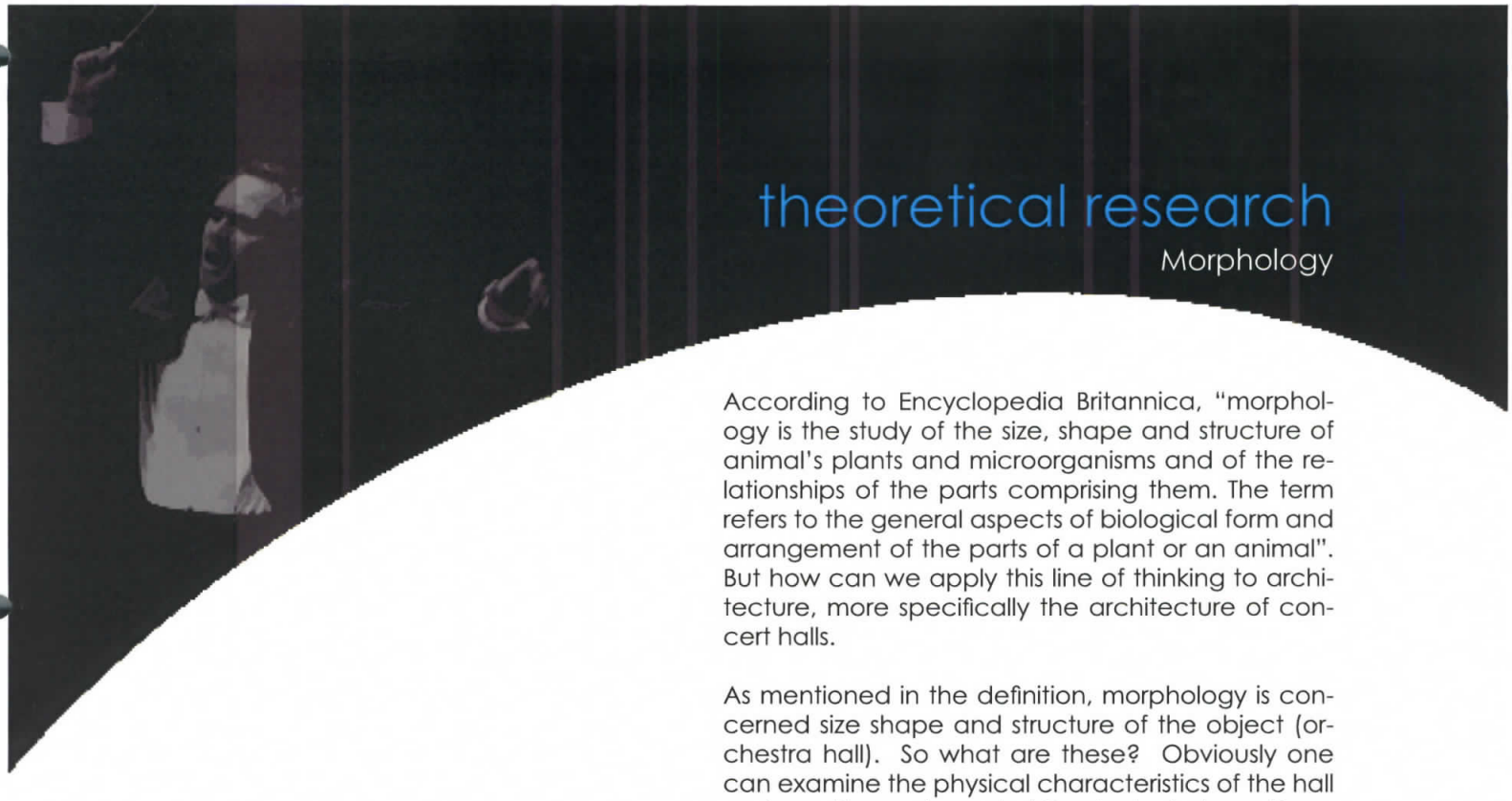
**Relationship to the urban context**

**Re-invention of built spaces**

**Environmental responsive design**

**Acoustically engineered auditorium**

program document

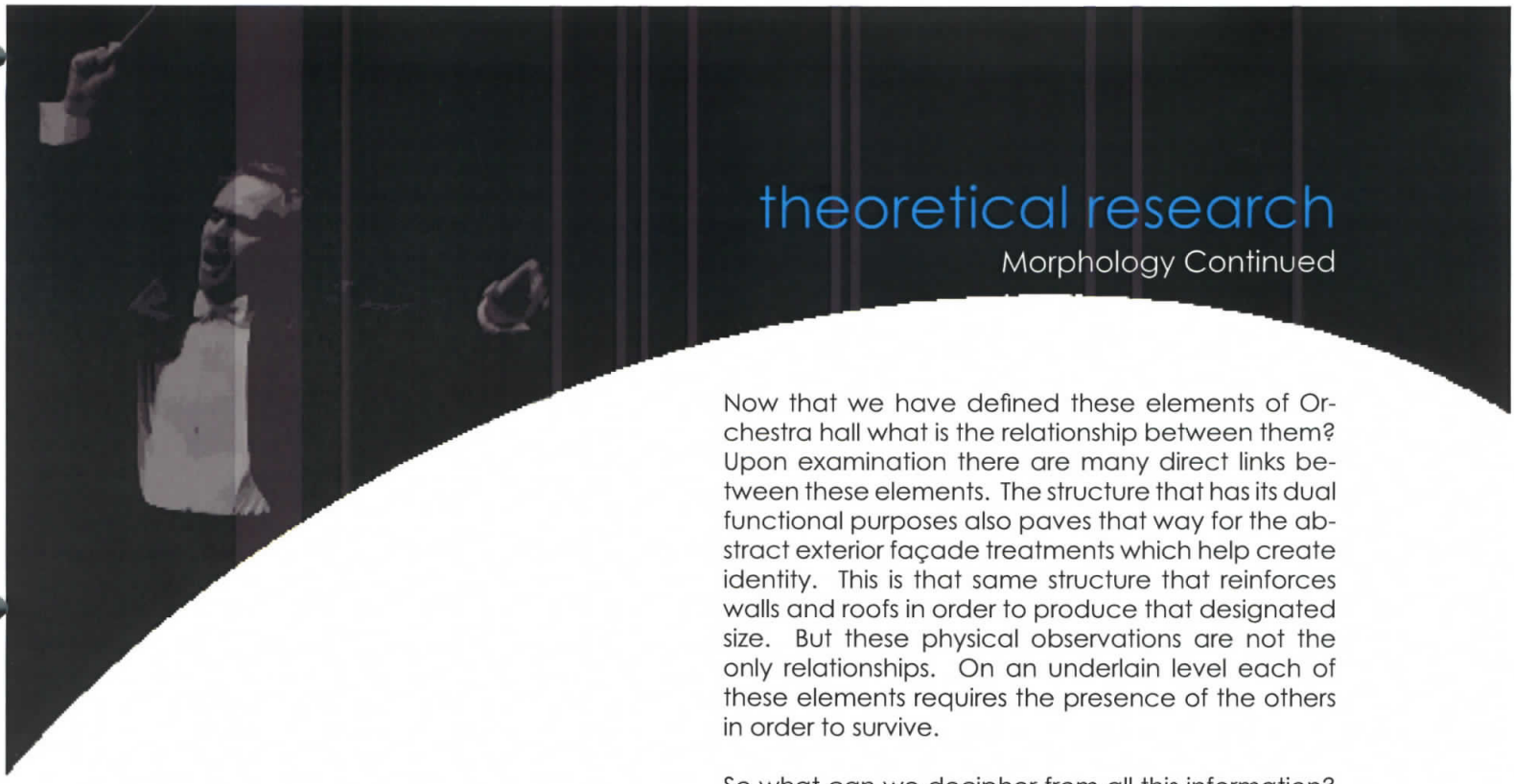


# theoretical research

## Morphology

According to Encyclopedia Britannica, "morphology is the study of the size, shape and structure of animal's plants and microorganisms and of the relationships of the parts comprising them. The term refers to the general aspects of biological form and arrangement of the parts of a plant or an animal". But how can we apply this line of thinking to architecture, more specifically the architecture of concert halls.

As mentioned in the definition, morphology is concerned size shape and structure of the object (orchestra hall). So what are these? Obviously one can examine the physical characteristics of the hall and see these characteristics, but what are these characteristics in regard to underlying elements of the hall, for instance what is the hall's size in relation to the context. One might argue that the hall has a much larger implied presence than physical presence. The hall acts as an anchor for the area. Other business and building rely on the traffic that orchestra hall generates in order to succeed. The shape, what does it mean. Because it is such an abstract and non rectilinear building how does this affect its identity in the city. Not only is the current hall non conformant with rectilinear geometry but it also fails to reinforce the city grid. With a drive-through on the north side the hall is breaking the reoccurring pattern of downtown Minneapolis. Lets not forget the structure of Orchestra hall. Not only does the building operate and stand because of the structure but it creates a noise tight box in the middle of downtown in order to optimize the viewing experience.



# theoretical research

## Morphology Continued

Now that we have defined these elements of Orchestra hall what is the relationship between them? Upon examination there are many direct links between these elements. The structure that has its dual functional purposes also paves that way for the abstract exterior façade treatments which help create identity. This is that same structure that reinforces walls and roofs in order to produce that designated size. But these physical observations are not the only relationships. On an underlain level each of these elements requires the presence of the others in order to survive.

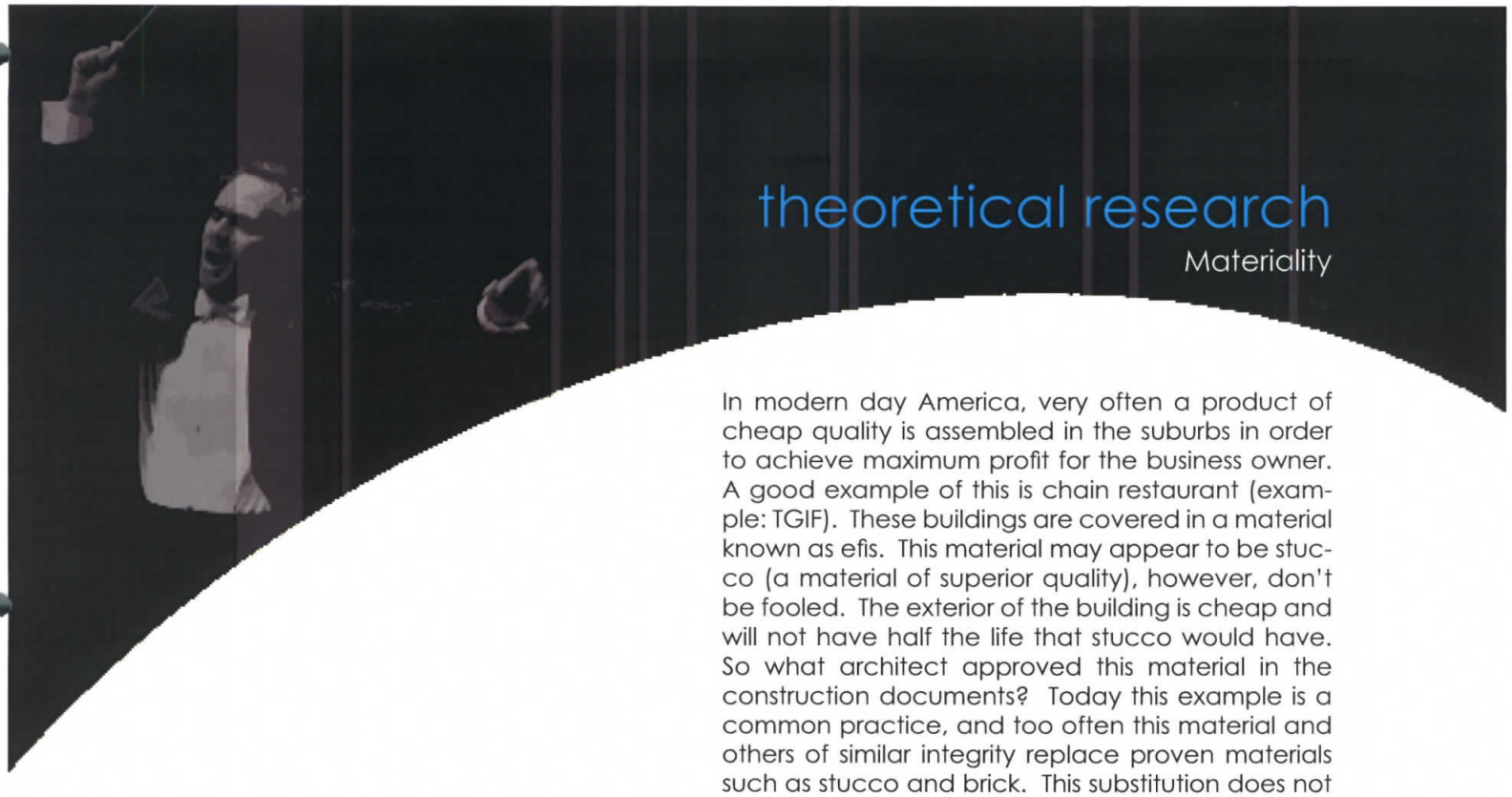
So what can we decipher from all this information? The elements defined in this essay are ones present in the current context. They are interdependent on each other, much like gestalt design, which tells us that the whole is greater that its parts. Each element although strong is meaningless with out the presence of the others.

# theoretical research

## Ethics

As professionals in society, our responsibility to the community is a constant subject of debate. Some may feel it is the obligation of the individual to dedicate themselves to the benefit of the community, while others may feel a sense of individuality. However, I do not accept that point of view. Not only is it our civic but also our humanitarian duty to uphold a quality of life for the community and the environment. So why architects? Why should designers be given this burden? Architects have a unique position in society, one that has a great effect on the future. It is this relationship that makes our role as humanitarians and environmentalists present. Not only must architects consider community and client needs when designing, but also the needs of the environment.

What does Ethics mean? According to the Merriam-Webster online dictionary, ethics refers to "the discipline dealing with what is good and bad and with moral duty and obligation". So how might we apply this line or thinking to the disciple of design? As designers we have both the privilege and responsibility to shape the form of the built environment. We must not only consider the needs of those who are directly affected by the outcome of the design but every one in the community. So who consists of the community? Today we all are part of a global community, which means individuals across the world may feel the effects of a design in the United States. Not only must designers consider functional and environmental issues that effect the final design, but also the atheistic and relationship to the context.



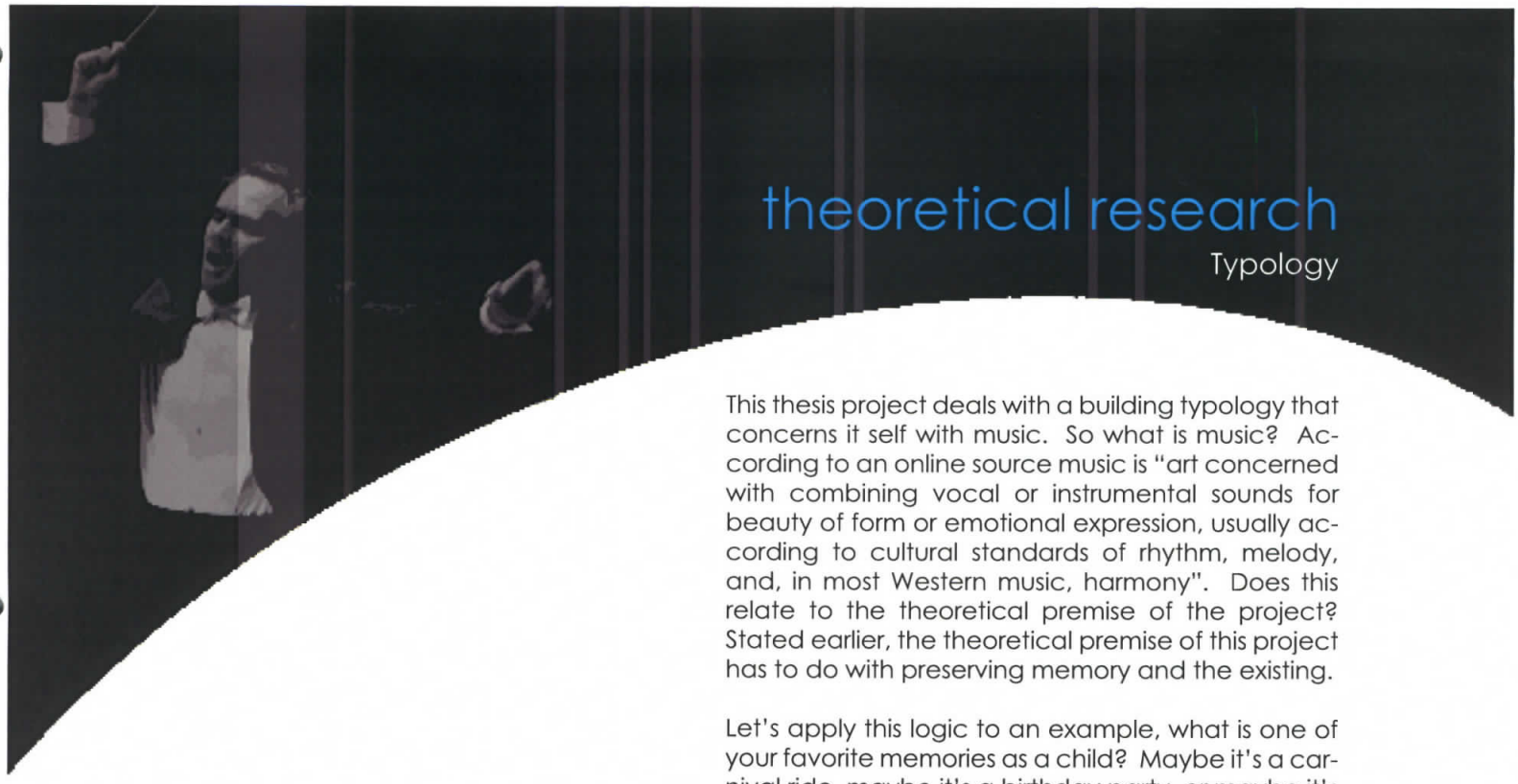
# theoretical research

## Materiality

In modern day America, very often a product of cheap quality is assembled in the suburbs in order to achieve maximum profit for the business owner. A good example of this is chain restaurant (example: TGIF). These buildings are covered in a material known as efis. This material may appear to be stucco (a material of superior quality), however, don't be fooled. The exterior of the building is cheap and will not have half the life that stucco would have. So what architect approved this material in the construction documents? Today this example is a common practice, and too often this material and others of similar integrity replace proven materials such as stucco and brick. This substitution does not illustrate an ethical act by the designer. As an architect, we must communicate to the client that this solution is a poor one. It is a cheap temporary solution that will need to be replaced in a short lifetime. The "bottom line" must not take priority over architectural integrity. Designers must put quality ahead of economics. If this is not practiced the built environment will be come both sociologically and physically fragile.

Materiality is an important element of a building. Not only does it provide a function quality, but it contributes to the identity and feel of the building. A material of "light" characteristics (such as wood siding) displays a completely different image than a dark heavy material (such as brick or CMU). As a designer we must select a material that coincides with the intentions of the typology and theoretical premise of the project.

Not only is it important to consider the application of materiality in the project but it must be developed along side other elements of the project. Too often building are designed only to leave material selection until the very end. This is a practice that creates horrendous results. Because, materiality of a building has such a strong impact on the outcome, it must be prioritized so that it is not left behind. This thesis project will do exactly that. Materially will be developed along side other elements, do insure that it is not compromised. Barrowing materials from surrounding buildings and the current orchestra hall will result in a harmonious design solution.



# theoretical research

## Typology

This thesis project deals with a building typology that concerns it self with music. So what is music? According to an online source music is "art concerned with combining vocal or instrumental sounds for beauty of form or emotional expression, usually according to cultural standards of rhythm, melody, and, in most Western music, harmony". Does this relate to the theoretical premise of the project? Stated earlier, the theoretical premise of this project has to do with preserving memory and the existing.

Let's apply this logic to an example, what is one of your favorite memories as a child? Maybe it's a carnival ride, maybe it's a birthday party, or maybe it's a sporting event. No matter what the memory is, music was moist likely a part of it whether you were aware of its presence or not. All those examples have music present in their context. It is the human senses, (one being hearing) that help us to remember experiences. With this said one can start to see the link between memory and preservation and music.

Music has been around for thousands of years, and like architecture it has style and periods that illustrate trends of the eras. A comparison between architecture and music is not as abstract as one might think. These two arts capture what we refer to as memory.

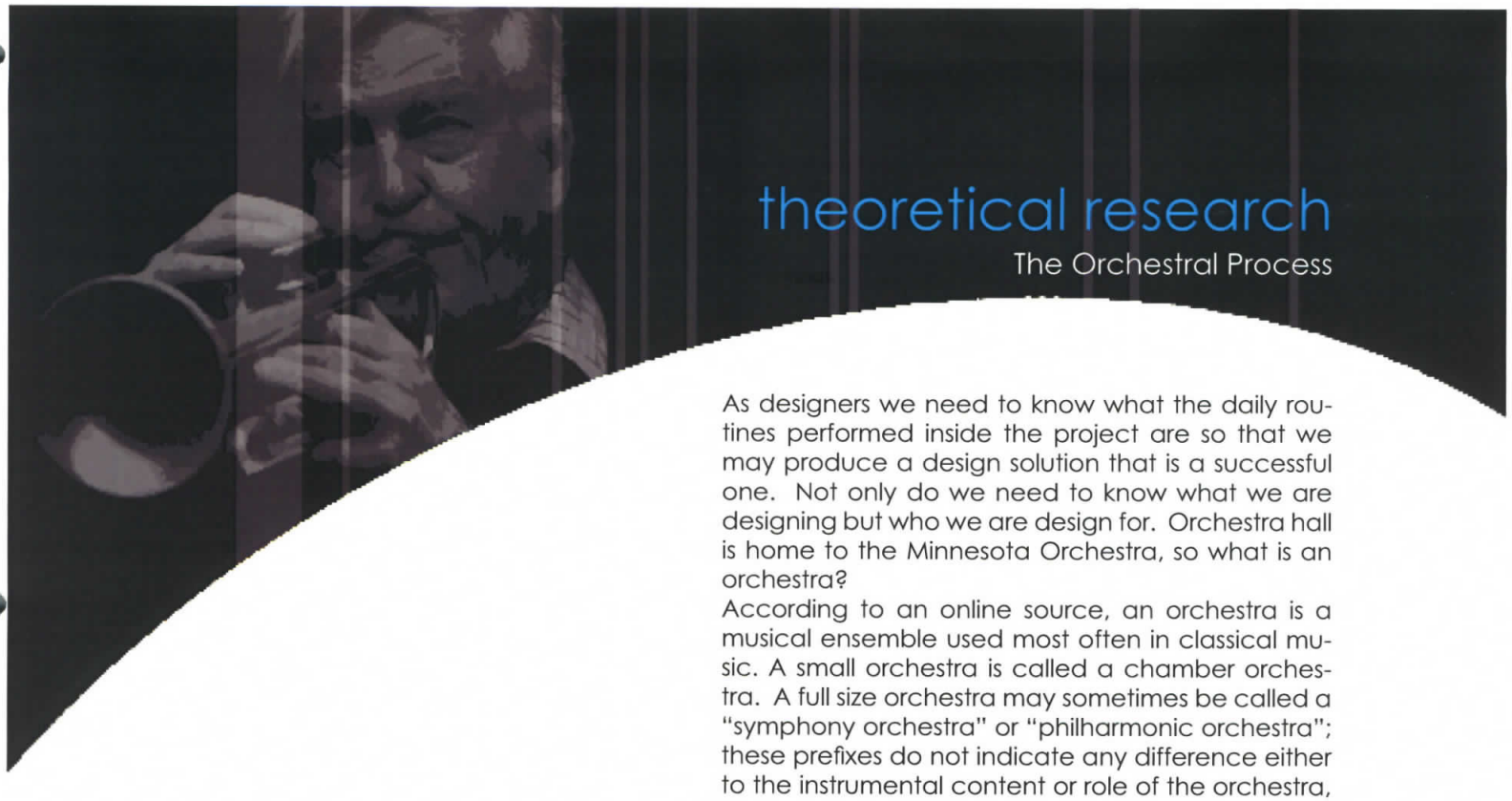
# theoretical research

## Urban Theory

Urban sprawl is a movement that is redefining the built environment and establishing a new perspective of living in America. Mass populations are moving farther and farther away from the urban cities in this country. While this is happening it is leaving cities cold and lonely, while using resources and materials to have their own residency in the suburbs..

"The built Environment and Spatial Form" is an online article that describes this situation and comments on the effects. Like the author I to feel that this movement is taking a negative toll on the American city. Beautiful architecture is being left behind in the city so families can have an acre of land at their back door. This style of living and architecture is redirecting architectural integrity down. Cheap homes and business are replacing large quality apartment and retail buildings. Soon America will be made up of all suburbs in stead of rural and urban areas.

So what does all this mean? It is the duty of city officials and business owners to try and refocus the public eye on the city. Orchestra Hall and other functions like it need to collaborate in these downtown areas in order to bring back emphasis. An addition to orchestra hall is a perfect opportunity to reestablish the romanticism and pristine qualities of the majestic city.



# theoretical research

## The Orchestral Process

As designers we need to know what the daily routines performed inside the project are so that we may produce a design solution that is a successful one. Not only do we need to know what we are designing but who we are design for. Orchestra hall is home to the Minnesota Orchestra, so what is an orchestra?

According to an online source, an orchestra is a musical ensemble used most often in classical music. A small orchestra is called a chamber orchestra. A full size orchestra may sometimes be called a "symphony orchestra" or "philharmonic orchestra"; these prefixes do not indicate any difference either to the instrumental content or role of the orchestra, but can be useful to distinguish different orchestras based in the same city (for instance, the London Symphony Orchestra and the London Philharmonic Orchestra). A symphony orchestra will usually have over eighty musicians on its staff, in some cases over a hundred, but the number of musicians used in a performance varies according to the work being played. A leading chamber orchestra might be forty or fifty strong; some are much smaller than that. Orchestras sometimes use freelance musicians to enable them to perform works which require instrumentalists which they do not have on staff; not all orchestras employ a harpist for example.

# theoretical research

## The Orchestral Process Continued

The typical symphony orchestra consists of four groups of musical instruments:

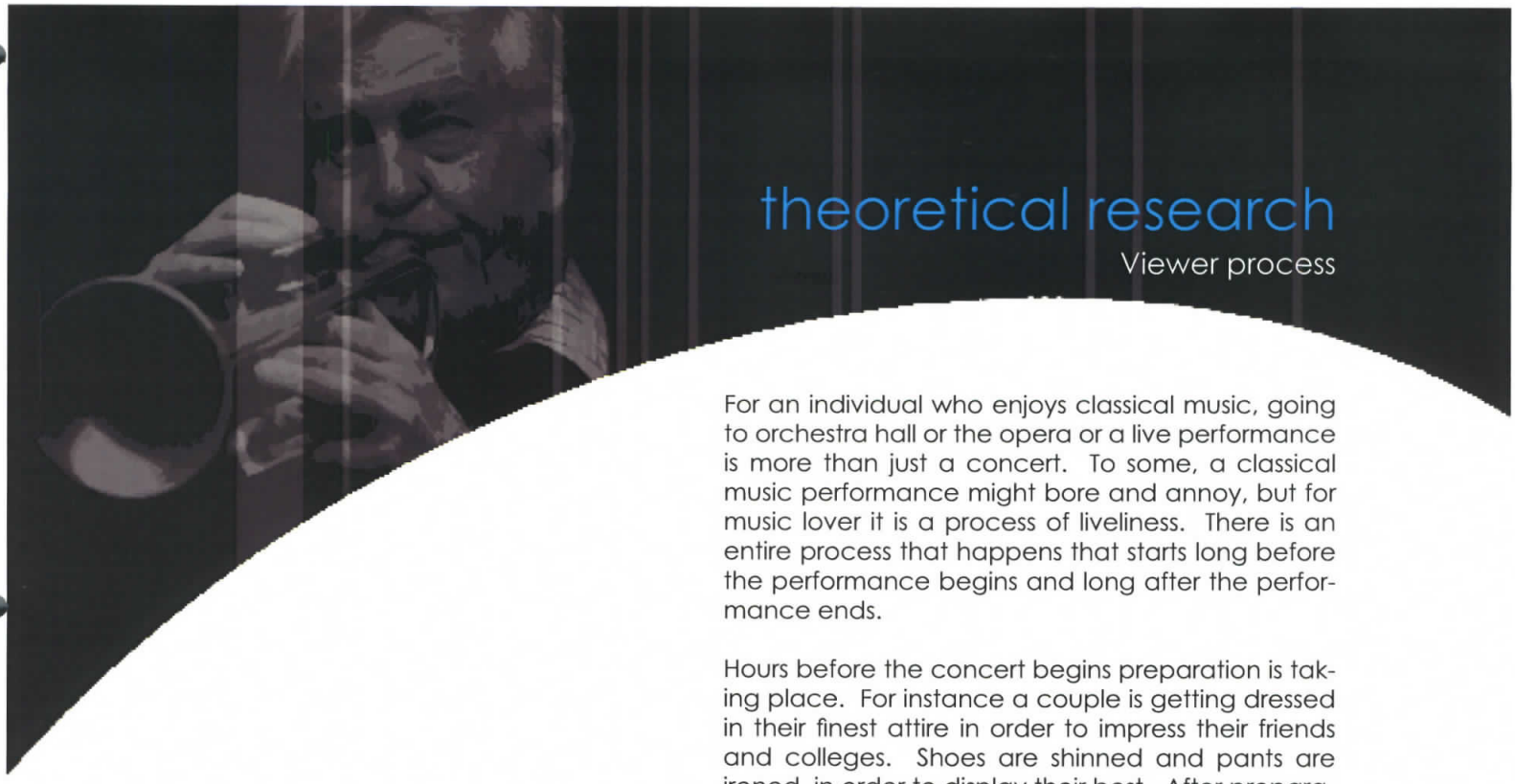
the strings (violins, violas, cellos, double basses),

the woodwinds (flutes, piccolos, oboes, cor an glais, clarinets, bass clarinets, bassoons, contrabassoons),

the brass (trumpets, trombones, frenchhorns, bass trombones, tuba), and

the percussion (timpani, snare drum, bass drum, celesta, piano, etc.).

Now that we are familiar with what an orchestra is, the process that they take part in should be defined. This process is important so we may accommodate for this routine. After arriving at the hall musicians go to a back stage area that houses their instruments it is hear where they unpack equipment and prepare for warm ups. After they are unpacked they proceed to a pre-staging area, usually adjacent to the stage, here they perform their tuning and warm up exercises. After warmed up they take center stage. Following another brief tuning the orchestra is ready to perform. Led by their conductor music is created. Following the performance, instruments are packed away and the orchestra members proceed to "the green room" this is a traditional room in most halls that is used for post recital gatherings with the public. Interaction between VIP patrons and the orchestra runs for several hours into the night. This is a generalized process that the orchestra performs each night. It is important to consider this when designing.



# theoretical research

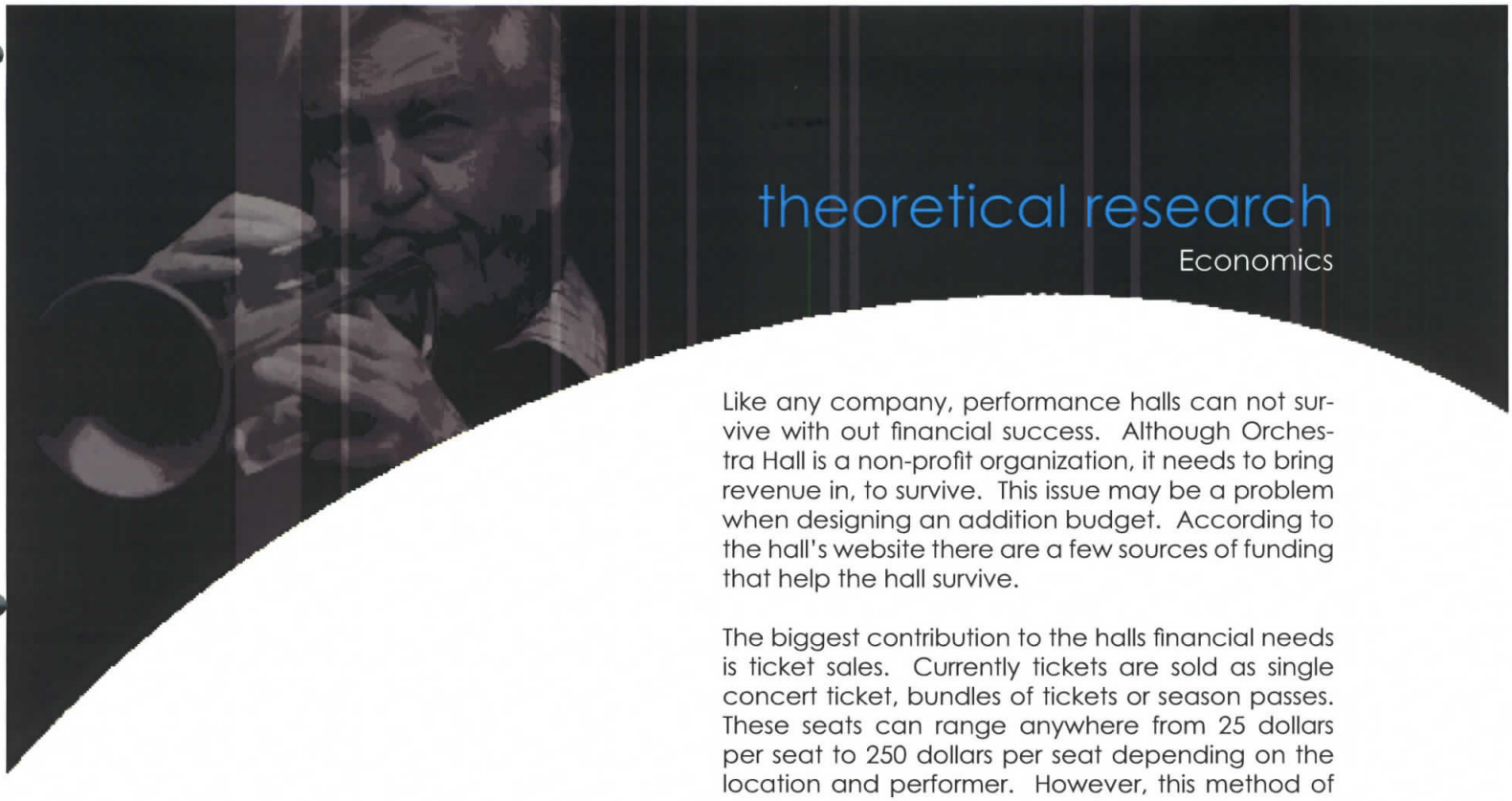
## Viewer process

For an individual who enjoys classical music, going to orchestra hall or the opera or a live performance is more than just a concert. To some, a classical music performance might bore and annoy, but for music lover it is a process of liveliness. There is an entire process that happens that starts long before the performance begins and long after the performance ends.

Hours before the concert begins preparation is taking place. For instance a couple is getting dressed in their finest attire in order to impress their friends and colleges. Shoes are shinned and pants are ironed, in order to display their best. After preparation is complete dinning is not out of the ordinary. However, McDonalds or Perkins will not due, only the finest tonight. Italian wines or Spanish pastas are enjoyed over white table cloths. After a dinner is enjoyed it is on to the main ever, but there is a sequence that will take place. First outside the hall they are greeted by friends. Upon entering into the lobby, the couple is joined by hundreds of others alike who are preparing for the show. Cocktails and stories are exchanged until minuets before the curtain rises.

Finally the show begins, song after song is enjoyed by the audience. It is here in the hall were viewers concentrate on nothing but the music, troubles of family and work are forgotten, and the music is embraced. Suddenly a halt, intermission is amongst us, where people can discuss the previous act and reject or embrace the creativity of the performer. Once again these discussions are enjoyed over the accompaniment of cocktails. As sudden as it stopped, the show starts again, and peace and tranquility calms the audience. Not until after the performance is complete is their liveliness amongst the audience. Once again the public gathers to enjoy drinks and opinions. Finally after everyone is exhausted is it time to go home.

As illustrated in this dialogue, attending a concert is more than just enjoying a musical, there are steps and process that are enjoyed as well. As a designed I must help to maximize enjoyment of each of these steps, an not take any of them for granted.



# theoretical research

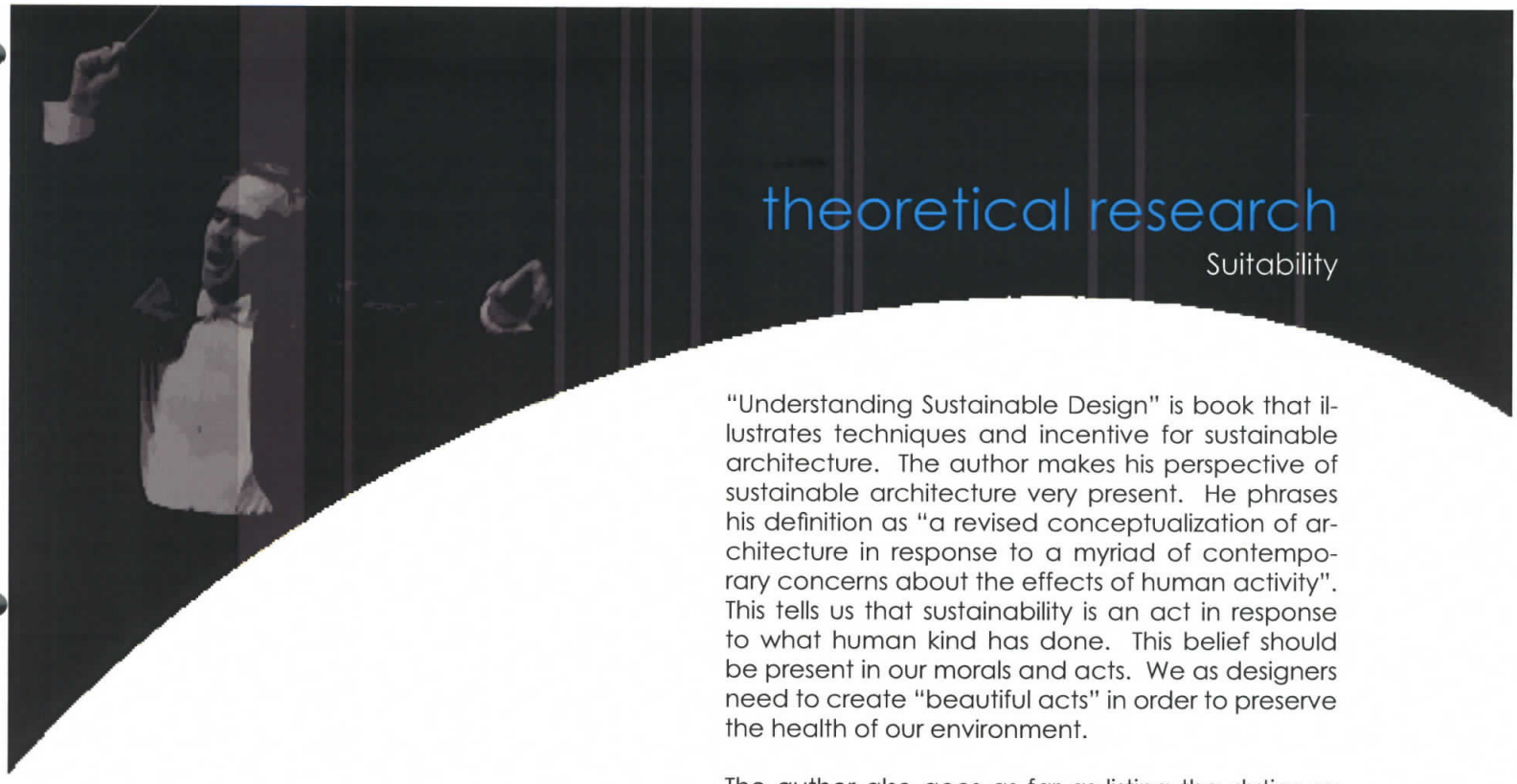
## Economics

Like any company, performance halls can not survive with out financial success. Although Orchestra Hall is a non-profit organization, it needs to bring revenue in, to survive. This issue may be a problem when designing an addition budget. According to the hall's website there are a few sources of funding that help the hall survive.

The biggest contribution to the halls financial needs is ticket sales. Currently tickets are sold as single concert ticket, bundles of tickets or season passes. These seats can range anywhere from 25 dollars per seat to 250 dollars per seat depending on the location and performer. However, this method of collection alone does not satisfy there fiscal needs alone.

Although not a very large part of the budget, the hall can be rented out for the right price. For wealthy individuals or music lovers who wish to do so that hall can be reserved, (hall would not release price).
The last portion of the halls funding comes from a combination of private contributions and government aid. Because the hall is a non-profit organization it accepts supplemental income from the state government. And let's not forget the ever so popular contribution to the hall by wealthy music lovers. Often individuals will donate thousands of dollars in order to see the hall succeed.

Combinations of all these collection strategies are used by the hall to financially survive. Unfortunately, because the organization is a non profit one, locating funding for an addition will be a hurtle. It is important that strategic marketing strategies be used in order to accumulate sufficient funding to finance this thesis project.



# theoretical research

## Suitability

"Understanding Sustainable Design" is book that illustrates techniques and incentive for sustainable architecture. The author makes his perspective of sustainable architecture very present. He phrases his definition as "a revised conceptualization of architecture in response to a myriad of contemporary concerns about the effects of human activity". This tells us that sustainability is an act in response to what human kind has done. This belief should be present in our morals and acts. We as designers need to create "beautiful acts" in order to preserve the health of our environment.

The author also goes as far as listing the duties as designers that we should work to attain.

a. Providing adequate shelter

b. Improving management of urban settlements

c. Promoting sustainable land-use planning and management

d. Providing environmentally sound infrastructure facilities

e. Promoting energy-efficient technology, alternative and renewable energy
sources and sustainable transport systems.

f. Enabling disaster-prone countries to plan for and recover from natural disasters

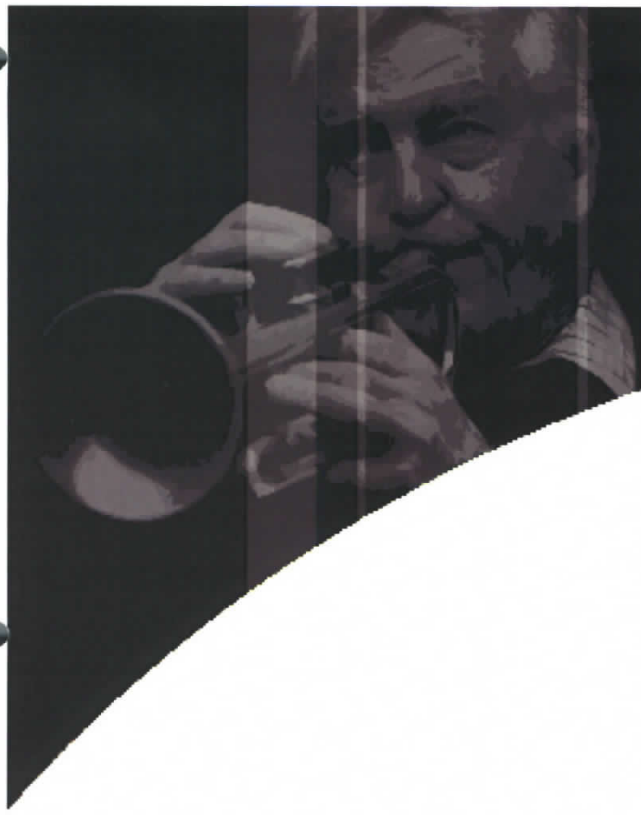
g. Promoting sustainable construction industry activates

h. Human resources development

# theoretical research

## Suitability Continued

Unfortunately, sustainable design is often a product of design, which can be very problematic. As designers we must account for sustainability approaches as we are developing the design of the structure. If we design a building and then add sustainable characteristics to the building, it will not reach its potential as an environmentally successful project. The future is something that nobody is sure about. Sustainability has much to do with the future so who's to say what is good and bad for the environment? But one thing is for certain that the way we are mistreating the earth right now will lead us to an environment that is unhealthy one. Lastly, the "triple bottom line" as the author refers to it, includes: environmental, economic, and sociological cost of a project. Too often the economic cost of a project takes priority over all other costs, and is the driving design tool. All these principles are ones that must be considered in this thesis project in order to produce a design that utilizes principles of sustainability.



# theoretical research

## Practical Collaboration

"How will we conduct business?" This is the title for chapter seven in a book entitled Biomimicry. Here the author introduces some ideas that are of value in the work place. As outlined in the text, the "ten commandments" or rules encouraging survival of those who may adopt such principles are as follows

1. Use waste as a resource: Currently a linear model of a building process is seen, where raw materials are used to create something, when that objects use has expired, it discarded as an unusable waste product. Instead of a linear approach we should implement a interactive web where materials are used in a closed circuit, being used over and over again.

2. Diversify and cooperate to fully use habitat: In order to successfully survive in our environment it is important that we are aware of our context. Ignorance of our environment will only hurt not us but our environment.

3. Gather and use energy efficiently: Almost every community in the world, with the exception of deep sea environments, require an energy form gathered through vegetation. This natural energy is required for survival for all kinds of species, it is important we cherish this commodity and others like it. Wasting it would be jeopardizing survival.

4. Optimize rather than maximize: The American way is "bigger is better". It is ideals like this that has dug the whole that we are in today. In contrast to maximization: Optimization is a much more efficient ideal. Why make two "widgets" when you only need one? By optimizing resources, efficiency will be increased and waste will be minimized.

# theoretical research

## Practical Collaboration Continued

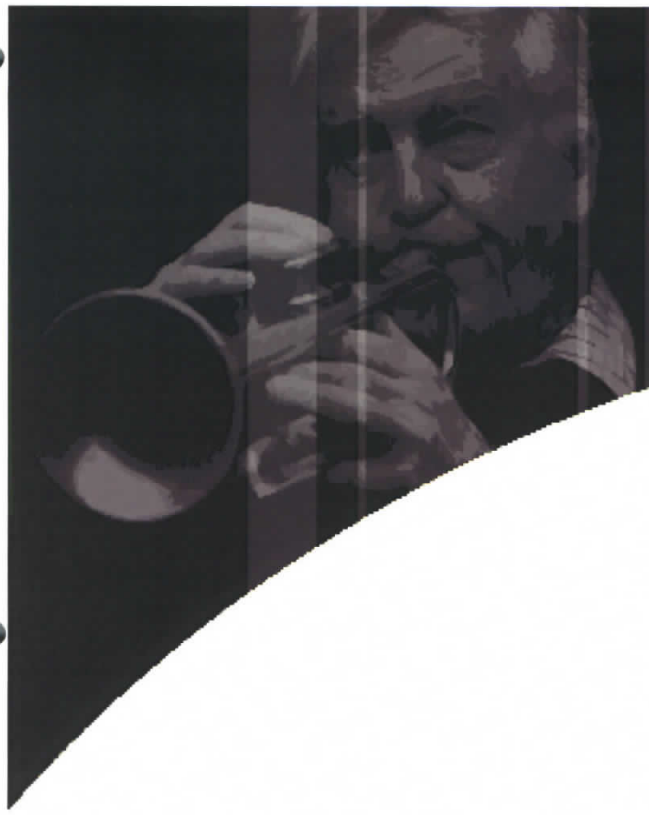
5. Use materials sparingly: Whether a material is nonrenewable or can be replaced relatively easily, strategic use of these materials is necessary. Fossil fuels used to develop the automobile in the twentieth century are an example of a material that was not used sparingly. It was not until recently that we have learned to appreciate the material and realize that we need to use sparingly, because the amount available is unknown.

6. Don't foul their nests: To infest ones environment with negative elements is unwise, so why does the human race continue to pollute the air we breathe? The upkeep of our breathable air is very important. One company close to us that tries to incorporate this philosophy in their cooperation is 3M. Twenty years ago, 3M implemented the 3Ps program (pollution, prevention pays). 3M has saved $750 dollars thanks to the policy and saved the earth form 1.3 billion pounds of waste since the program was started.

7. Don't draw down resources: According to the text, two corollaries to this lesson "don't emit pollutants faster than the earth can handle them" would have to be: first: don't use nonrenewable resources faster than you can develop them, and second dint use nonrenewable resources faster than they regenerate themselves.

8. Remain in balance with the biosphere: the more in touch to the environment we are the more we can learn from it and in effect the more we can benefit form it with out harming it. This balance is necessary not only for us but for the earth.

9. Run on Information: knowledge is a powerful tool no matter what the context. The more important question is how can we gain that knowledge, especially from the earth.

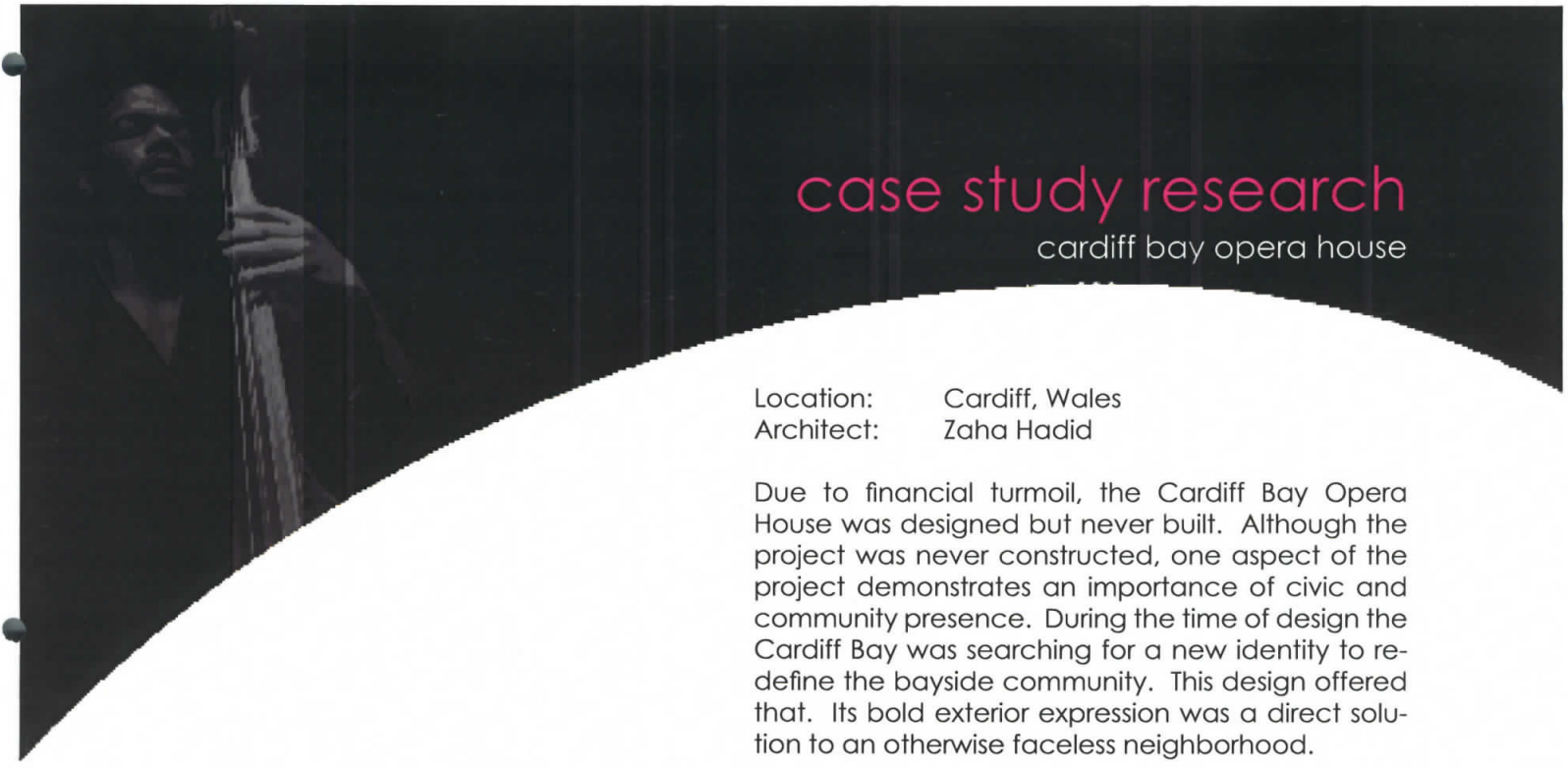


# theoretical research

## Practical Collaboration Continued

10. Shop locally: in an age where Internet shopping has become the norm, shopping locally is becoming a thing of the past. But is this the best for the environment? Lots of resources that are wasted from importing and exporting items could be avoided if more people adopted this ideal of shopping locally.

These rules succeed at generalizing and summarizing principles that should be adopted by a design professional in order to produce successful architecture. The principles will be applied when appropriately to this thesis project.



# case study research

## cardiff bay opera house

Location: Cardiff, Wales
Architect: Zaha Hadid

Due to financial turmoil, the Cardiff Bay Opera House was designed but never built. Although the project was never constructed, one aspect of the project demonstrates an importance of civic and community presence. During the time of design the Cardiff Bay was searching for a new identity to re-define the bayside community. This design offered that. Its bold exterior expression was a direct solution to an otherwise faceless neighborhood.

This projects main focus was the relationship between the building and its environment, which is important, but at what cost. Critics praised the buildings forms, while simultaneously rejecting the acoustical value, which had been undermined.

This project demonstrates two elements that are important to the design of a concert hall; community identity, which was achieved by its bold exterior and optimal acoustical design which was sacrificed to aesthetics.

# case study research

## Colorado Court

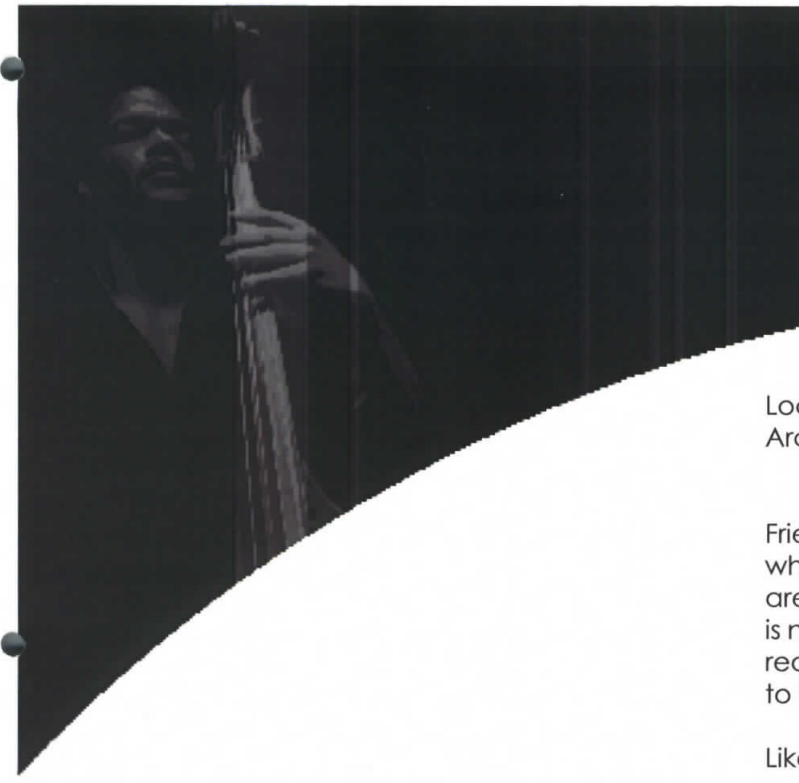
Location: Santa Monica, California
Architect: Pugh Scarpa Kodama

The Colorado Court, located in downtown Santa Monica is an affordable housing project that incorporates many sustainable design strategies. The Court, when completed in 2002 was intended to be a precedent for similar projects to come.

Some of the sustainable strategies utilized in this project include double pane low E Krypton-sealed efficiency glazing, outdoor & indoor motion lights, and a reflective roof coating as some energy efficient practices, these are in addition to site considerations, and recourse conservation implementations in order to achieve a gold LEED certification.

When the building was completed all these strategies were projected to produce 10,000 dollars in savings per year from energy consumption, and be able to produce all on site energy usage from solar panels implemented in the design.

Once again one can see the power of site sensitive design. The results of such a building that is environmental friendly are astounding and must be considered when designing.



# case study research

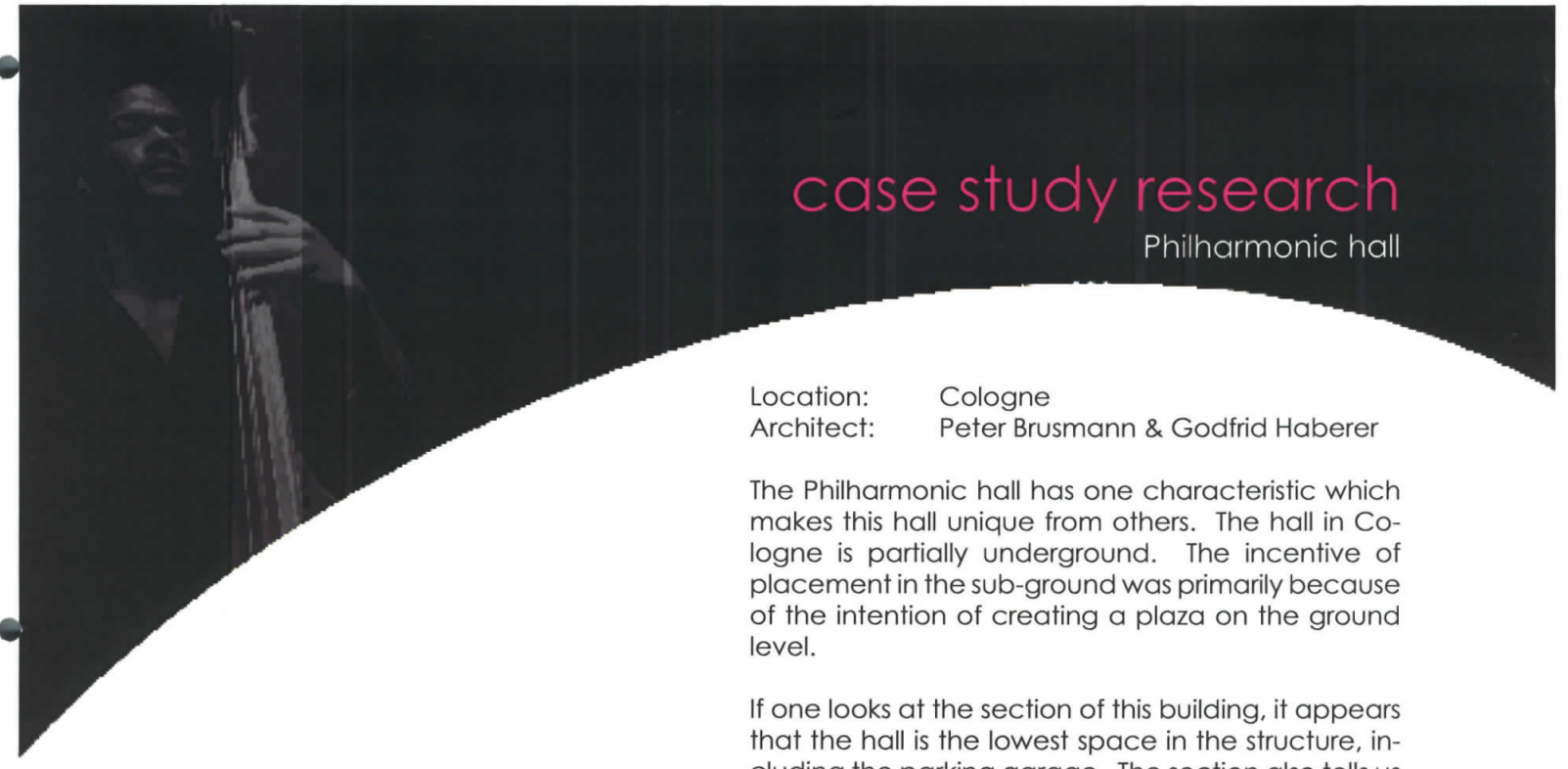
## Friedrichstrasse

Location: Berlin, Germany
Architect: Jean Nouvel, Henri Cobb, Oswald Mathias Ungers

Friedrichstrasse is a shopping mall in Berlin Germany, which utilizes a unique design strategy in an urban area. A portion of the mall sits below the street. It is not uncommon for buildings to occupy sub-grade realist ate, but it is distinctive for that sub-grade area to be directly under vehicular street.

Like the Philharmonic hall In Cologne, this project realizes the value of space at grade level. In this example space available around Friedrichstrasse is non-existent. So the designers examined all their choices for growth. This innovative application of growth explores a solution that many may not.

Although this project creates interesting discussion, how practical is its application? Does the positive attributes out weigh the high construction and realist ate costs of building below the street? That is a question that designers must answer before applying this technique.



# case study research

## Philharmonic hall

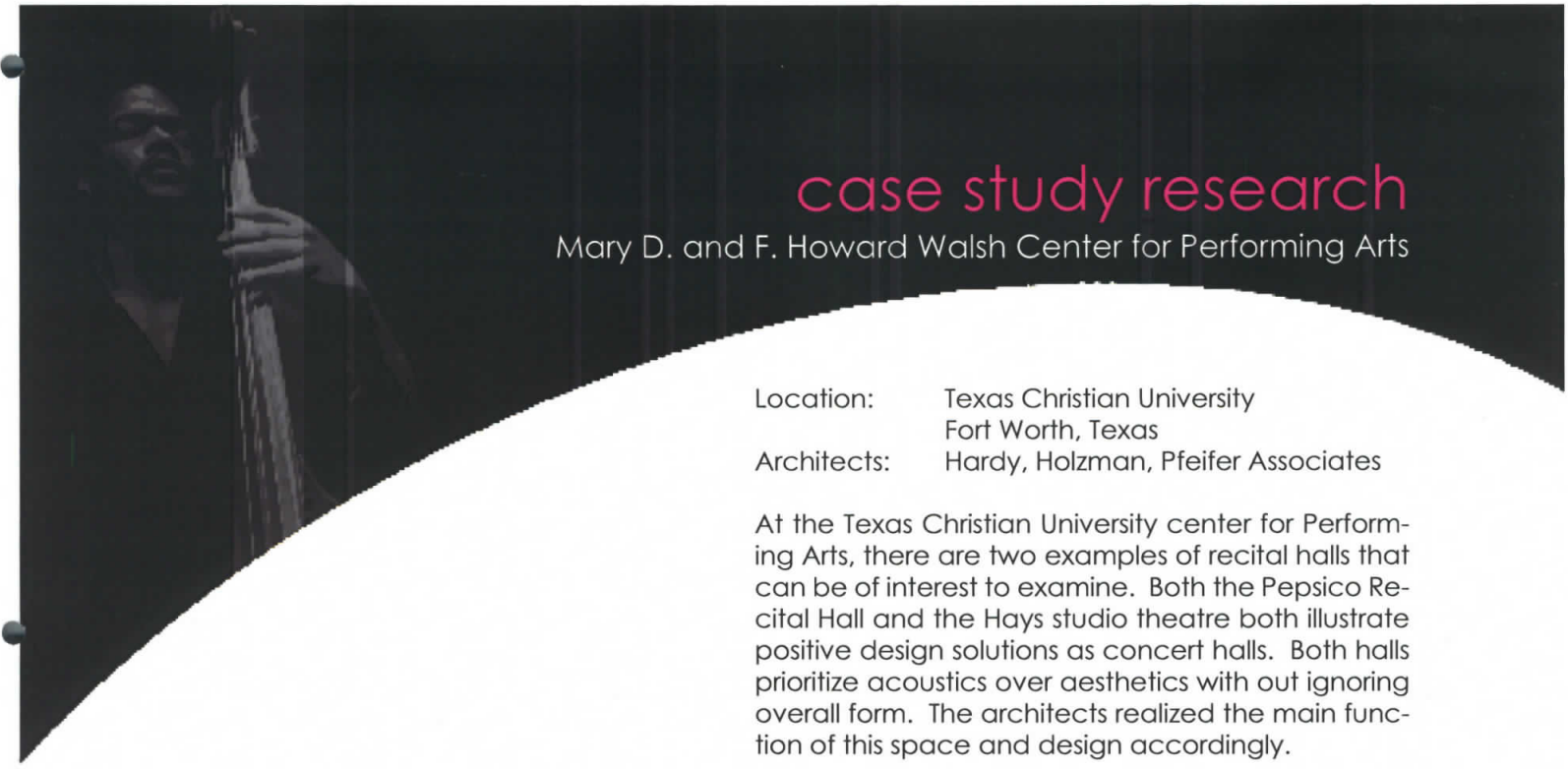
Location: Cologne
Architect: Peter Brusmann & Godfrid Haberer

The Philharmonic hall has one characteristic which makes this hall unique from others. The hall in Cologne is partially underground. The incentive of placement in the sub-ground was primarily because of the intention of creating a plaza on the ground level.

If one looks at the section of this building, it appears that the hall is the lowest space in the structure, including the parking garage. The section also tells us that the plaza sits atop the roof of the auditorium, which would have not been practical if the hall did not penetrate the earth.

Although the result of this project was a successful one, the construction process was only complicated by the sub-grade design. Water penetration needed to be stopped in order for construction crews to work.

By examining this project, the value of ground level space is identified. This is especially true in urban areas where space is limited.



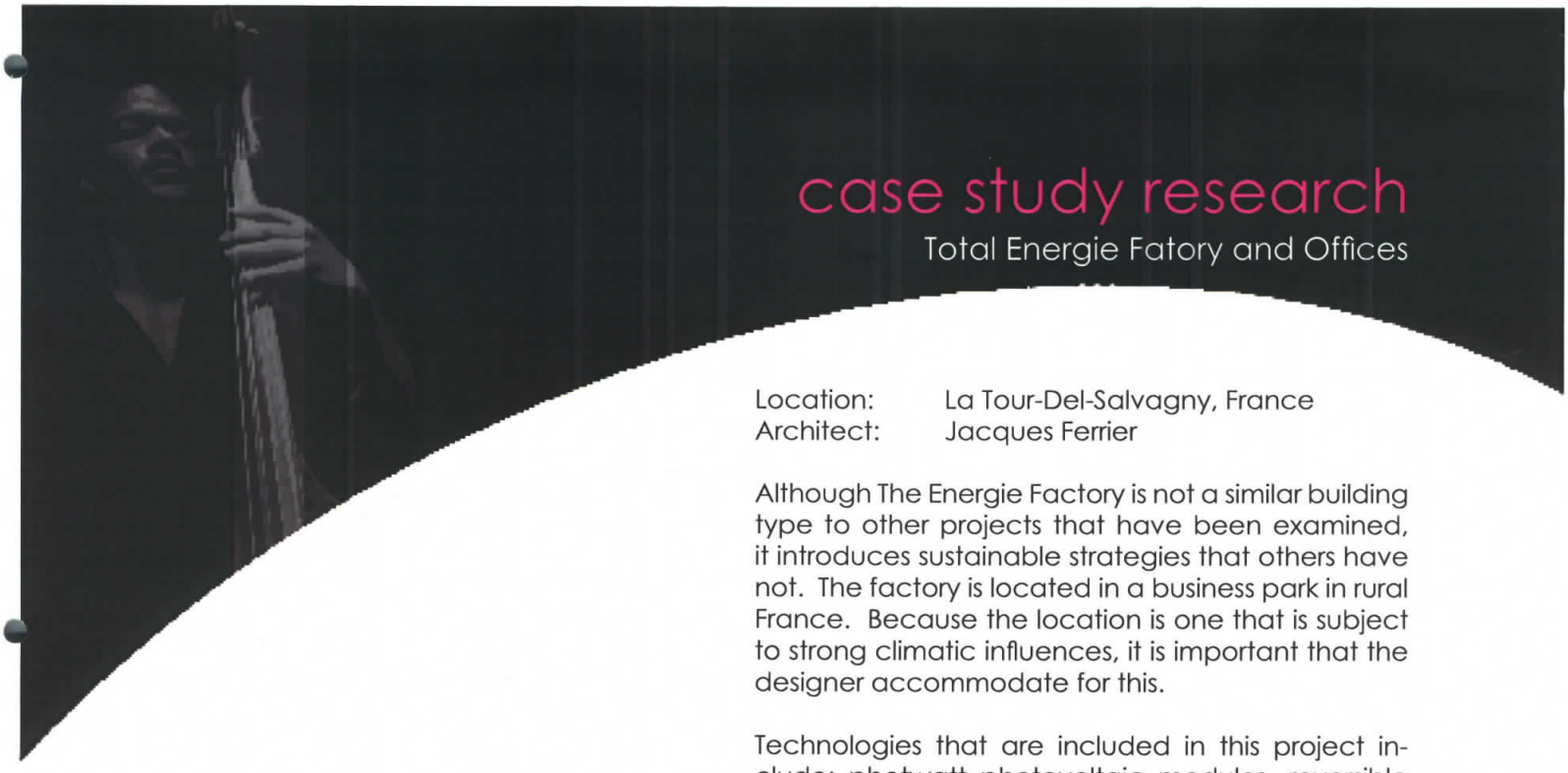
# case study research

## Mary D. and F. Howard Walsh Center for Performing Arts

Location: Texas Christian University
Fort Worth, Texas
Architects: Hardy, Holzman, Pfeifer Associates

At the Texas Christian University center for Performing Arts, there are two examples of recital halls that can be of interest to examine. Both the Pepsico Recital Hall and the Hays studio theatre both illustrate positive design solutions as concert halls. Both halls prioritize acoustics over aesthetics with out ignoring overall form. The architects realized the main function of this space and design accordingly.

Not only does this case study demonstrate successful design, it has achieved this feat on a fixed budget. Being a religious university, finical restrictions are not uncommon. T o produce a solution of such beauty and efficient function with limited resources is amazing.



# case study research

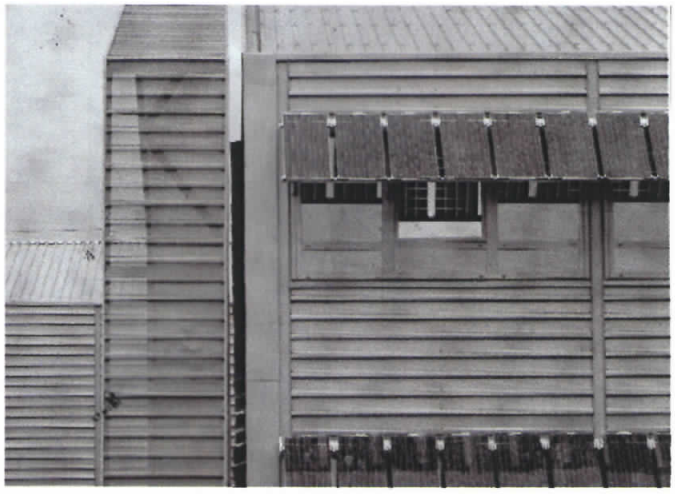
## Total Energie Fatory and Offices

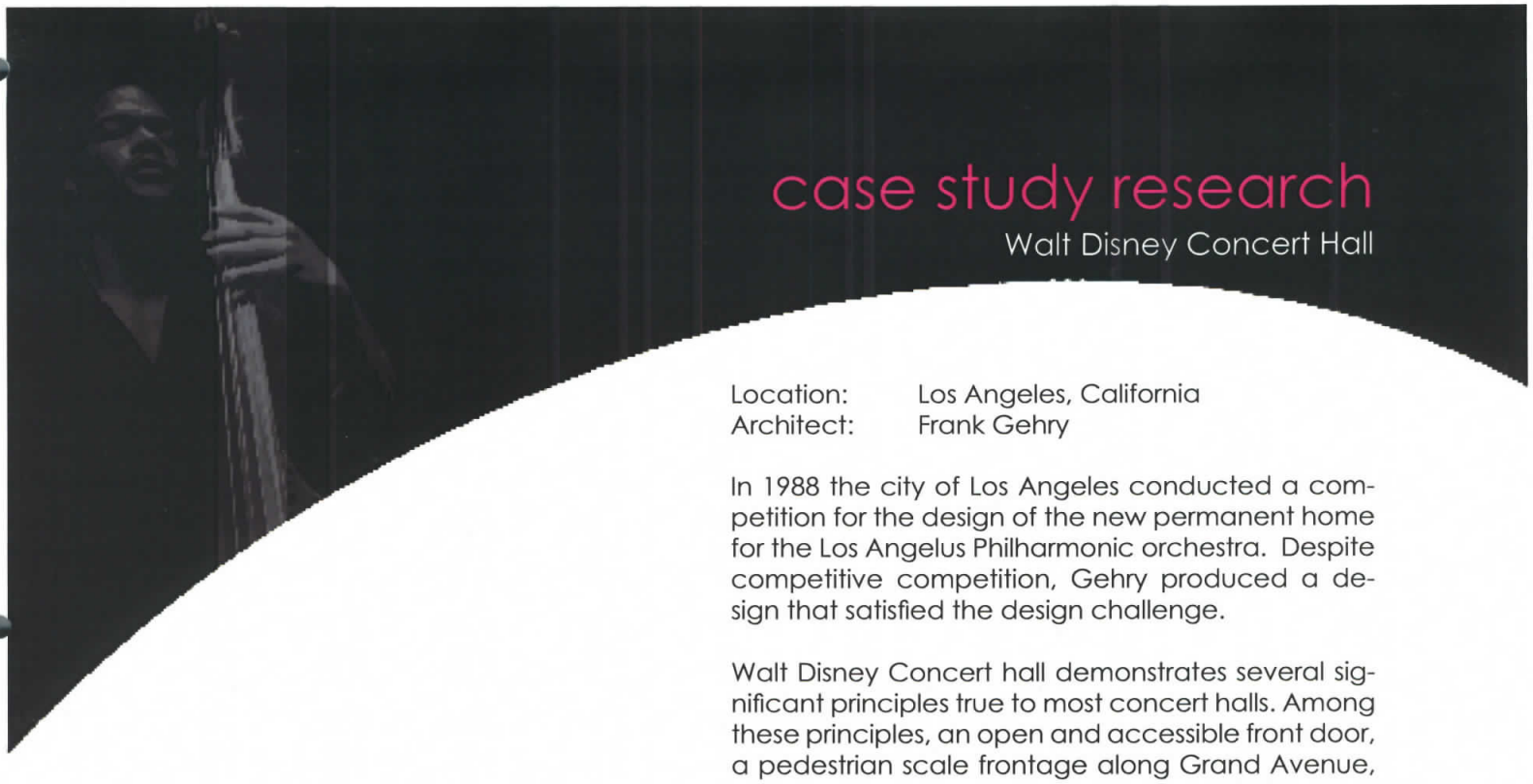
Location: La Tour-Del-Salvagny, France
Architect: Jacques Ferrier

Although The Energie Factory is not a similar building type to other projects that have been examined, it introduces sustainable strategies that others have not. The factory is located in a business park in rural France. Because the location is one that is subject to strong climatic influences, it is important that the designer accommodate for this.

Technologies that are included in this project include: photwatt photovoltaic modules, reversible heat pumps, and heat storing floor. It is obvious that this design is sensitive to its environment. Because the building utilizes these sustainable strategies itsa energy consumption is a mere 138,944 kWh in the winter and 27,275 kWh in the summer.

By examining this building two issues can be identified. First, the relationship between the building and the climatic and natural environment is an important one and must be considered when designing. Second the unique technologies present in this project are of value.





# case study research

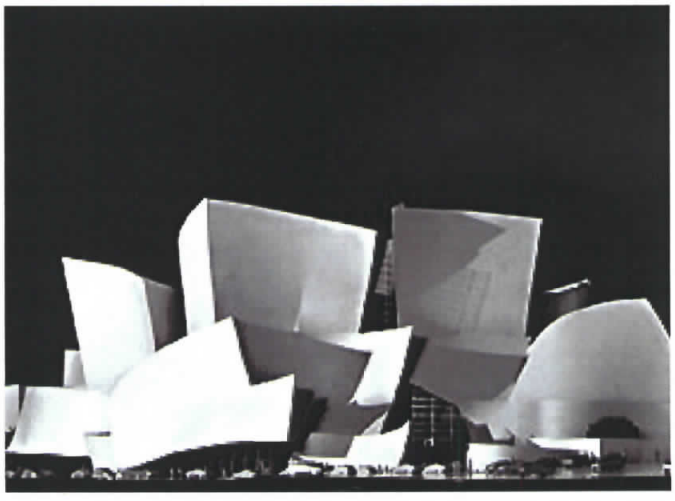
## Walt Disney Concert Hall

Location: Los Angeles, California
Architect: Frank Gehry

In 1988 the city of Los Angeles conducted a competition for the design of the new permanent home for the Los Angelus Philharmonic orchestra. Despite competitive competition, Gehry produced a design that satisfied the design challenge.

Walt Disney Concert hall demonstrates several significant principles true to most concert halls. Among these principles, an open and accessible front door, a pedestrian scale frontage along Grand Avenue, and applying a humanitarian approach to the back stage area were all given importance during each stage of the design process.

After examining this project these elements outlined above became evident that their success greatly affects the success of the building. These elements also introduce a sense of grandeur and identity that should be true of such a building type.



# case study research

## Typological Summary

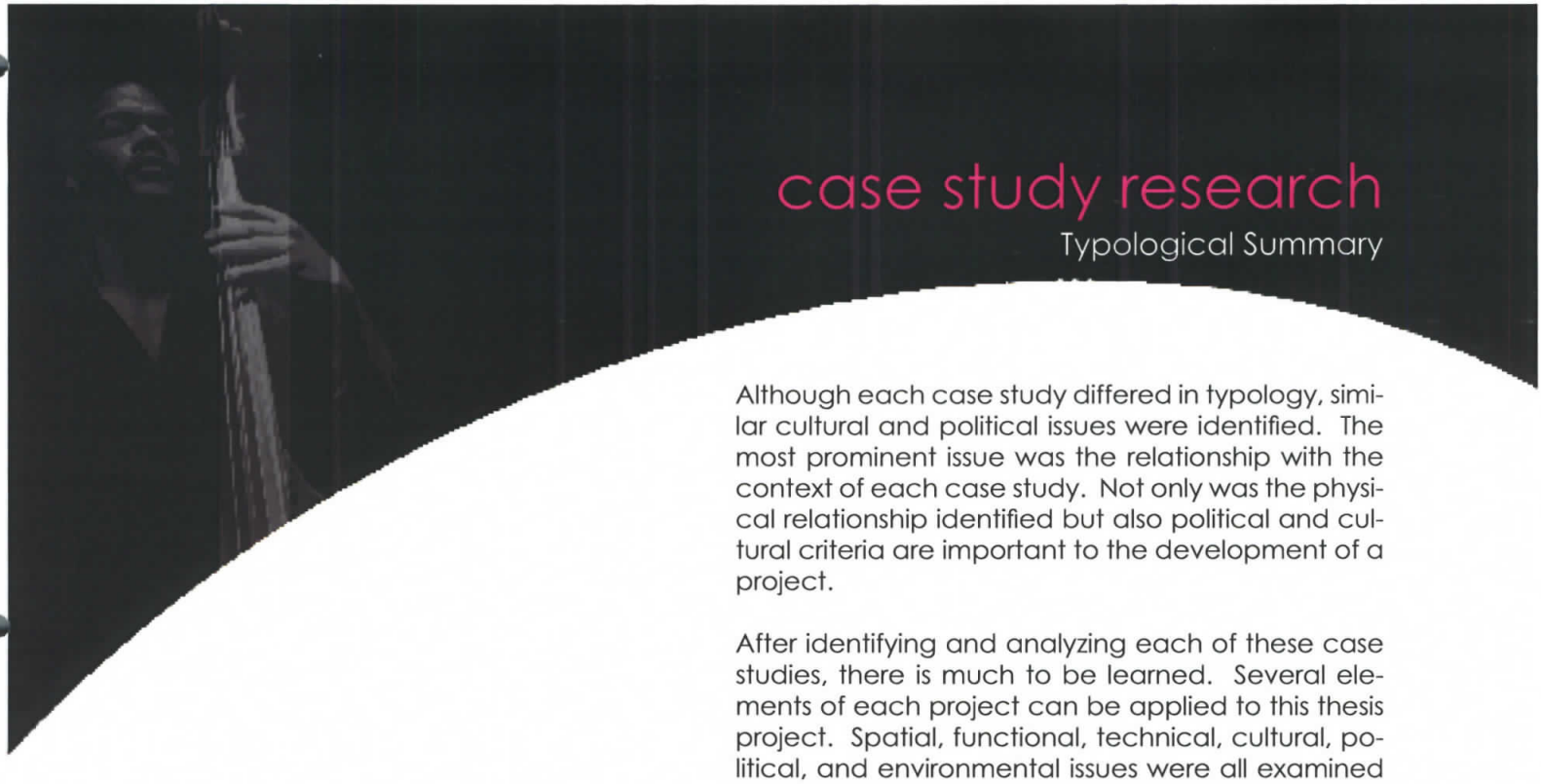
Although the typology of these case studies differs from case to case, they each have an individual value and effect on the theoretical premise of this thesis project. Concert halls, multi-family living complexes, industrial buildings, and a retail center were all examined during this stage of research; each contributed their positive and negative attributes toward the conclusion. The theoretical premise, although remains unchanged from the original, was affected by the underling information gained by this research.

By examining the various concert halls identified in this research, one can conclude multiple characteristics about such typological buildings. Community Identity, entrance grandeur, acoustical function, and the relationship with the environment are all elements of a concert hall or similar typological building that need to be addressed when designing such a project.

By examining the industrial building and multi-family living complex identified in this research one can identify the value of designing to coincide with the environment. The benefits of green design were certainly identified by the industrial project.

By examining the retail building identified in this research, one can conclude that ground level space is of great value. Not only is there a limited amount of this resource, but also the application that inhabits this space must be an appropriate one in order for optimal conditions to be reached.

These case studies defined in this research all have different sites. Both foreign and domestic sites were intentionally defined in order to not limit the extent of the research. It is obvious that each environment has its own effect on the building occupying such sites. It is important that the site considerations for this thesis project be identified and taken into consideration during the design process.



# case study research

## Typological Summary

Although each case study differed in typology, similar cultural and political issues were identified. The most prominent issue was the relationship with the context of each case study. Not only was the physical relationship identified but also political and cultural criteria are important to the development of a project.

After identifying and analyzing each of these case studies, there is much to be learned. Several elements of each project can be applied to this thesis project. Spatial, functional, technical, cultural, political, and environmental issues were all examined and will guide the development of this thesis project.

# research goals

## Planning Ahead

The primary goal of this thesis project is to design a solution for the functional and spatial needs of the orchestra Hall. The current circumstances of the facilities are inadequate; these inadequacies will be solved by this project.

In addition to satisfying the needs of the users of the hall, a secondary goal is to create a design solution that successfully blends itself with the context. Both the immediate context and the environment as a whole need to harmoniously agree with this design solution.

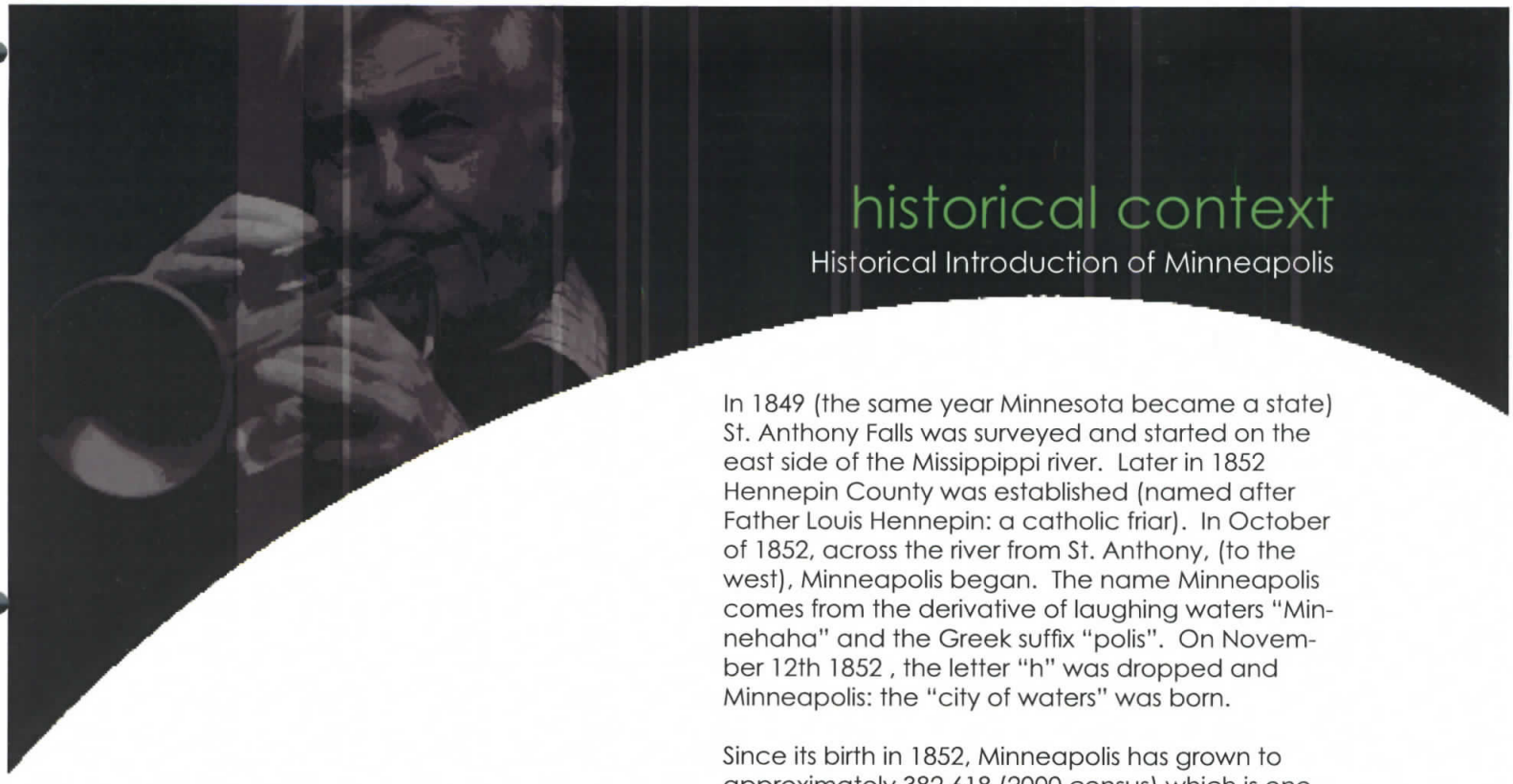
Lastly a goal of this thesis project is to educate and motivate its viewers. An idea of reuse and recycle in architecture is a common thread through out this project that everyone can benefit from.

**Project Goals Summary**

Functional design solution

Context Sensitivity

Viewer education



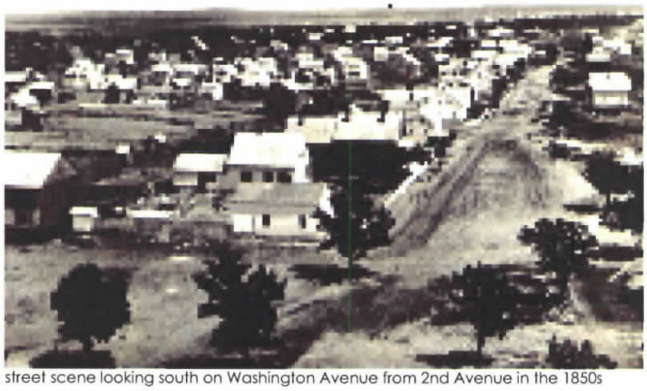
# historical context

## Historical Introduction of Minneapolis

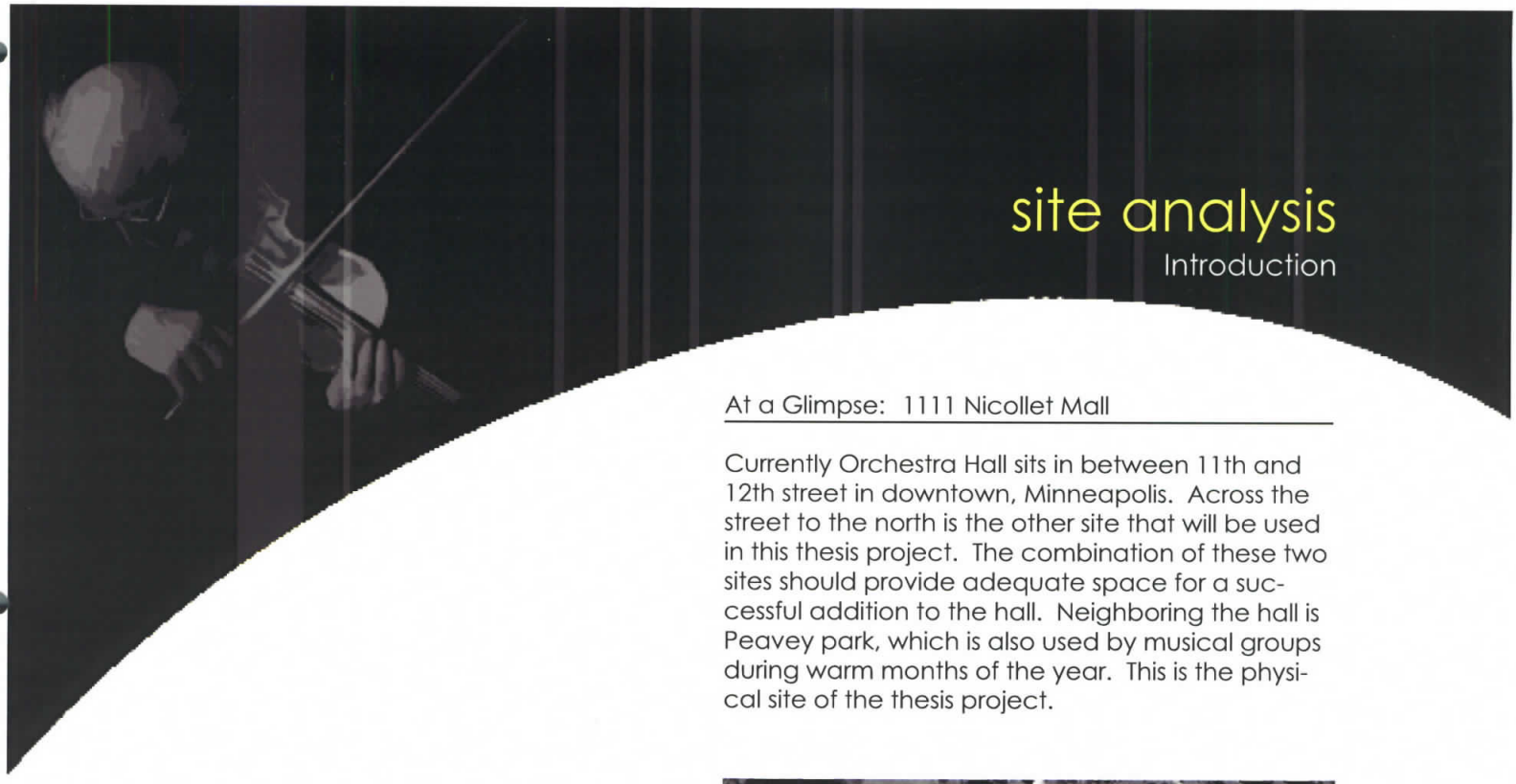
In 1849 (the same year Minnesota became a state) St. Anthony Falls was surveyed and started on the east side of the Missippippi river. Later in 1852 Hennepin County was established (named after Father Louis Hennepin: a catholic friar). In October of 1852, across the river from St. Anthony, (to the west), Minneapolis began. The name Minneapolis comes from the derivative of laughing waters "Minnehaha" and the Greek suffix "polis". On November 12th 1852 , the letter "h" was dropped and Minneapolis: the "city of waters" was born.

Since its birth in 1852, Minneapolis has grown to approximately 382,618 (2000 census) which is one city in the metro area, whose total population is approaching 3 million. Present day Minneapolis is home of Downtown Minneapolis which is the primary financial and business district in the state.

Downtown Minneapolis houses many major elements including; the Weisman Art Museum, Nicollet mall, Minneapolis institute of Art, Lake Calhoun, First Avenue, Minneapolis Sculpture garden, Metrodome (home field for the Minnesota Twins and Vikings), the theater district, and obviously Orchestra Hall. These attractions and others help define Minneapolis as a scene for entertainment and culture.



street scene looking south on Washington Avenue from 2nd Avenue in the 1850s

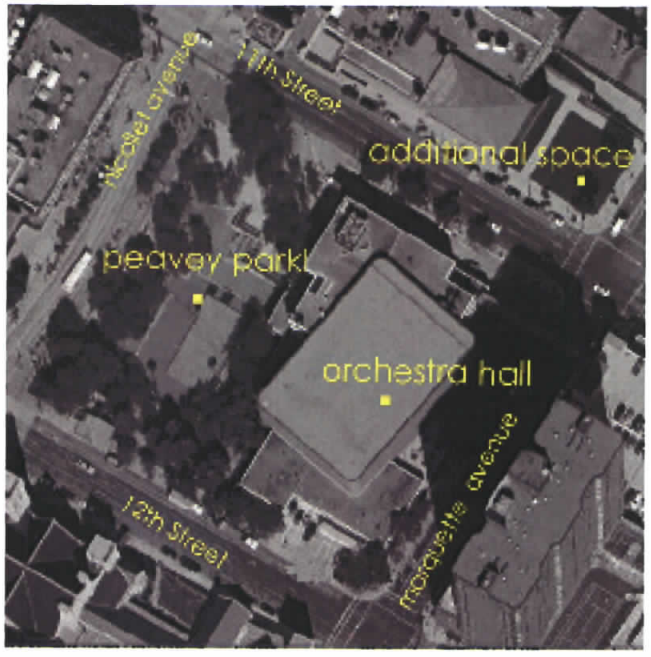


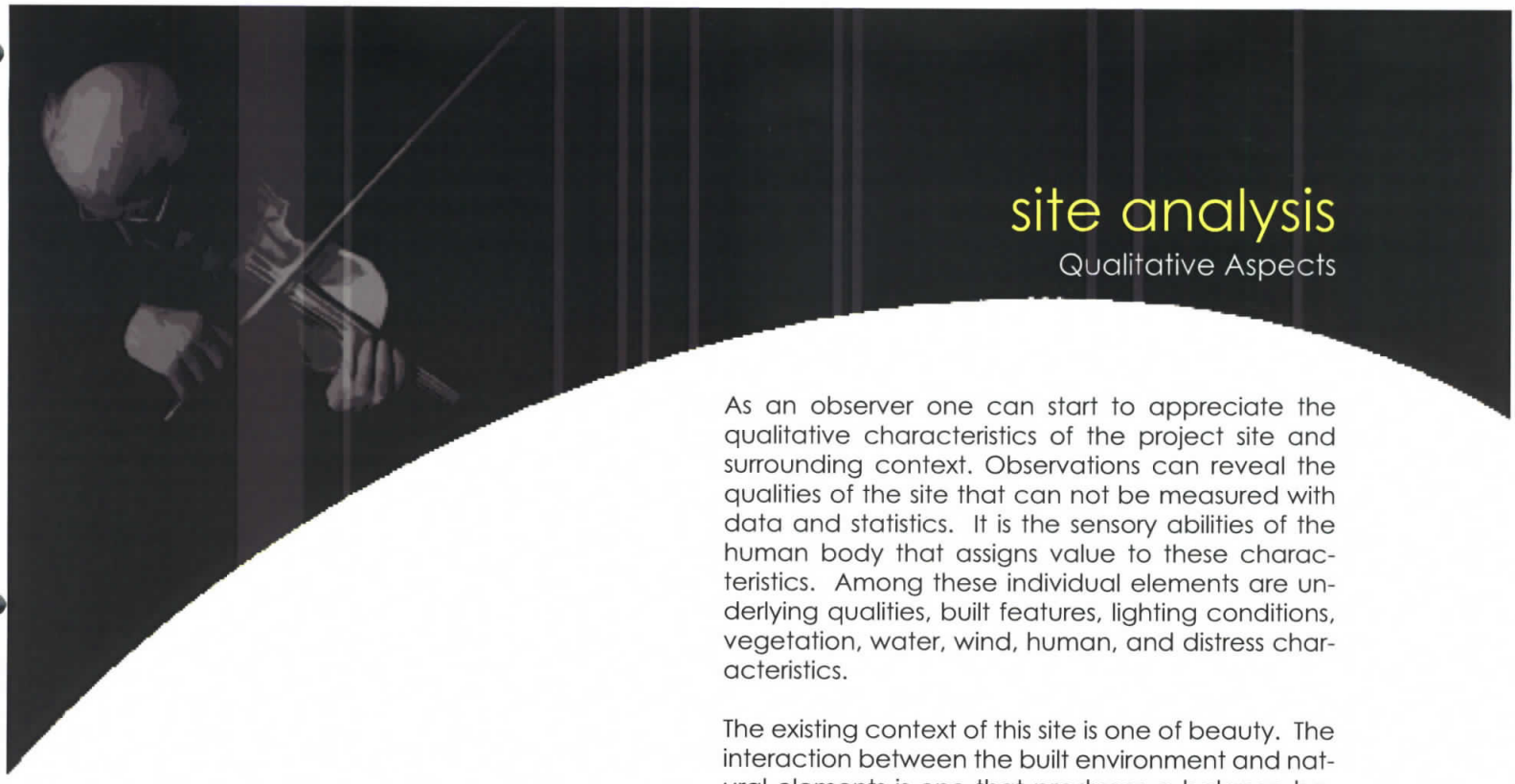
# site analysis

## Introduction

### At a Glimpse: 1111 Nicollet Mall

Currently Orchestra Hall sits in between 11th and 12th street in downtown, Minneapolis. Across the street to the north is the other site that will be used in this thesis project. The combination of these two sites should provide adequate space for a successful addition to the hall. Neighboring the hall is Peavey park, which is also used by musical groups during warm months of the year. This is the physical site of the thesis project.





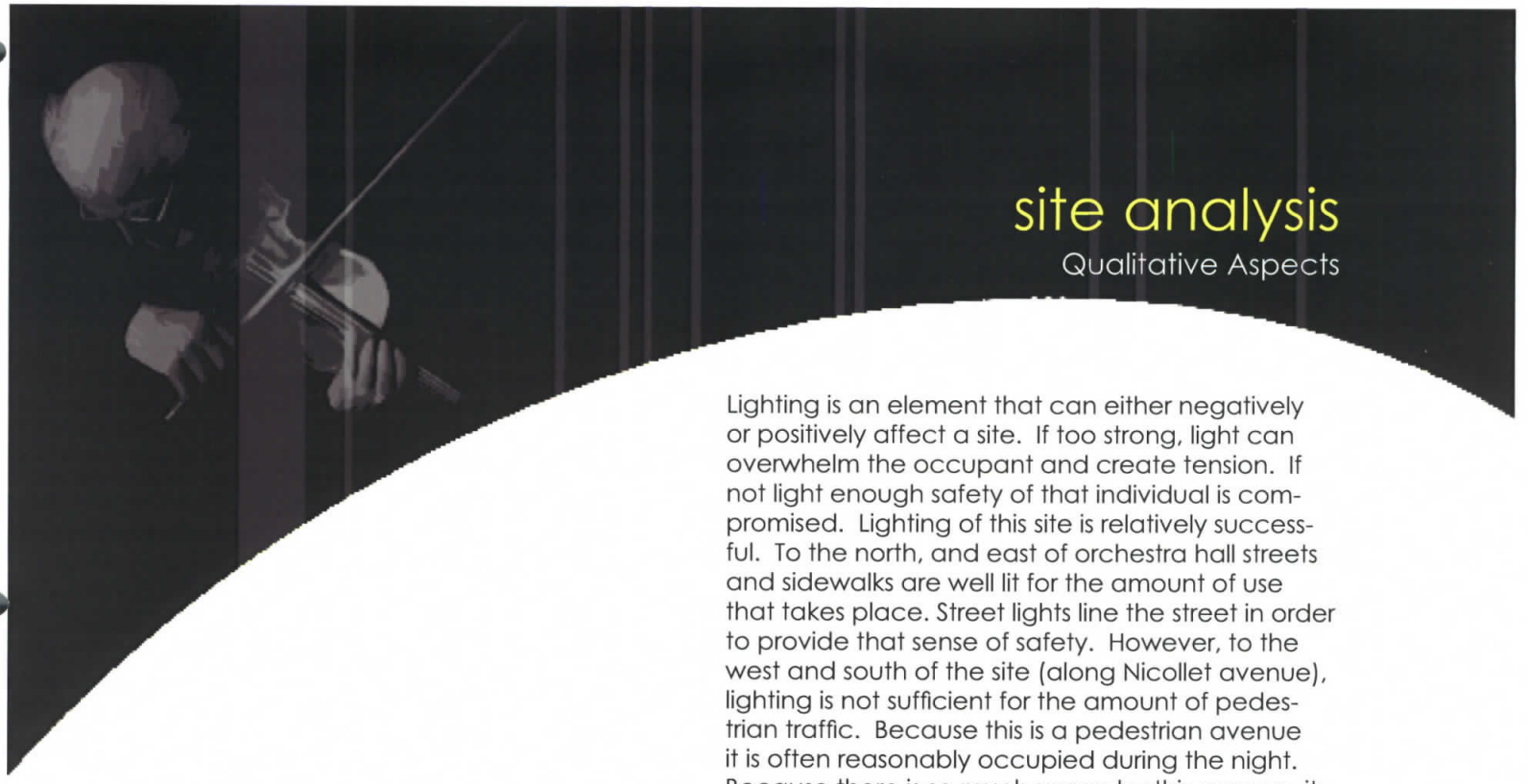
# site analysis

## Qualitative Aspects

As an observer one can start to appreciate the qualitative characteristics of the project site and surrounding context. Observations can reveal the qualities of the site that can not be measured with data and statistics. It is the sensory abilities of the human body that assigns value to these characteristics. Among these individual elements are underlying qualities, built features, lighting conditions, vegetation, water, wind, human, and distress characteristics.

The existing context of this site is one of beauty. The interaction between the built environment and natural elements is one that produces a balance between the two forces. The only disruption in the city grid is a portion of the site that allows for vehicular drop off and pick up. The context is one that provides a successful pallet of colors and materials that provides a variety of both. Although the current orchestra hall exhibits a modern façade toward pedestrians, surrounding structures provide a pleasing combination of modern and traditional building types. However the most influential element of the immediate context is Peavey Park, located to the west of Orchestra Hall. It is here that there is a break in the hard and defined lines produced by the surrounding buildings. The collaboration of all these elements produces the overall feel of enjoyment in the area.

As mentioned earlier, built features around the site contribute to the overall feel of the site. These built structures succeed at infilling the entire city grid, surrounding Orchestra Hall, Peavey Park, and the additional site to the north. Because there is no leakage of form around the site, this grid sets up much defined edges around the site. Although these edges set up a closed feeling to the site, the heights of these buildings range from two to four stories, thus not creating an uncomfortable felling while occupying the site. In addition to these buildings, streets, sidewalks, lamp poles, signs, and other man-made objects contribute to the build environment in the area. Collaboratively these elements reinforce the urban setting of Minneapolis.



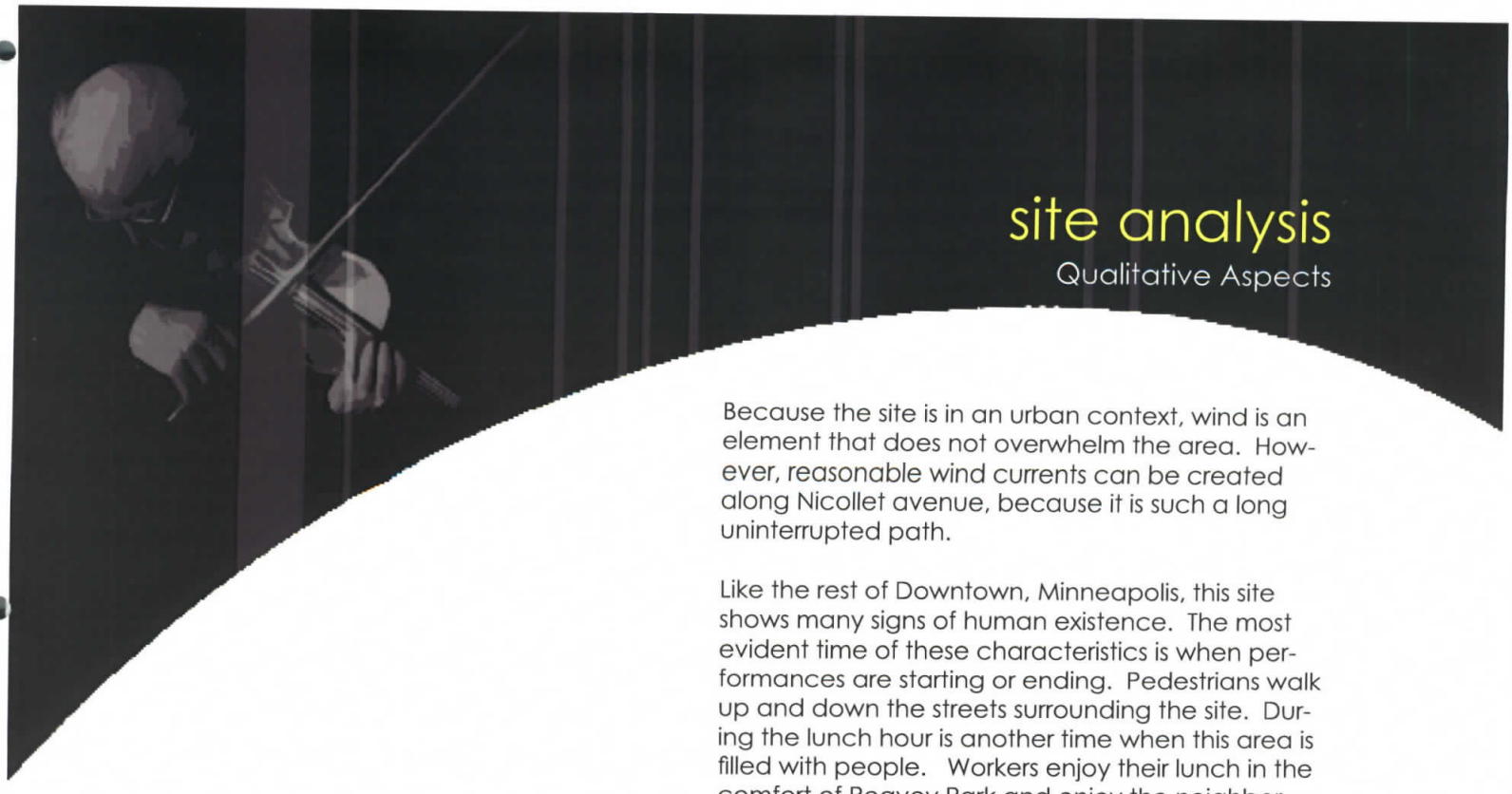
# site analysis

## Qualitative Aspects

Lighting is an element that can either negatively or positively affect a site. If too strong, light can overwhelm the occupant and create tension. If not light enough safety of that individual is compromised. Lighting of this site is relatively successful. To the north, and east of orchestra hall streets and sidewalks are well lit for the amount of use that takes place. Street lights line the street in order to provide that sense of safety. However, to the west and south of the site (along Nicollet avenue), lighting is not sufficient for the amount of pedestrian traffic. Because this is a pedestrian avenue it is often reasonably occupied during the night. Because there is so much usage by this avenue, it should have many more sources of light. Currently overhead streetlights are the main source of light after businesses have closed down creating a feeling of dimness for those who inhabit it.

In any city the need for vegetation to contradict the built environment is important. Here Peavey Park provides that quality. Peavey Park occupies the west portion of city block that Orchestra Hall sits on. A serene pool of water is surrounded by trees of varying proportion. These trees not only break up the repeating pattern of buildings, but they provide shade for park users. Benches and tables are intermixed among the vegetation with the intention of providing a place for pedestrians to sit and enjoy the environment. These trees also succeed in complimenting Orchestra Hall amongst all the tall buildings, creating a relationship between this soft park and Orchestra Hall which gains emphasis thanks to this green space.

In the middle of a sea of concrete and steel, known as Minneapolis, sits a pool of water in Peavey Park that offers a natural presence in an urban context. The pool of water is supplied by a small waterfall in the south-west corner of the block. This natural element not only provides a visual pleasure, but also sounds of nature among otherwise harsh city noises.



# site analysis

## Qualitative Aspects

Because the site is in an urban context, wind is an element that does not overwhelm the area. However, reasonable wind currents can be created along Nicollet avenue, because it is such a long uninterrupted path.

Like the rest of Downtown, Minneapolis, this site shows many signs of human existence. The most evident time of these characteristics is when performances are starting or ending. Pedestrians walk up and down the streets surrounding the site. During the lunch hour is another time when this area is filled with people. Workers enjoy their lunch in the comfort of Peavey Park and enjoy the neighborhood as the walk to and from work.

Although some parts of Minneapolis show signs of distress the context in which this site is located does not. The streets and sidewalks are vibrant with pedestrians and vehicular traffic, vegetation is rich, and buildings are occupied. Due to the combination of all these conditions the result is a very enjoyable outdoor space and neighborhood.

# site analysis

## Quantitative Aspects

**Minneapolis, Minnesota**

### Location

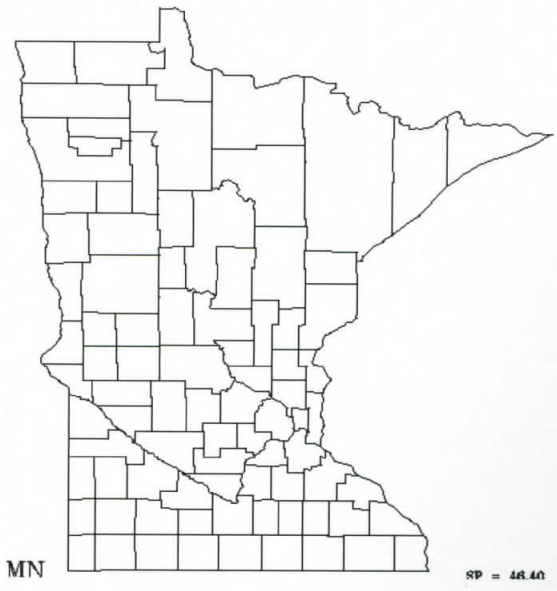
| | |
|---|---|
| Lat/long: | 44 53 N – 093 13 W |
| Altitude: | 834 feet above sea level |

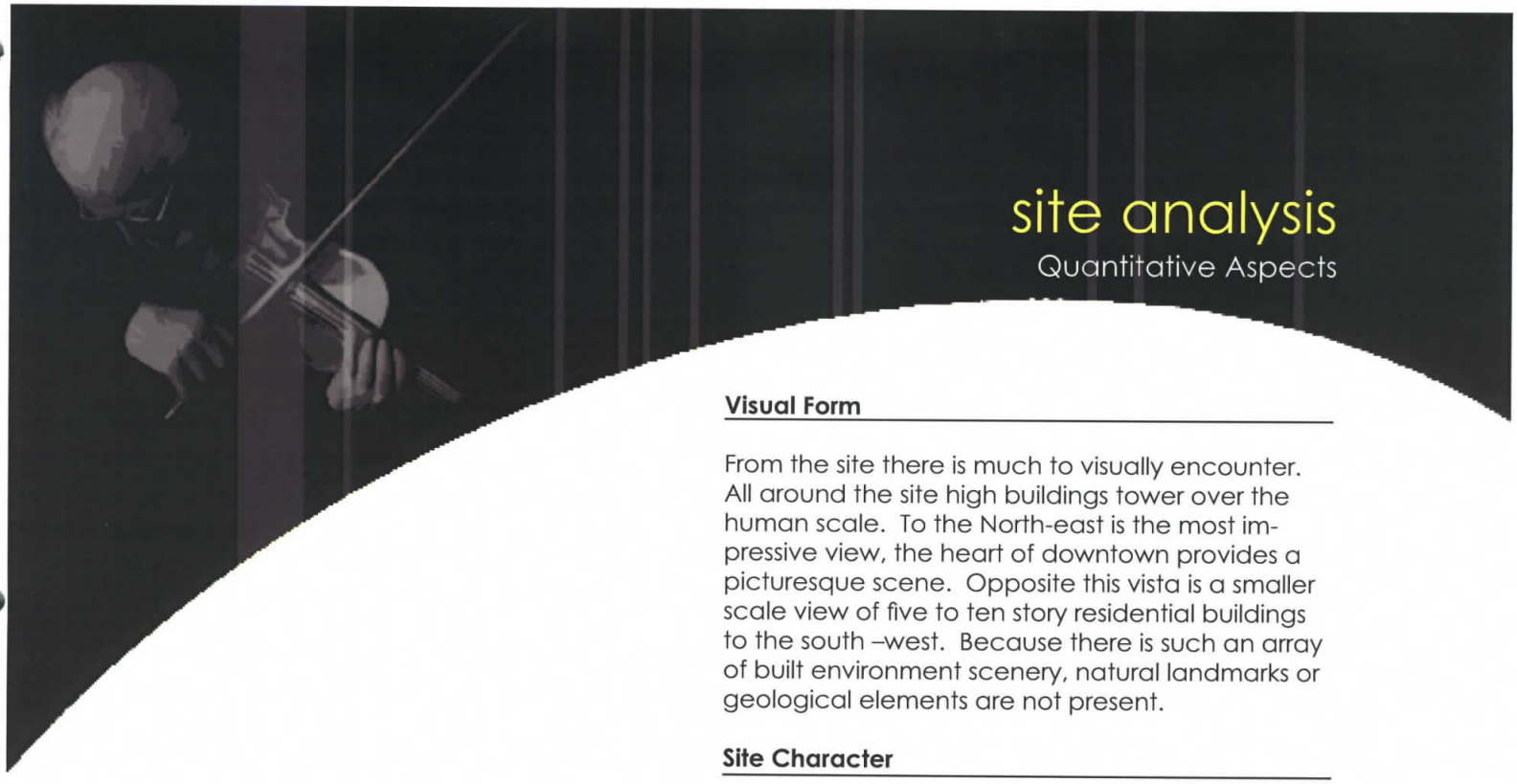
### Climate Conditions

| | |
|---|---|
| Yearly avg temp. | 45 |
| Days warmer than 90 deg. | 16 |
| Days colder than 5 deg. | 45 |
| Precipitation avg. | 27 |
| Snow avg. (inches) | 52 |
| Humidity % Relative (3pm) | 55 |
| Wind speed avg. (knots) | 11 |

### Site Statistics

| | |
|---|---|
| Metropolitan Area Population | 2.7 million (2003) |
| City Population | 382,618 (2000) |
| Land Area | 55 square miles |
| County | Hennepin |
| Zoning | Downtown District B4-1 |





# site analysis

## Quantitative Aspects

### Visual Form

From the site there is much to visually encounter. All around the site high buildings tower over the human scale. To the North-east is the most impressive view, the heart of downtown provides a picturesque scene. Opposite this vista is a smaller scale view of five to ten story residential buildings to the south –west. Because there is such an array of built environment scenery, natural landmarks or geological elements are not present.

### Site Character

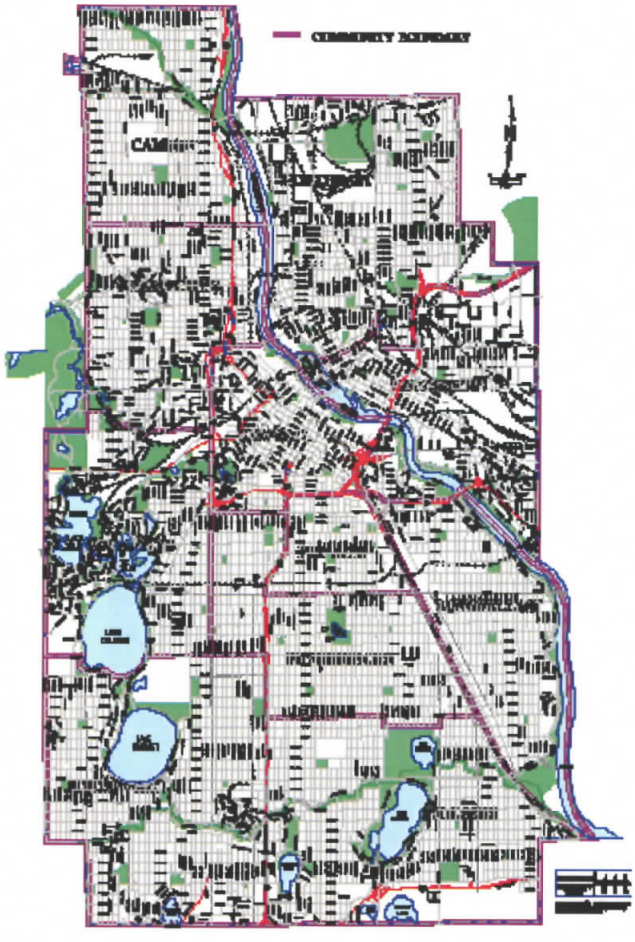
The site character is one of static proportions. There is little evidence of change or transformability in the elements around the site. Vegetation is healthy and drainage is successful. I was able to witness first hand the efficiency of the drainage system. Very little water was standing in the street during a rain storm. It is very evident the environment around the site is taken care of by individual land owners and the city of Minneapolis.

# site analysis

## Quantitative Aspects

### Communities of Minneapolis

Purple line represents separation of communities in the city of Minneapolis.

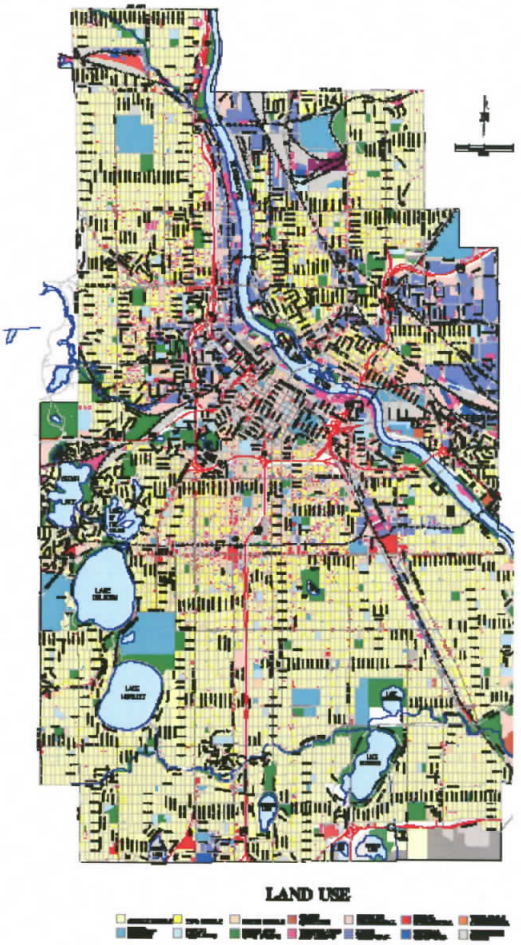


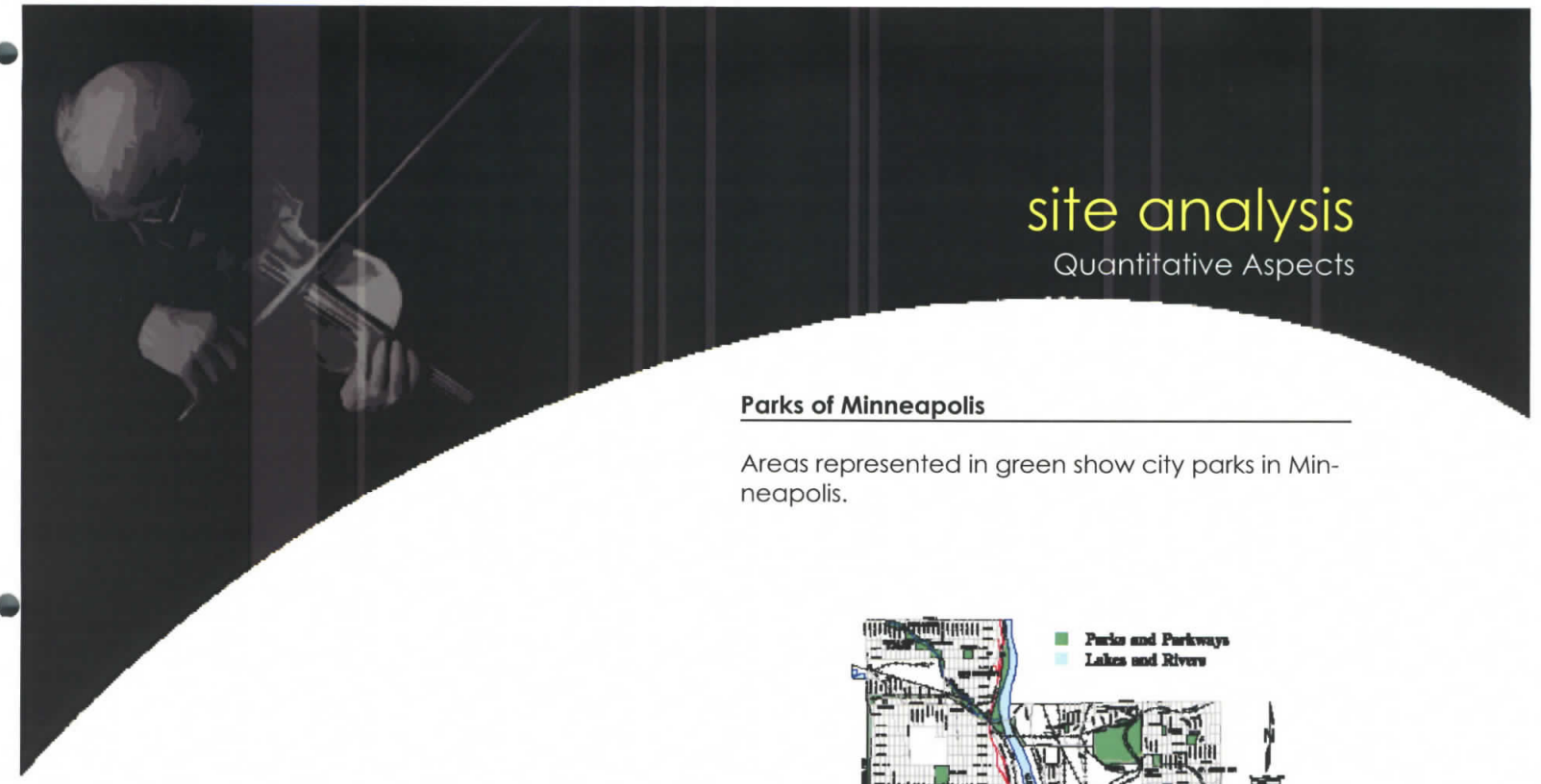
# site analysis

## Quantitative Aspects

### Land Uses of Minneapolis

Areas represented by different colors show multiple types of land use in Minneapolis.



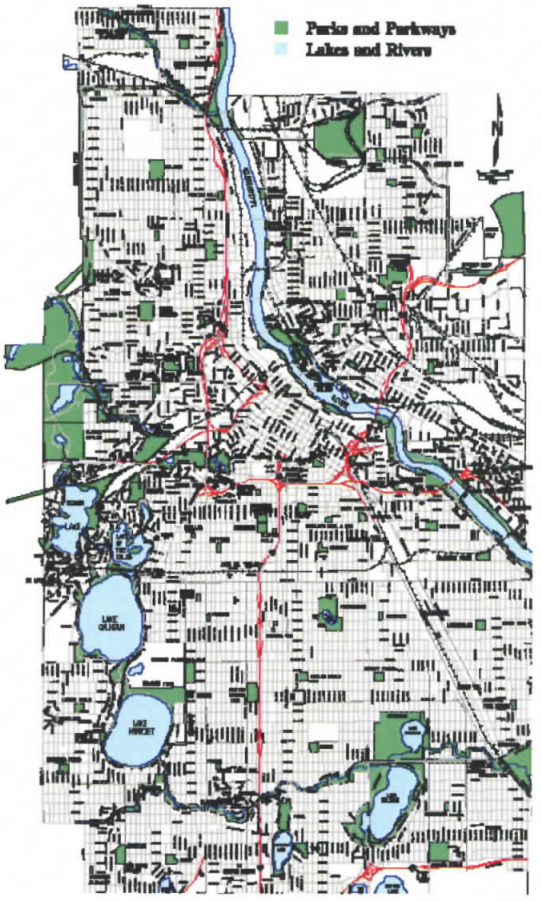


# site analysis

## Quantitative Aspects

### Parks of Minneapolis

Areas represented in green show city parks in Minneapolis.

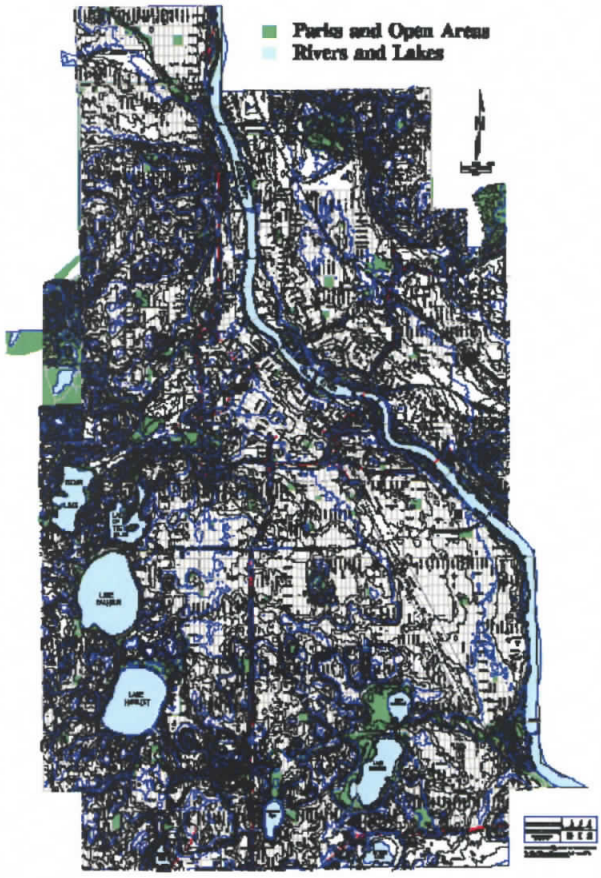


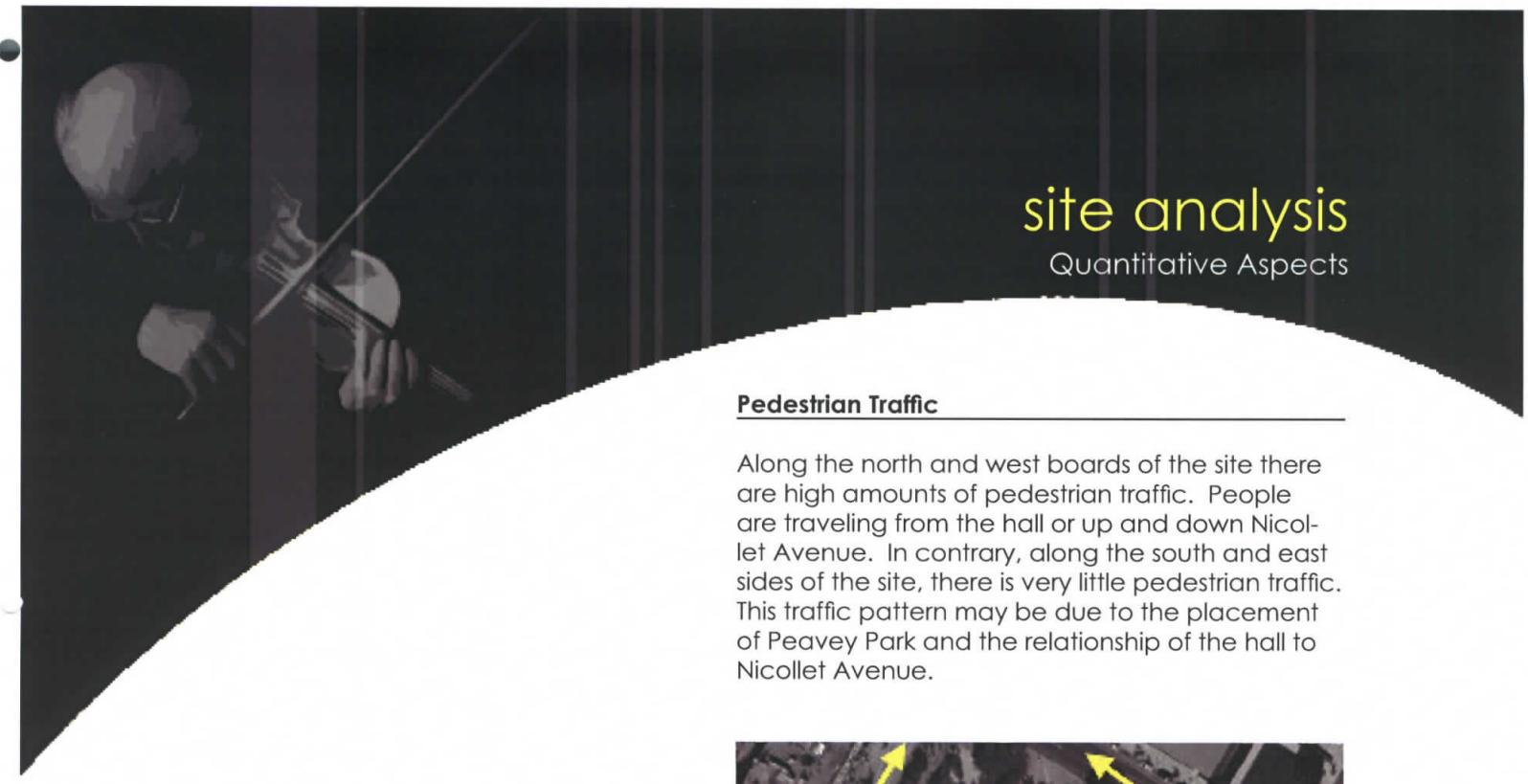
# site analysis

## Quantitative Aspects

### Elevations of Minneapolis

Elevations line represented in map show 5' elevation changes.



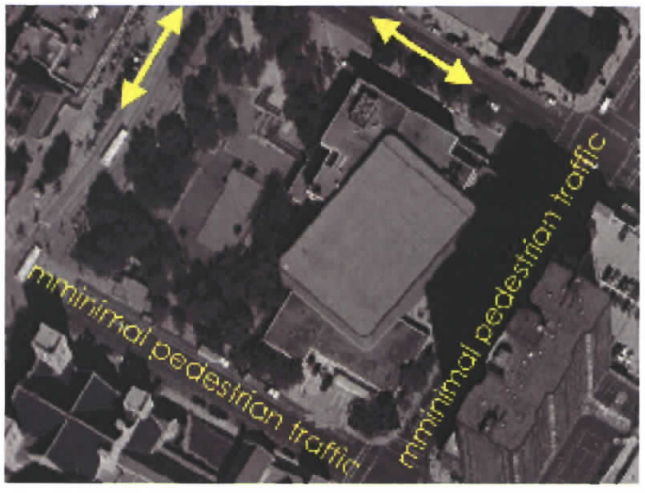


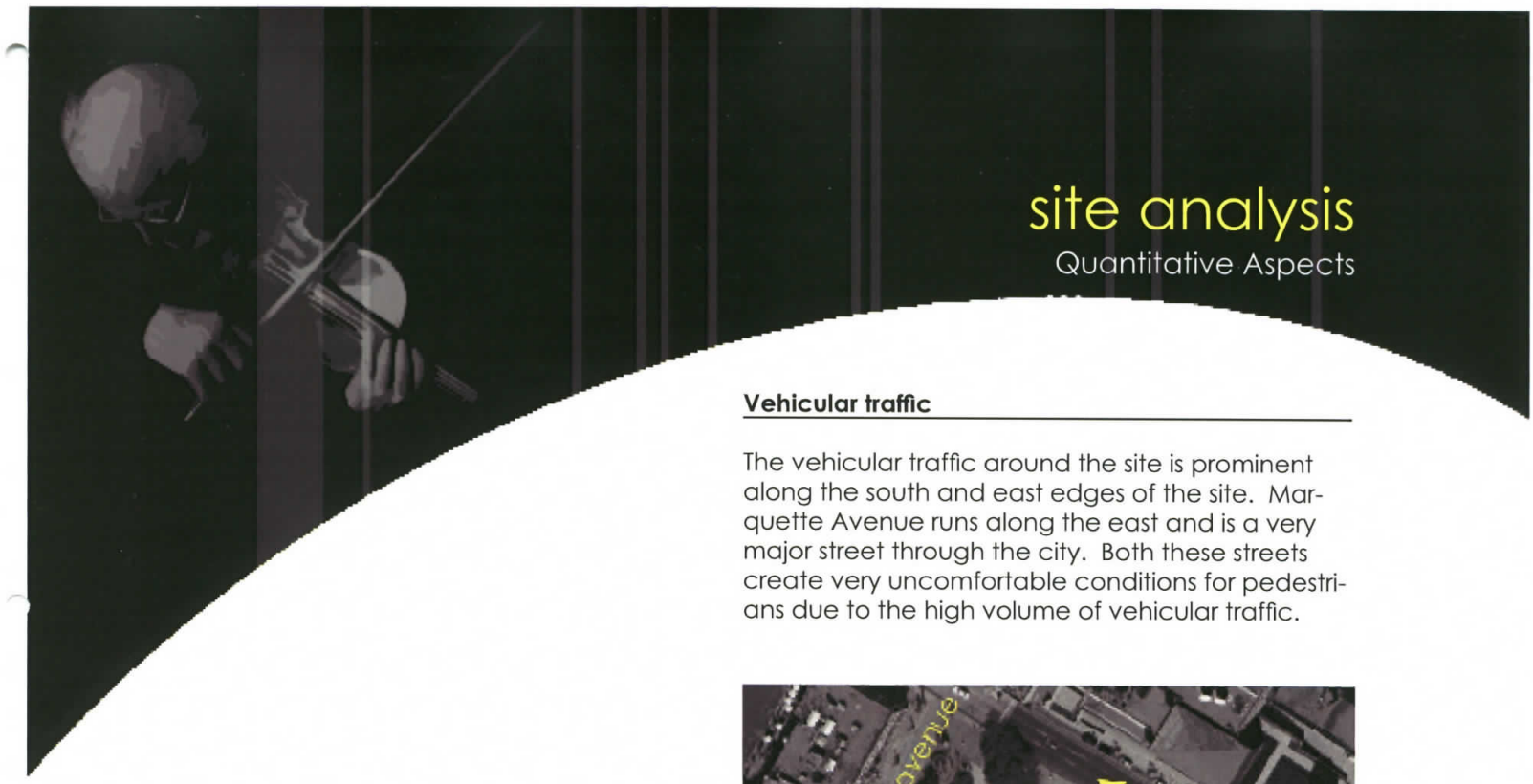
# site analysis

## Quantitative Aspects

### Pedestrian Traffic

Along the north and west boards of the site there are high amounts of pedestrian traffic. People are traveling from the hall or up and down Nicollet Avenue. In contrary, along the south and east sides of the site, there is very little pedestrian traffic. This traffic pattern may be due to the placement of Peavey Park and the relationship of the hall to Nicollet Avenue.



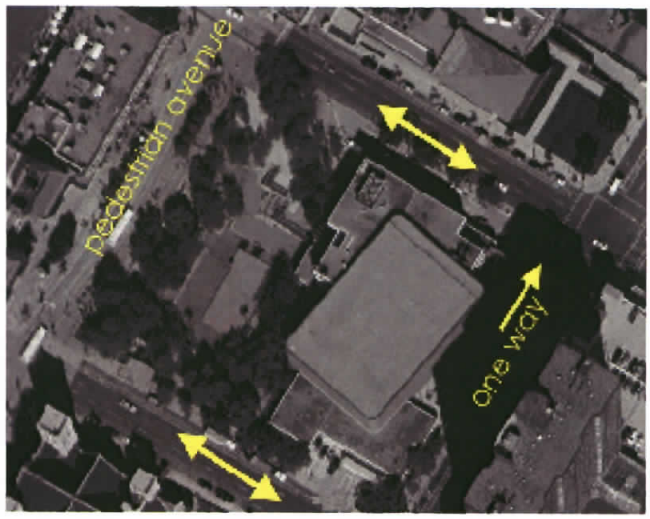


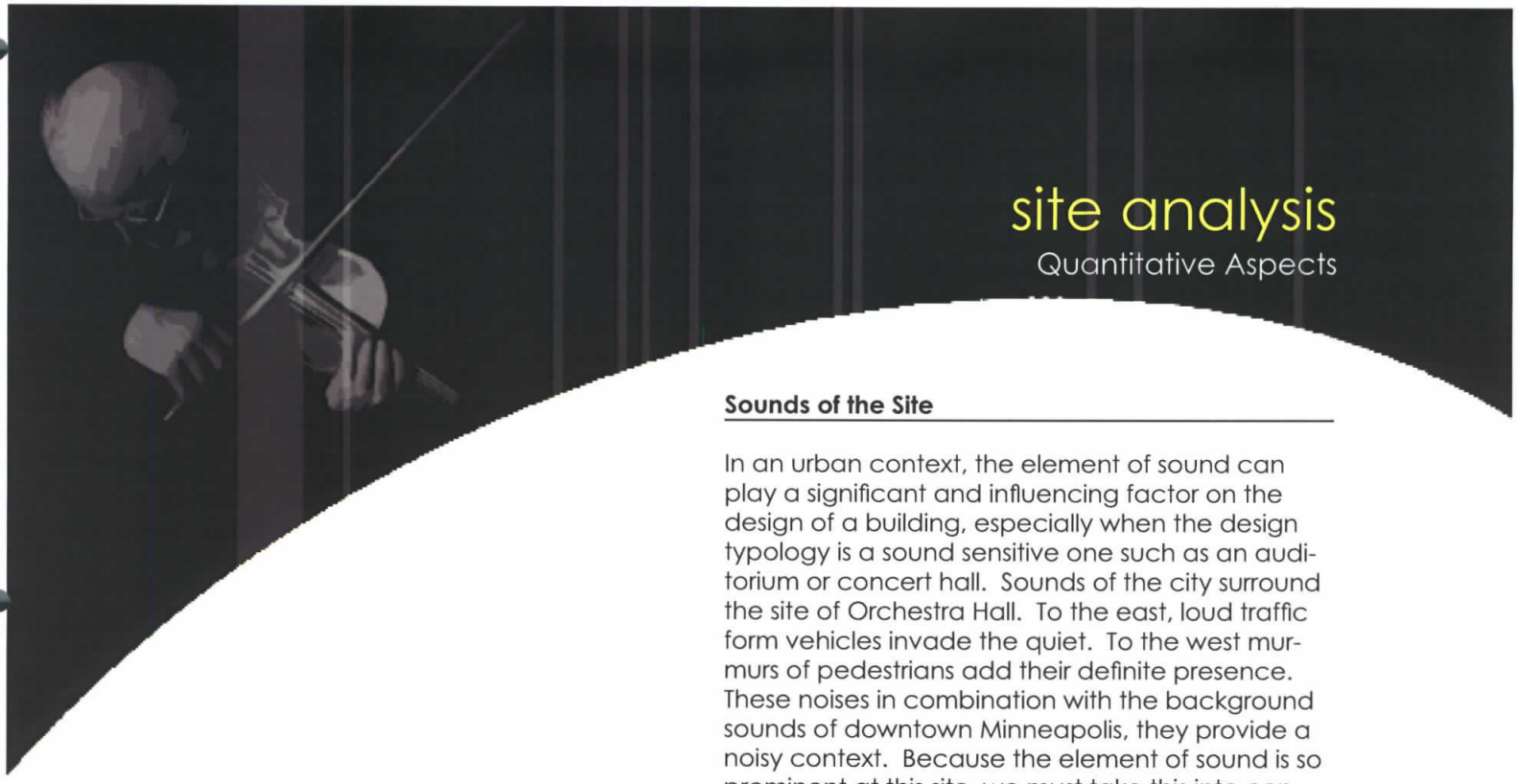
# site analysis

## Quantitative Aspects

### Vehicular traffic

The vehicular traffic around the site is prominent along the south and east edges of the site. Marquette Avenue runs along the east and is a very major street through the city. Both these streets create very uncomfortable conditions for pedestrians due to the high volume of vehicular traffic.



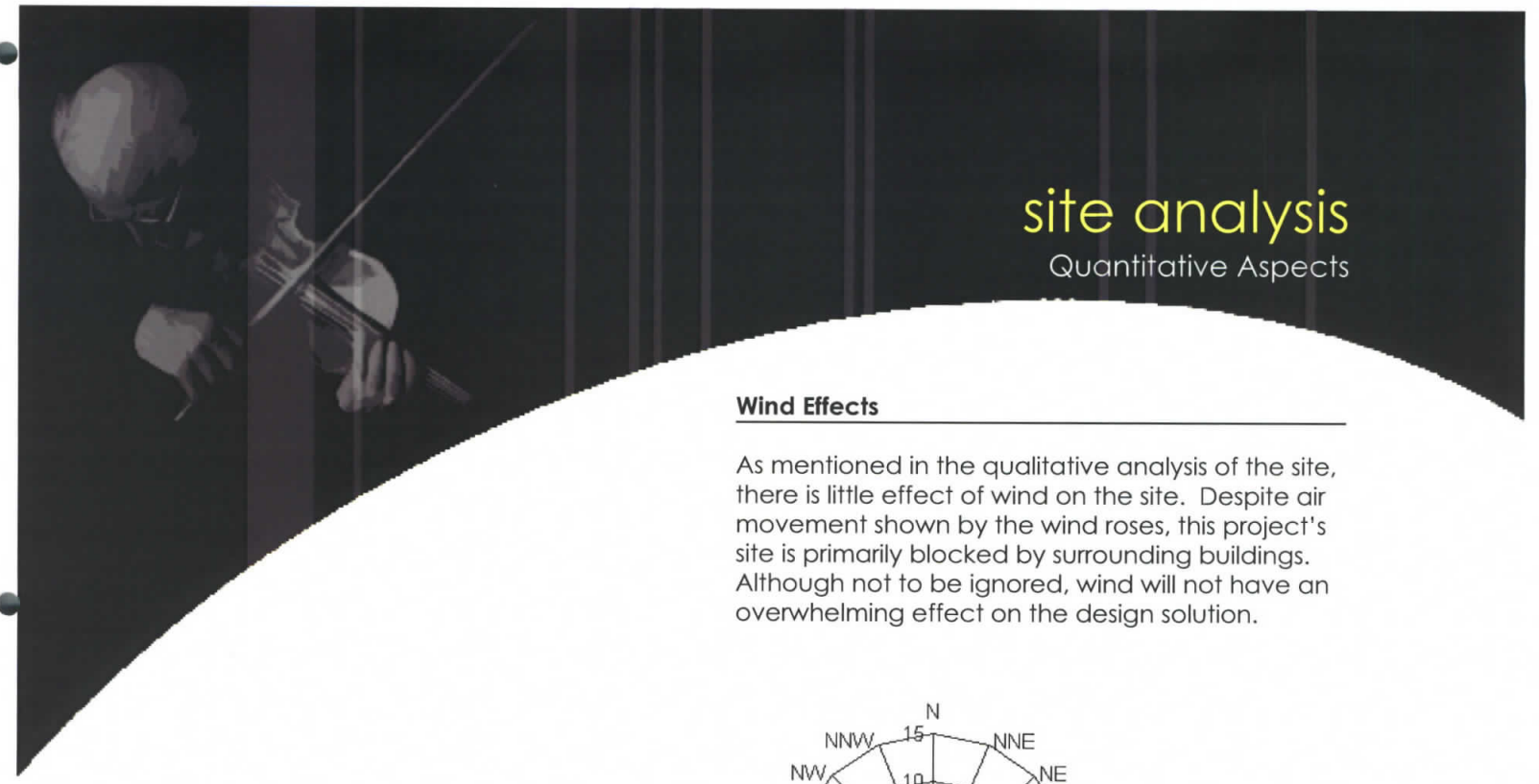


# site analysis

## Quantitative Aspects

### Sounds of the Site

In an urban context, the element of sound can play a significant and influencing factor on the design of a building, especially when the design typology is a sound sensitive one such as an auditorium or concert hall. Sounds of the city surround the site of Orchestra Hall. To the east, loud traffic form vehicles invade the quiet. To the west murmurs of pedestrians add their definite presence. These noises in combination with the background sounds of downtown Minneapolis, they provide a noisy context. Because the element of sound is so prominent at this site, we must take this into consideration when designing the addition to the hall. The presence of exterior noises in the concert hall would be considered a failure. It is important to separate these spaces in manner that isolates the audience and the performer in the hall.

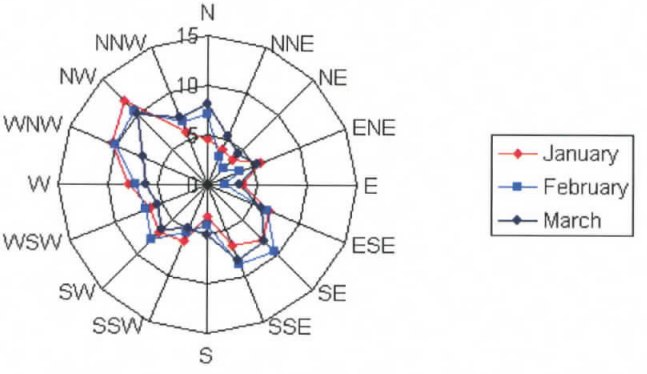


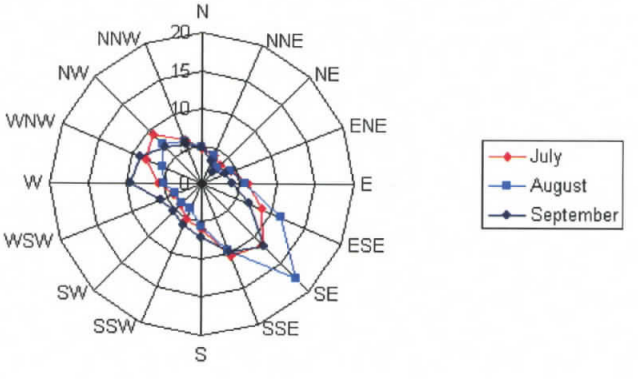
# site analysis

## Quantitative Aspects

### Wind Effects

As mentioned in the qualitative analysis of the site, there is little effect of wind on the site. Despite air movement shown by the wind roses, this project's site is primarily blocked by surrounding buildings. Although not to be ignored, wind will not have an overwhelming effect on the design solution.

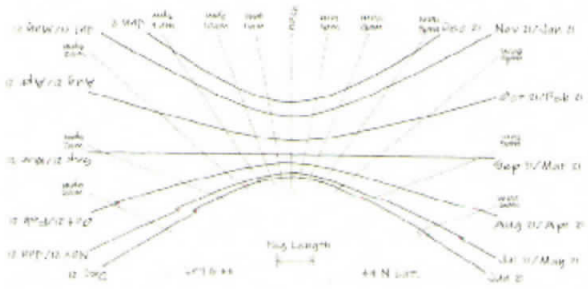


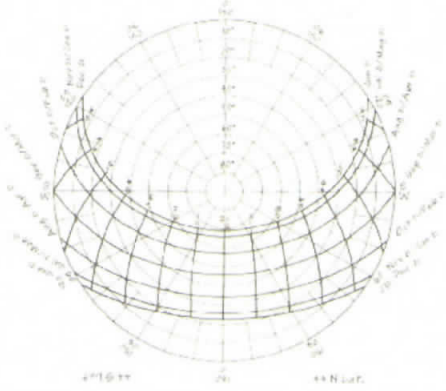



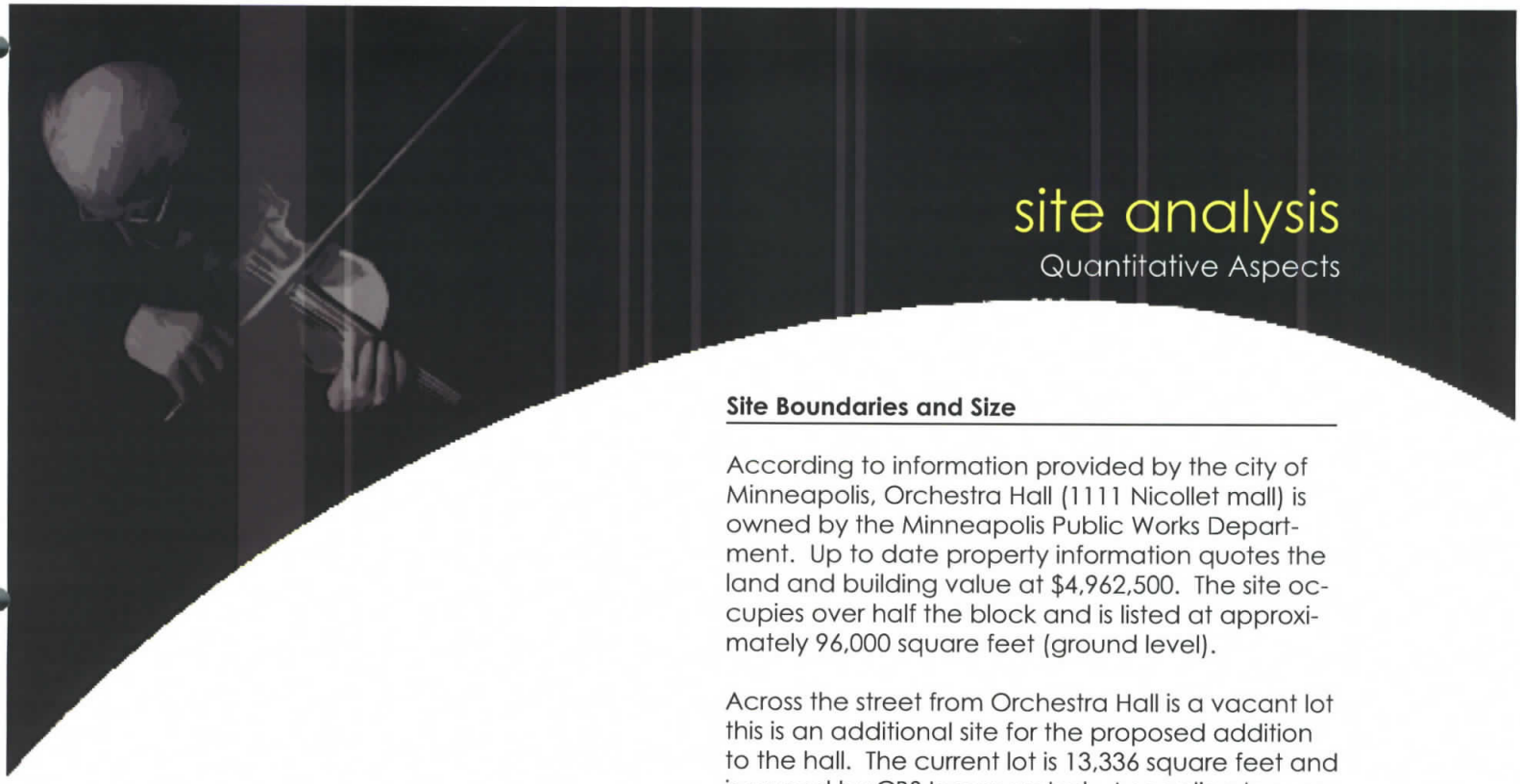
# site analysis

## Quantitative Aspects

### Sun path diagrams for Minneapolis, Minnesota







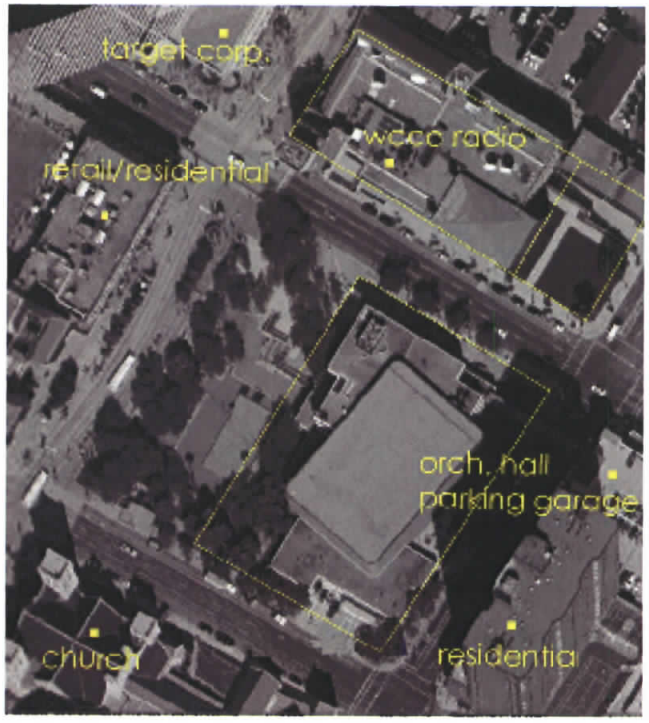
# site analysis

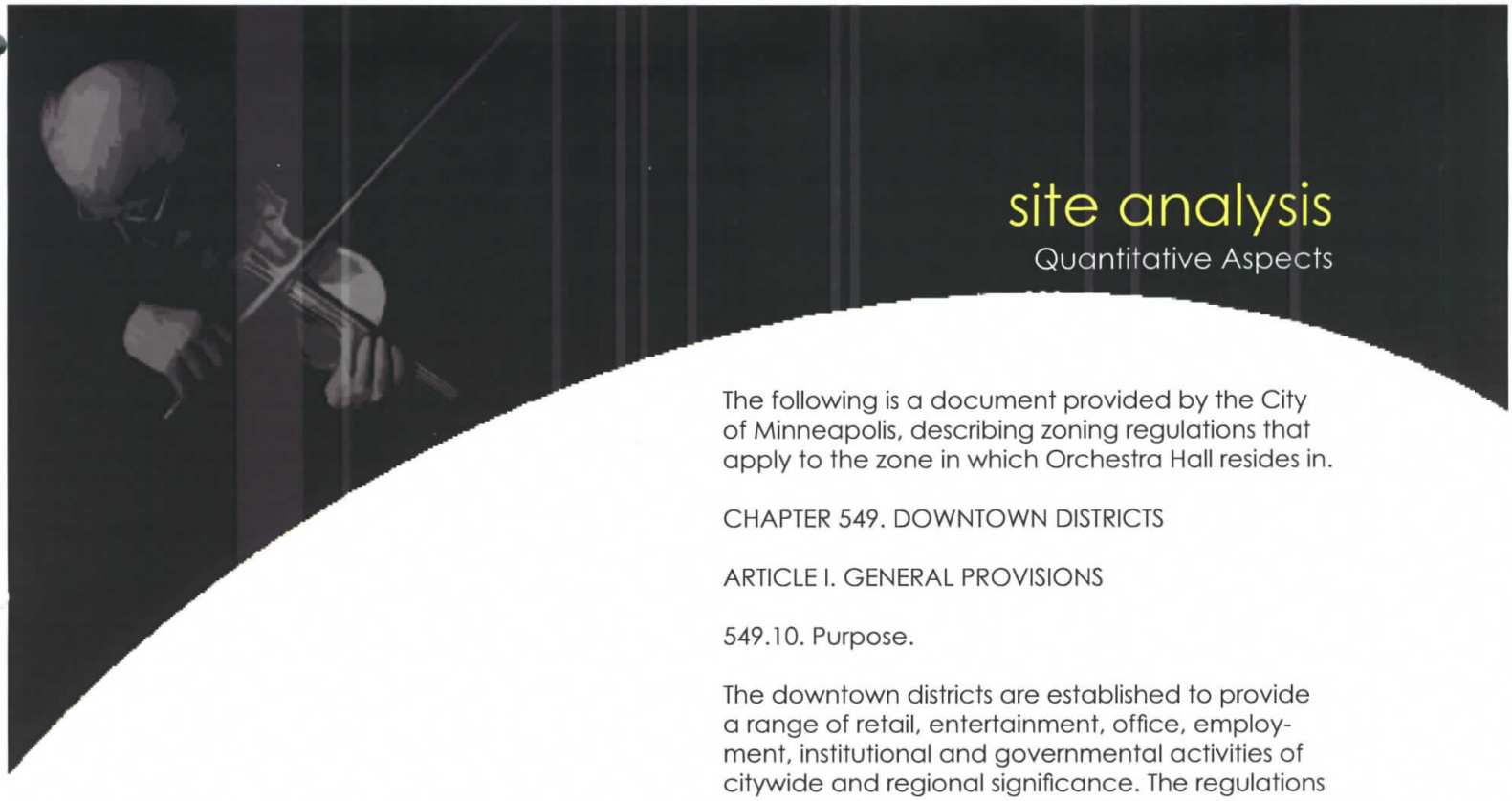
## Quantitative Aspects

### Site Boundaries and Size

According to information provided by the city of Minneapolis, Orchestra Hall (1111 Nicollet mall) is owned by the Minneapolis Public Works Department. Up to date property information quotes the land and building value at $4,962,500. The site occupies over half the block and is listed at approximately 96,000 square feet (ground level).

Across the street from Orchestra Hall is a vacant lot this is an additional site for the proposed addition to the hall. The current lot is 13,336 square feet and is owned by CBS Incorporated. According to property tax information from the city of Minneapolis, the vacant lot is worth approximately 1.3 million dollars. This information will become valuable when budgeting for the addition is being planned.





# site analysis

## Quantitative Aspects

The following is a document provided by the City of Minneapolis, describing zoning regulations that apply to the zone in which Orchestra Hall resides in.

CHAPTER 549. DOWNTOWN DISTRICTS

ARTICLE I. GENERAL PROVISIONS

549.10. Purpose.

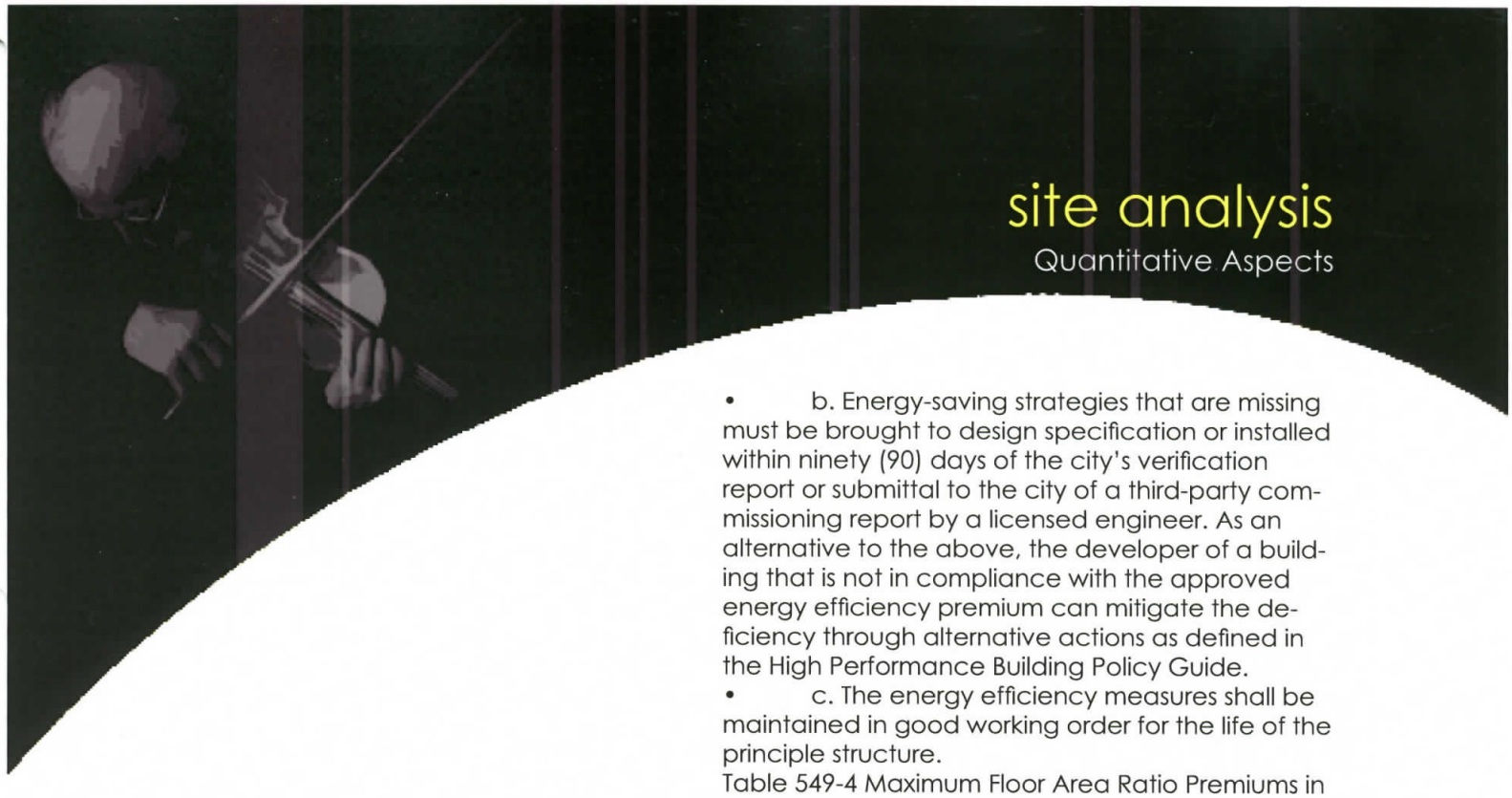
The downtown districts are established to provide a range of retail, entertainment, office, employment, institutional and governmental activities of citywide and regional significance. The regulations recognize the unique qualities of downtown as the business and cultural center of the region to attract businesses, shoppers, visitors and residents.

549.20. District names.

The downtown district names are:
B4 Downtown Business District
B4S Downtown Service District
B4C Downtown Commercial District

(12) Energy efficiency, subject to the following standards:

- a. Submission of a high performance building plan. The applicant shall submit a high performance building plan that includes all information to demonstrate to the satisfaction of the planning director a minimum of thirty-five (35) percent increase in overall building energy efficiency as compared to the Minnesota Energy Code. The demonstration shall include all reports, modeling, and approval processes described in the High Performance Building Policy Guide.





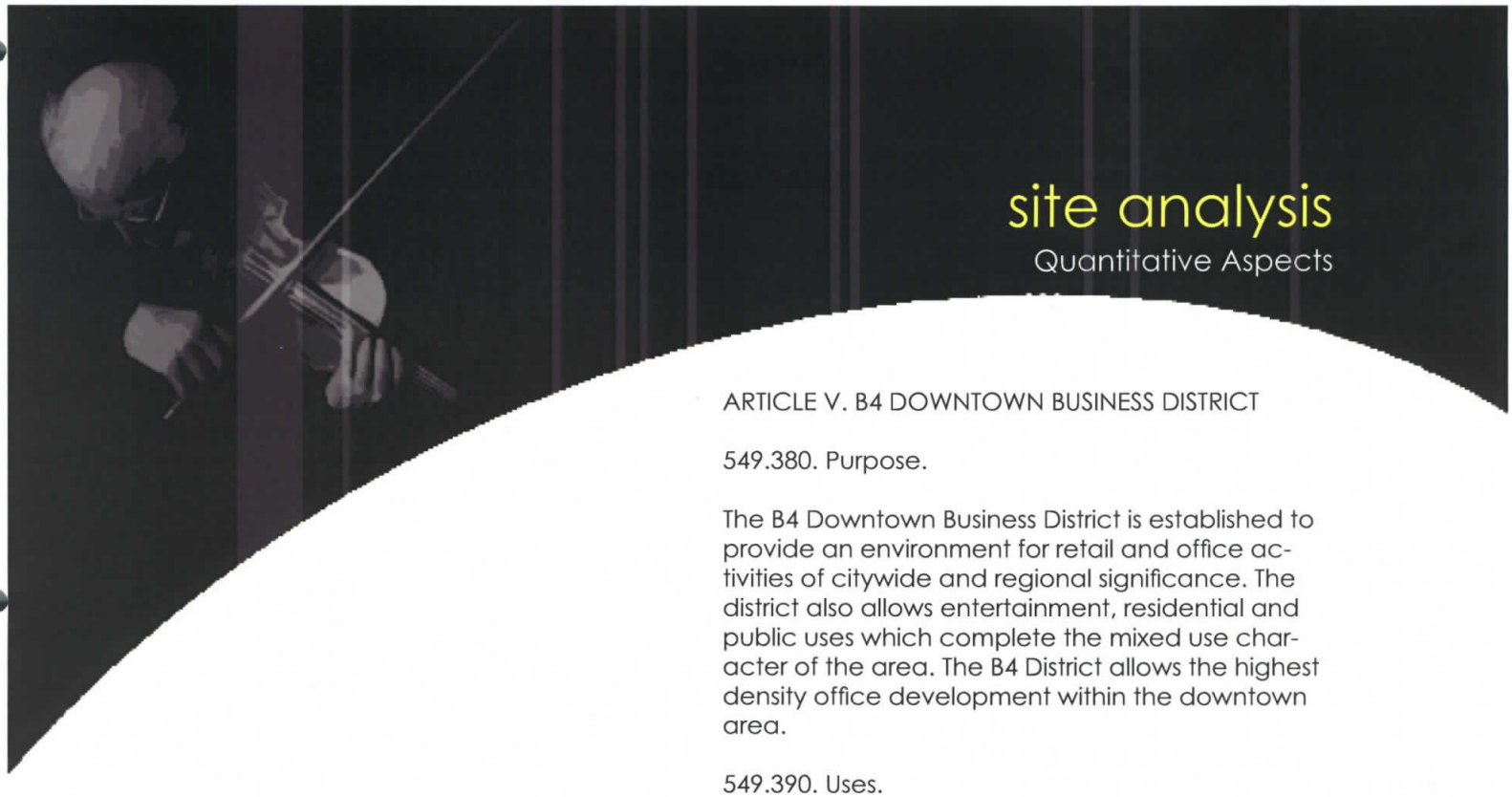
- b. Energy-saving strategies that are missing must be brought to design specification or installed within ninety (90) days of the city's verification report or submittal to the city of a third-party commissioning report by a licensed engineer. As an alternative to the above, the developer of a building that is not in compliance with the approved energy efficiency premium can mitigate the deficiency through alternative actions as defined in the High Performance Building Policy Guide.
- c. The energy efficiency measures shall be maintained in good working order for the life of the principle structure.

Table 549-4 Maximum Floor Area Ratio Premiums in the Downtown Districts1

| Premium Type | Zoning District and Premium Value | | | |
|---|---|---|---|---|
| B4-2 | B4-1 & B4S-2 | | B4S-1 | B4C-1, 2 |
| Urban open space, small | 4.0 | 3.0 | 2.0 | -- |
| Urban open space, large | 8.0 | 6.0 | 4.0 | -- |
| Interior through-block connection | 1.0 or 2.0 | 1.0 or 2.0 | 1.0 or 2.0 | 1.0 or2.0 |
| Skyway connection | 1.0 or 2.0 | 1.0 or 2.0 | 1.0 or 2.0 | -- |
| Transit facility | 2.0 or 3.0 | 2.0 or 3.0 | 2.0 or 3.0 | 2.0 or3.0 |
| Street level retail | 2.0 | 1.0 | 1.0 | -- |
| Public art | 2.0 | 2.0 | 1.0 | 1.0 |
| Freight loading terminal | 2.0 | 2.0 | 2.0 | 2.0 |
| Sidewalk widening | 2.0 | 2.0 | 1.0 | 1.0 |
| Mixed-use residential | 4.0 | 3.0 | -- | 2.0 |
| Historic preservation | 4.0 | 3.0 | 2.0 | 2.0 |
| Energy efficiency @ 35% | 1.0 | 1.0 | 1.0 | 1.0 |
| Energy efficiency @ 45% | 2.0 | 2.0 | 2.0 | 2.0 |

1Less than the maximum premium may be approved where the amenity includes alternatives to the standards of this article, pursuant to section 549.240.

(2001-Or-182, § 1, 12-28-01)



# site analysis

## Quantitative Aspects

ARTICLE V. B4 DOWNTOWN BUSINESS DISTRICT

549.380. Purpose.

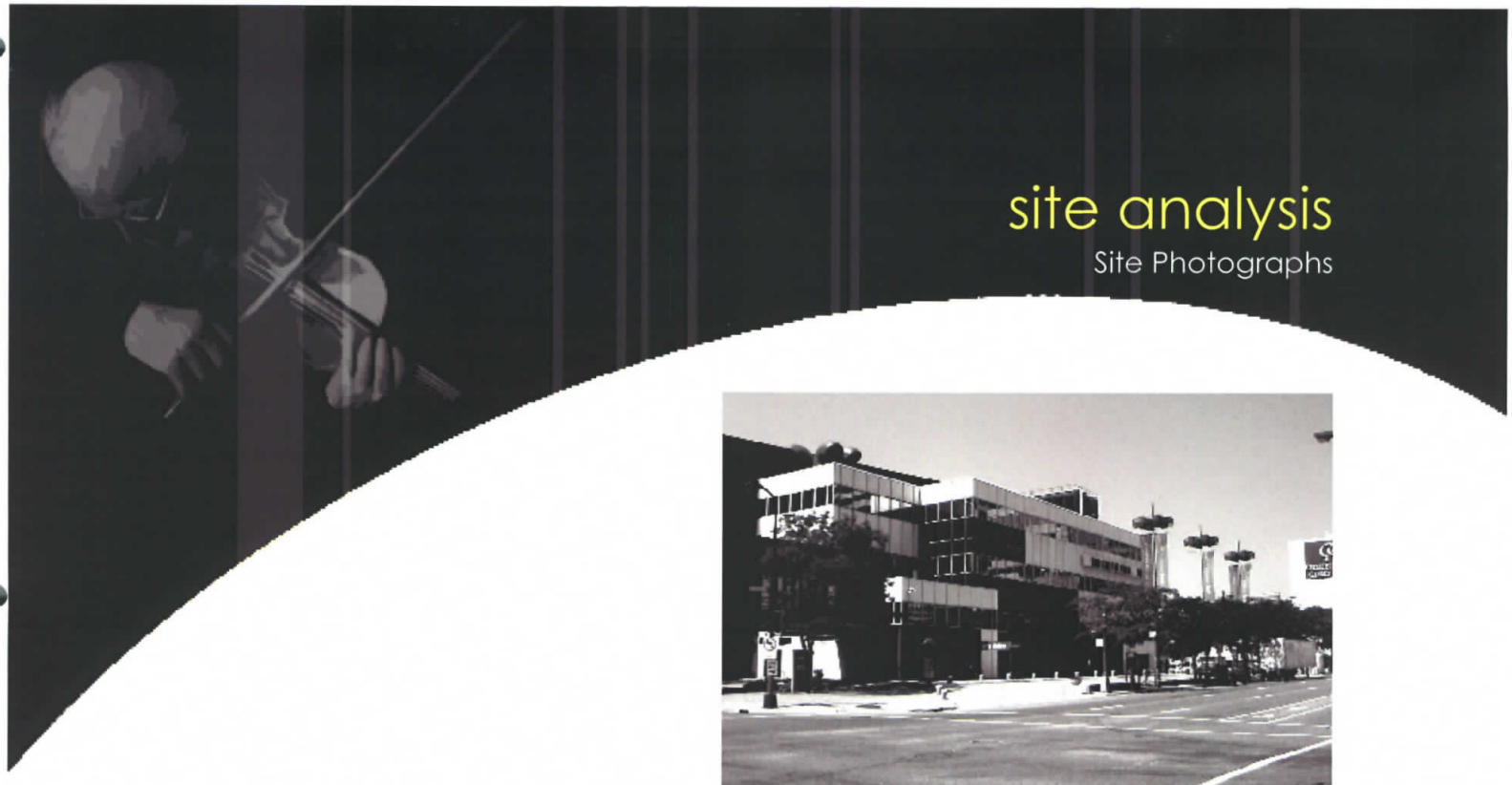
The B4 Downtown Business District is established to provide an environment for retail and office activities of citywide and regional significance. The district also allows entertainment, residential and public uses which complete the mixed use character of the area. The B4 District allows the highest density office development within the downtown area.

549.390. Uses.

Permitted and conditional uses in the B4 District shall be as specified in section 549.30 and Table

549.400. Building bulk requirements.

The B4 District is divided into two subdistricts for building bulk requirements. In the B4-1 District the maximum floor area ratio of all structures shall be eight (8). In the B4-2 District the maximum floor area ratio of all structures shall be sixteen (16).



# site analysis

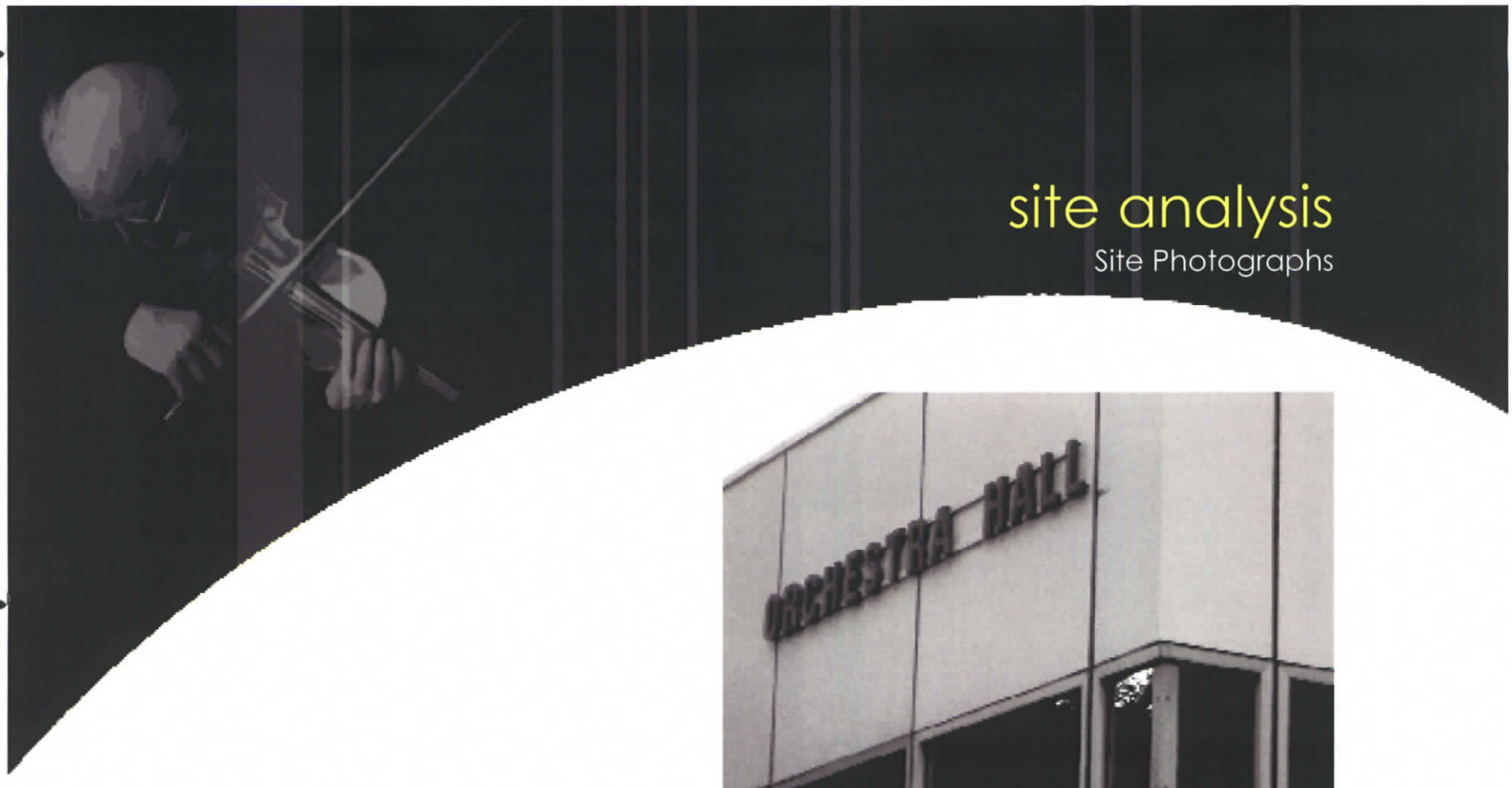
## Site Photographs



view from northeast

north facade close up

view from neighboring building to the east

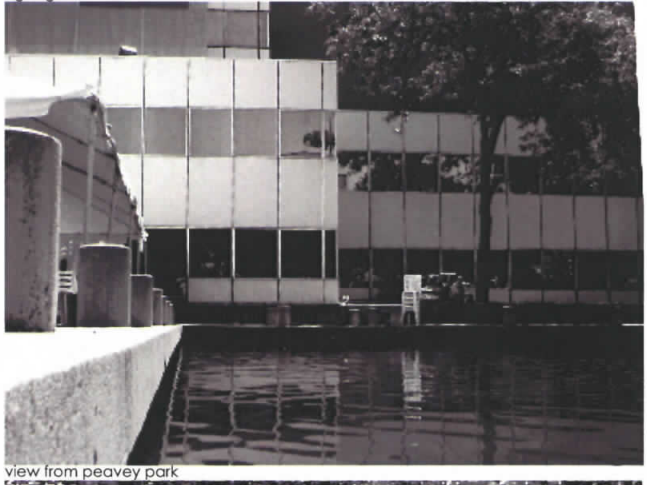


# site analysis

## Site Photographs

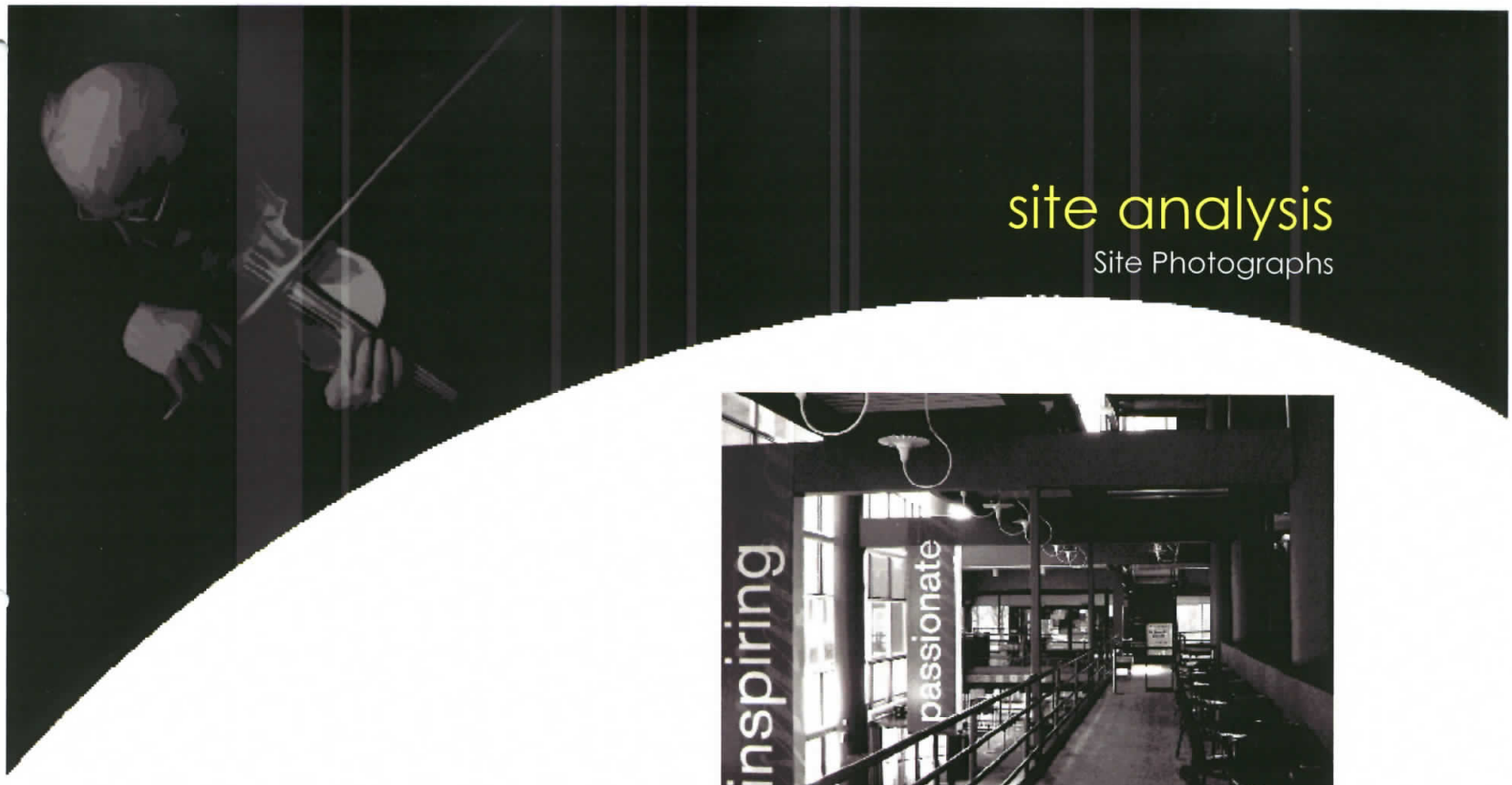



signage on the southeast corner



view from peavey park

view of interaction between peavy park and orchestra hall

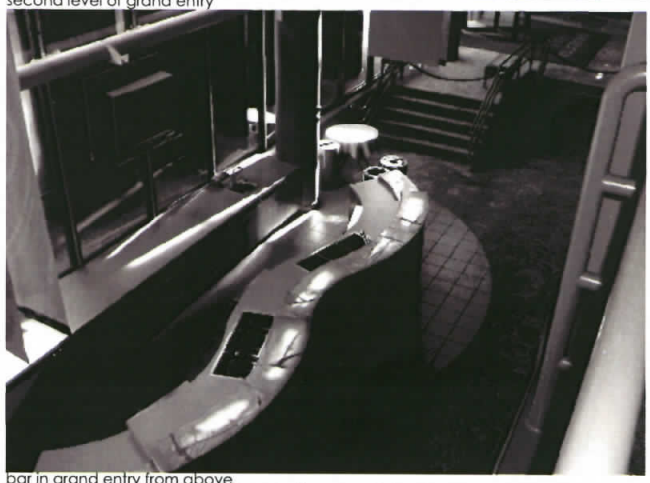


# site analysis

## Site Photographs




second level of grand entry



bar in grand entry from above

seating in grand entry

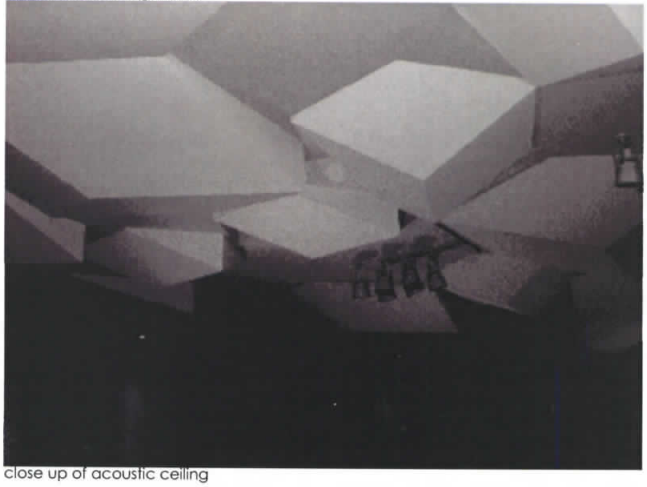
# site analysis

## Site Photographs



performing hall from above

upper level seating in hall



close up of acoustic ceiling

# site analysis

## Site Photographs



view of neighboring site from above

neighboring site from the east

neighboring site from orchestra hall

# site analysis

## Site Photographs



view to the northeast

view to the west

view to the south

# site analysis

## Site Photographs




view to the southeast

view of neighboring peavey park

view to the north

# LHB

## competition

submitted by grant carlson

"A revised conceptualization of architecture in response to a myriad of contemporary concerns about the effects of human activity", this definition taken from Understanding Sustainable Architecture (Williamson...), regarding the role of sustainable architecture in modern society begins to illustrate the dynamic condition of green design. One individual that supports this movement, William McDonald, has produced "the Hanover Principles" which is an attempt to summarize guidelines for sustainable design. In addition to these principles, ethical, technical, and environmental components of sustainable design will be explored. These elements can be specifically applied to a thesis project that solves aesthetic and functional design challenges for Orchestra Hall in Minneapolis, Minnesota. Lastly the examination and application of sustainable design will be examined and evaluated using the LEED (Leadership in Energy and Environmental Design) criteria.

At the 2000's World Fair, William McDonald was commissioned by the city of Hanover, Germany to construct a set of guidelines for sustainable design. McDonald produced a list of nine principles that represented his perspective on sustainability. The nine principles deal with the following; providing adequate shelter, improving management of urban settlements, promoting sustainable land-use planning and management, providing environmentally sound infrastructure facilities, promoting energy-efficient technology, alternative and renewable energy sources and sustainable transport systems, enabling disaster-prone countries to plan for and recover from natural disasters, promoting sustainable construction industry activates, and human resources development. After examining these principles, questions can arouse. How is architectural sustainability conceptualized? Does ethics offer a basis for action? Who and what are the stakeholders? How far can indicators of sustainability be qualified and understood in terms of the behavior of systems? How do we deal with non-commensurable objectives and advice? How can we make and recognize sustainable architecture? These questions begin to suggest sustainability is a product, when it should be approached as if it is an process. However according to Understanding Sustainable Architecture (Williamson...), sustainable architecture is a cultural construction in that it is a label for a revised conceptualizations of architecture. Also, that within this revised conceptualization, by designing more sustainable architecture we perform a "beautiful act" and a sustainable design is a creative adaptation to ecological sociocultural and built contexts, supported by credible cohesive arguments.

The principles are ones that must not be forgotten when proceeding along the design process. These criteria establish an appropriate guide for designers to use as a tool for design.

As professionals in society, our responsibility to the community is a constant subject of debate. Some may feel it is the obligation of the individual to dedicate themselves to the benefit of the community, while others may feel a sense of individuality. However, I do not accept that point of view. Not only is it our civic but also our humanitarian duty to uphold a quality of life for the community and the environment. So why architects? Why should designers be given this burden? Architects have a unique position in society, one that has a great effect on the future. It is this relationship that makes our role as humanitarians and environmentalists present. Not only must architects consider community and client needs when designing, but also the needs of the environment. Green design is a practice that is increasingly becoming more popular, and rightfully so.

What does Ethics mean? According to the Merriam-Webster online dictionary, ethics refers to "the discipline dealing with what is good and bad and with moral duty and obligation"(http://www.m-w.com...). So how might we apply this line or thinking to the disciple of design? As designers we have both the privilege and responsibility to shape the form of the build environment. We must not only consider the needs of those who are directly affected by the outcome of the design but every one in the community. So who consists of the community? Today we all are part of a global community, which means individuals across the world may feel the effects of a design in the United States. Not only must designers consider functional and environmental issues that effect the final design, but also the atheistic and relationship to the context.
Another topic of concern is the design profession in general, and how one should conduct business. "How will we conduct business?" This is the title for chapter seven in a book entitled Biomimicry (Benyus...). Here the author introduces ideas that are of value in the work place. Though these ideals can be applied on a broad level to many disciplines, designers must take these in to consideration more than others. As outlined in the text, the "ten commandments" or rules encouraging survival of those who may adopt such principles are as follows

1.Use waste as a resource: Currently a linear model of a building process is seen, where raw materials are used to create something, when that objects use has expired, it discarded as an unusable waste product. Instead of a linear approach we should implement a interactive web where materials are used in a closed circuit, being used over and over again.

2.Diversify and cooperate to fully use habitat: In order to successfully survive in our environment it is important that we are aware of our context. Ignorance of our environment will only hurt not us but our environment.

3.Gather and use energy efficiently: Almost every community in the world, with the exception of deep sea environments, require an energy form gathered through vegetation. This natural energy is required for survival for all kinds of species, it is important we cherish this commodity and others like it. Wasting it would be jeopardizing survival.

4.Optimize rather than maximize: The American way is "bigger is better". It is ideals like this that has dug the whole that we are in today. In contrast to maximization: Optimization is a much more efficient ideal. Why make two "widgets" when you only need one? By optimizing resources, efficiency will be increased and waste will be minimized.

5.Use materials sparingly: Whether a material is nonrenewable or can be replaced relatively easily, strategic use of these materials is necessary. Fossil fuels used to develop the automobile in the twentieth century are an example of a material that was not used sparingly. It was not until recently that we have learned to appreciate the material and realize that we need to use sparingly, because the amount available is unknown.

6.Don't foul their nests: To infest ones environment with negative elements is unwise, so why does the human race continue to pollute the air we breathe? The upkeep of our breathable air is very important. One company close to us that tries to incorporate this philosophy in their cooperation is 3M. Twenty years ago, 3M implemented the 3Ps program (pollution, prevention pays). 3M has saved $750 dollars thanks to the policy and saved the earth form 1.3 billion pounds of waste since the program was started.

7.Don't draw down resources: According to the text, two corollaries to this lesson "don't emit pollutants faster than the earth can handle them" would have to be: first: don't use nonrenewable resources faster than you can develop them, and second dint use nonrenewable resources faster than they regenerate themselves.

8.Remain in balance with the biosphere: the more in touch to the environment we are the more we can learn from it and in effect the more we can benefit form it with out harming it. This balance is necessary not only for us but for the earth.

9.Run on Information: knowledge is a powerful tool no matter what the context. The more important question is how can we gain that knowledge, especially from the earth.

10.Shop locally: in an age where Internet shopping has become the norm, shopping locally is becoming a thing of the past. But is this the best for the environment? Lots of resources that are wasted from importing and exporting items could be avoided if more people adopted this ideal of shopping locally.

These ten ideals are ones that could be considered from a design standpoint. When designing and constructing in the built environment these ideals can help shape a better environment. These 10 ideas are also successful at summarizing suitability, ethical practice and ethical architectural practice.

So where is the transition from theoretical sustainable design to practical application? This step is probably considered the biggest hurdle to overcome as designers. Often times the client becomes uninterested in green design once they are presented with a cost proposal. Multi-thousands of dollars is not an uncommon price tag for a green building. But as the designer we have the opportunity to use multiple sustainable strategies that are more appropriate for some projects more than others. After searching the internet one can see that there are countless applications of green design. Adobe, straw-bail, rammed earth, and tire construction are all types

of construction application that have benefits and drawbacks. Each has specific technical applications and maintenance. In addition to these "radical building materials", a more commonly practiced application of sustainability is recycling. Materials are commonly taken from a building that is being destroyed with the intention of using them on another building. For example, refinished wood from the exterior façade of a barn may be reused as the exterior treatment of a suburban home. Not only does this practice sustainable thinking but it creates a quality of construction unique to that house. Not only do materials get reused, but also buildings often take on a second life after their primary function has been diminished. An example of this practice is the NDSU architecture building in downtown Fargo. Once an industrial building now provides optimal learning conditions to the art and architecture students of North Dakota State University.

It is important as designers to decide which application is appropriate is each design challenge. What is successful in come climates and environments may not be in others. We must consider the advantages and disadvantages of each application before proceeding. If appropriate strategies are chosen the challenge of convincing the client to proceed will be much less difficult.

The third aspect of sustainable design that we must examine is its relationship with the environment. What role dose it play toward preserving the environment in which we design. In modern society, our environment has grown to a global one, no longer are our actions affecting our immediate neighbors, but also our neighbors across seas. This redefinition of boundaries should increasingly encourage awareness and action regarding green design. This revolution starts with us as designers. No matter how in-depth a project involves sustainable strategies, any effort helps in the movement toward a sensitive built environment.

One term that is used in Understanding Sustainable Design, is "the triple bottom line". Too often architects, designers, contractors, and owners only consider the traditional bottom line (money). The triple bottom-line is one that considers other aspects of a project. Environmental, economic, and socicultural cost of a project consist of the triple bottom line of a project. The environmental cost is that of which takes a toll on the environment. Are the products and services being used in the project environmental sensitive, or are they being produced while hindering the condition of the environment? The economic bottom-line is the one that is too often the driving force of a project. Obviously the economic bottom line includes the dollar cost of the physical project, but it can also include other economic costs that play a larger economic role with in the community. The last cost that is incorporated in the triple bottom line is the cost on the community a project produces. The immediate environment refereed to as the community is an important aspect of any project. If the wrong design solution is implemented in to a community the results can be devastating. The community must be considered when producing a design solution.

As described the environmental aspect of a sustainable design is often considered the most important. The effect on the environment that a project has must be a positive one in order to produce a design that successful solves all the design problems.

The final portion of this document will introduce aspects of LEED (Leadership in Energy and Environmental Design) that will be considered when designing a solution of a thesis project that solves a design problem for Orchestra Hall in Minneapolis, Minnesota.

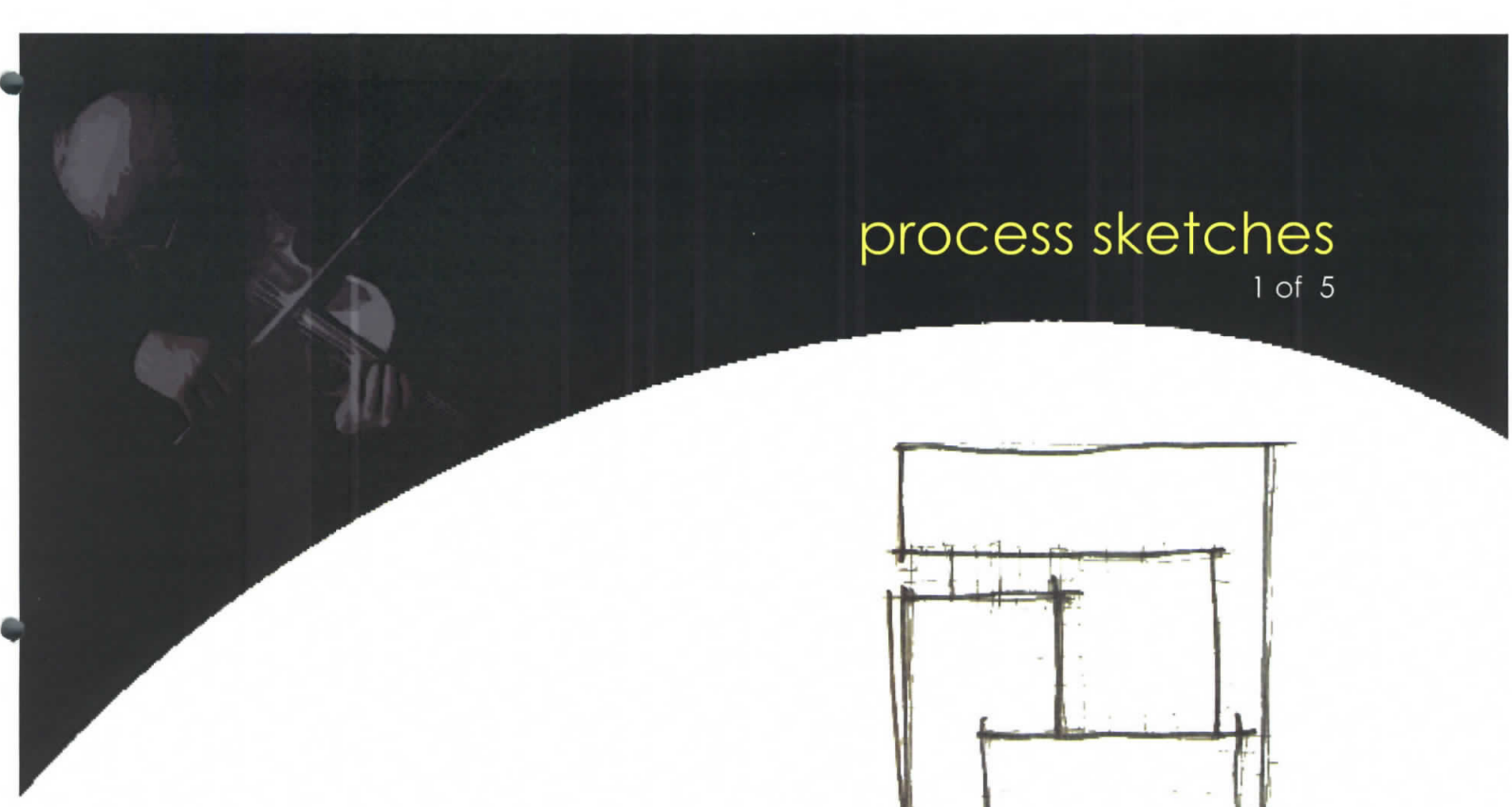
LEED is a program that was established with the intention to; define "green building" by establishing a common standard of measurement, promote integrated, whole-building design practices, recognize environmental leadership in the building industry, stimulate green competition, raise consumer awareness of green building benefits, and transform the building market (www.usgbc.org). The program consists of multiple titles in which a building can attain. If a building accomplishes the minimal amount of sustainable design it is considered a "LEED certified" (26-32 points awarded) building. The next level up is a "silver certification" (33-38 points awarded). "Gold certification" (39-51 points awarded) is the next level of certification. The highest level of certification is "Platinum" (52 or more points awarded). The points for each of these levels are awarded based on the LEED Green Building Rating System" which incorporates several aspects of a project that includes; sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design process. Each of these categories has criteria that must be met in order to achieve points

that account for a project's certification level.

The orchestra Hall addition will intend to fulfill the criteria required for a gold/platinum level of certification. This will be achieved by considering each of the categories defined by the Green Building Rating system. Each of these categories will be considered at the start of the project and not be neglected and left for the end of the design process.

LEED has several types of project categories based on the typology of project that is being considered. For an addition to Orchestra Hall, the "LEED for Exiting Buildings" and "LEED for New Construction" portions of the criteria will be used. LEED for Existing Buildings (LEED-EB) maximizes operational efficiency while minimizing environmental impacts. It provides a recognized, performance-based benchmark for building owners and operators to measure operations, improvements and maintenance on a consistent scale. LEED-EB is a road map for delivering economically profitable, environmentally responsible, healthy, productive places to live and work (www.usgbc.org). The LEED Rating System for Existing Buildings addresses: whole-building cleaning and maintenance issues including chemical use, ongoing indoor air quality, energy efficiency, water efficiency, recycling programs and facilities exterior maintenance programs, and systems upgrades to meet green building energy, water, IAQ, and lighting performance standards. LEED for New Construction and Major Renovations (LEED-NC) is a green building rating system that was designed to guide and distinguish high-performance commercial and institutional projects, with a focus on office buildings. Practitioners have also applied the system to K-12 schools, multi-unit residential buildings, manufacturing plants, laboratories and many other building types. Several sustainable strategies will be implemented with intention of satisfying these criteria.
Sustainable design is part of a movement that society is currently in the middle of. If ignored, design cannot progress. The Hanover principles are one set of criteria that tries to illustrate guidelines that can be used in order to achieve sustainable superiority. Ethical, technical, and environmental aspects of sustainable design are all parts of a larger idea surrounding green design. Lastly these ideas are all considered and regulated by LEED that also acts as a design tool that can be used by all designers.

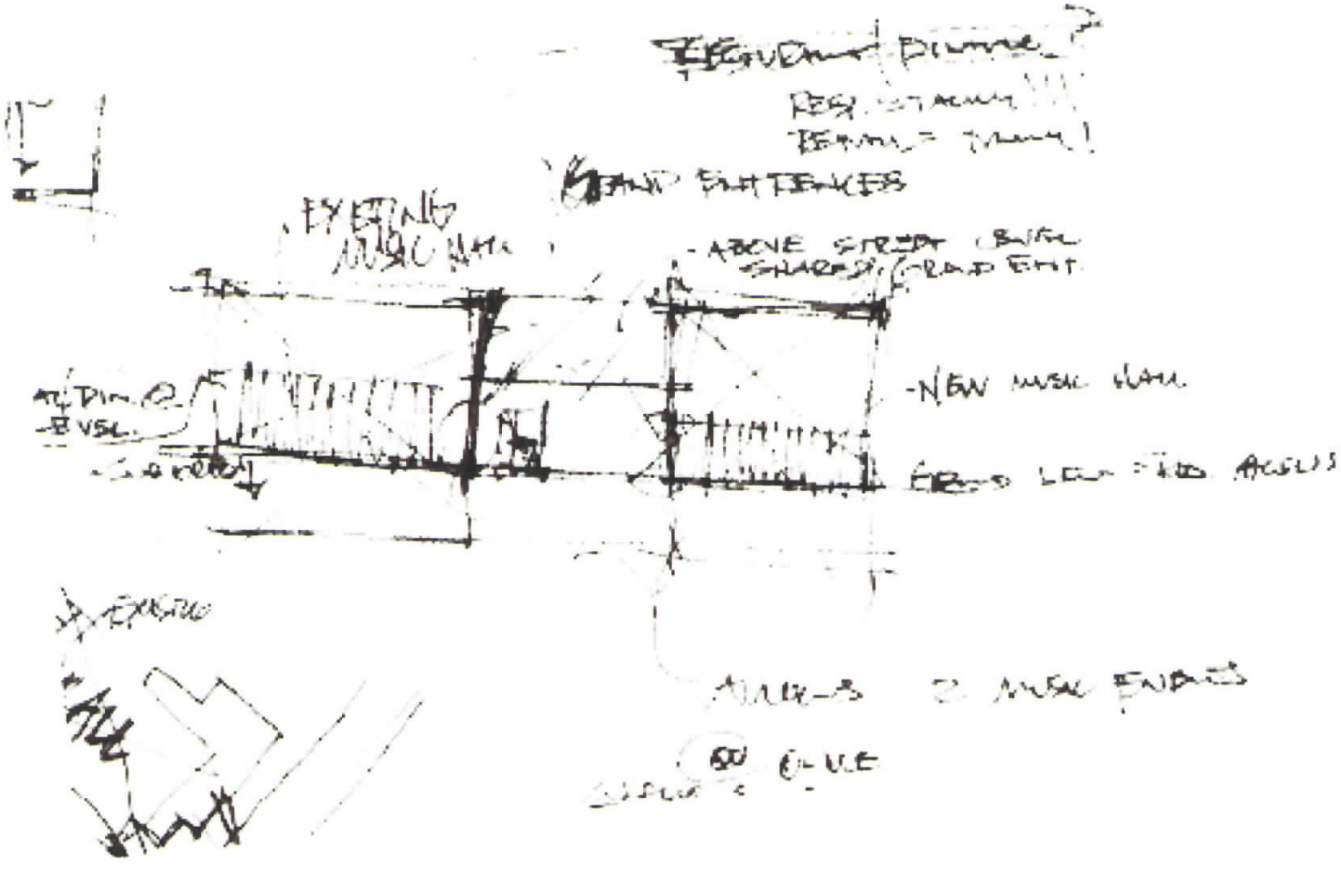
project documentation



# process sketches

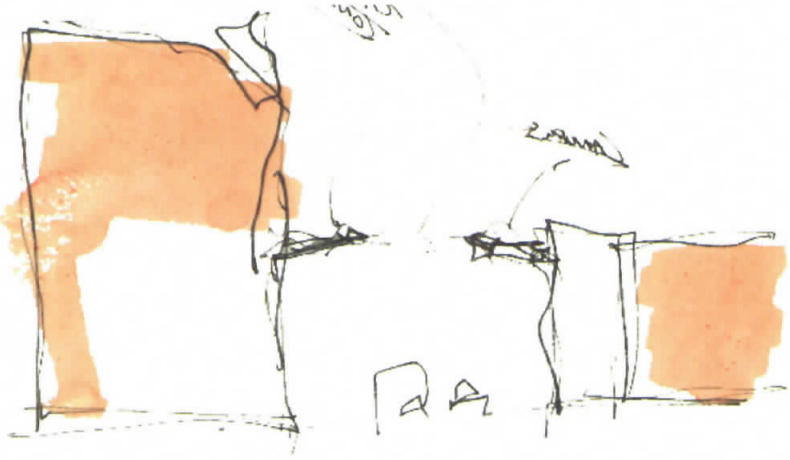


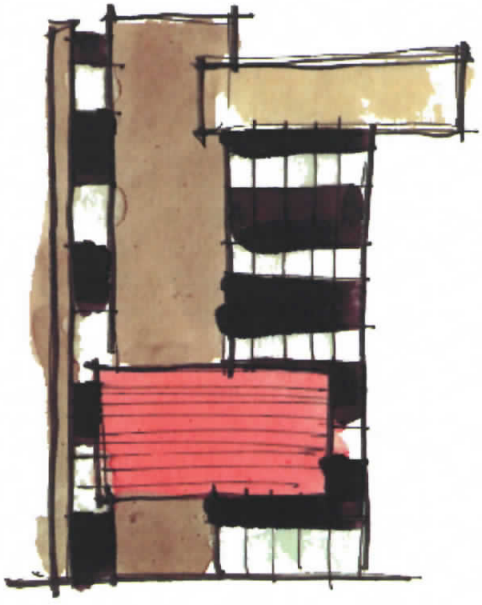




# process sketches

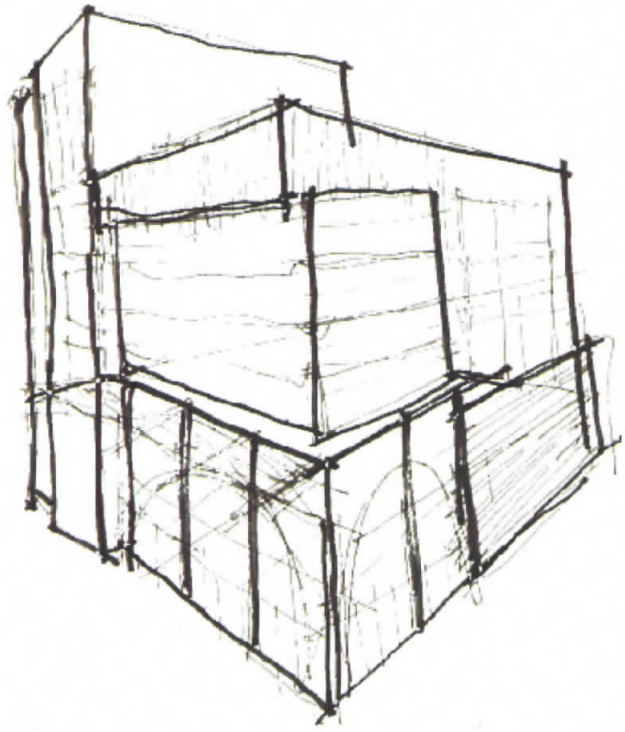


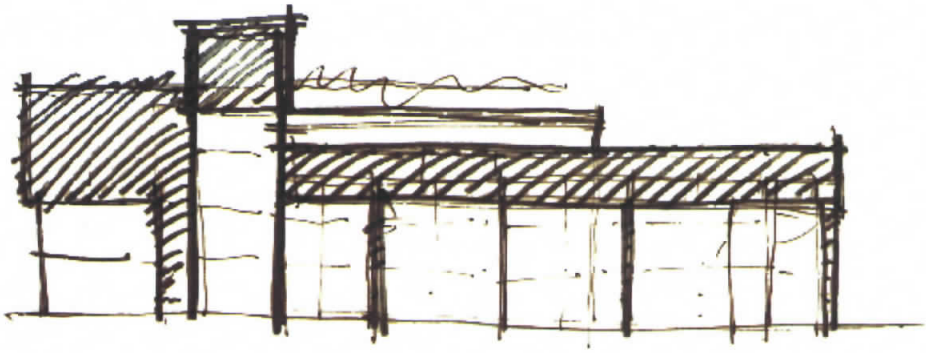




# process sketches

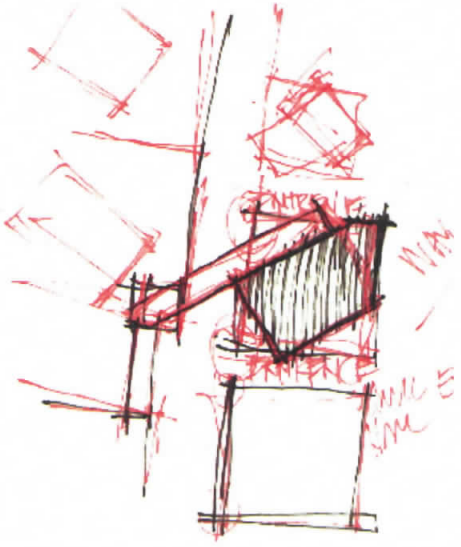


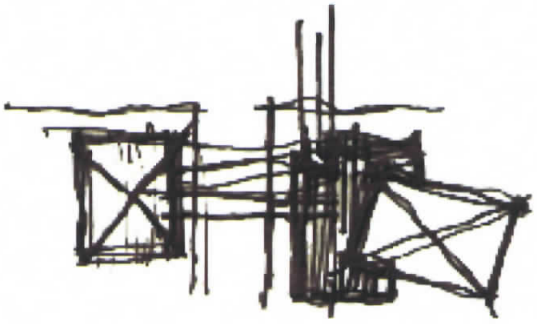


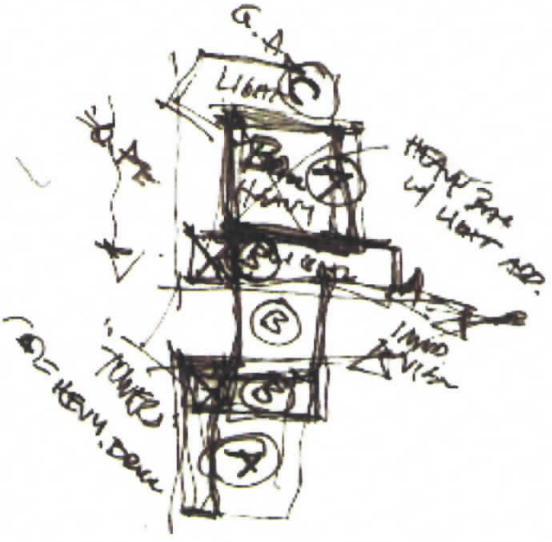


# process sketches



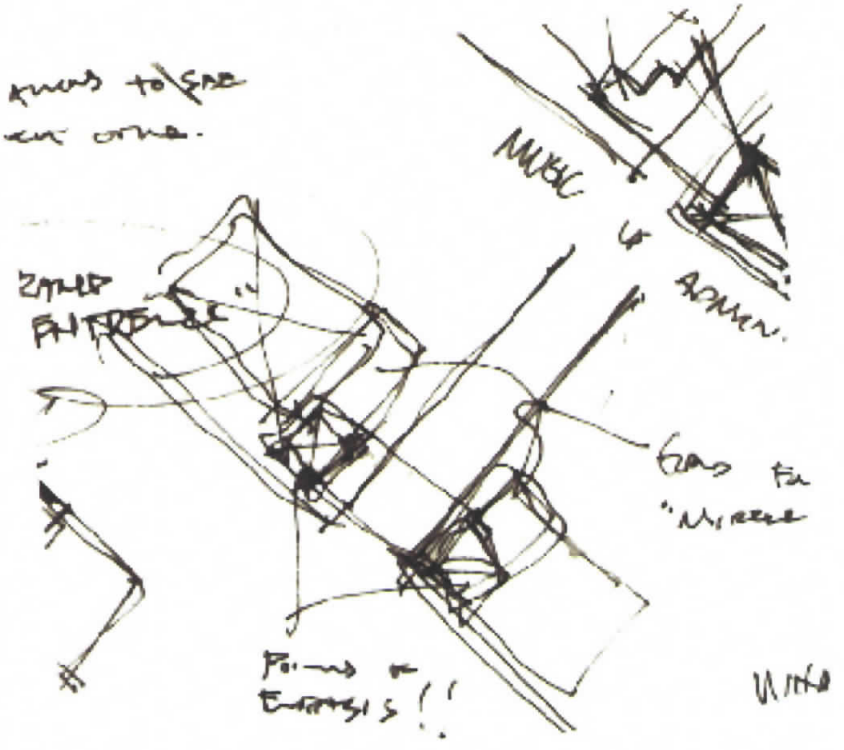


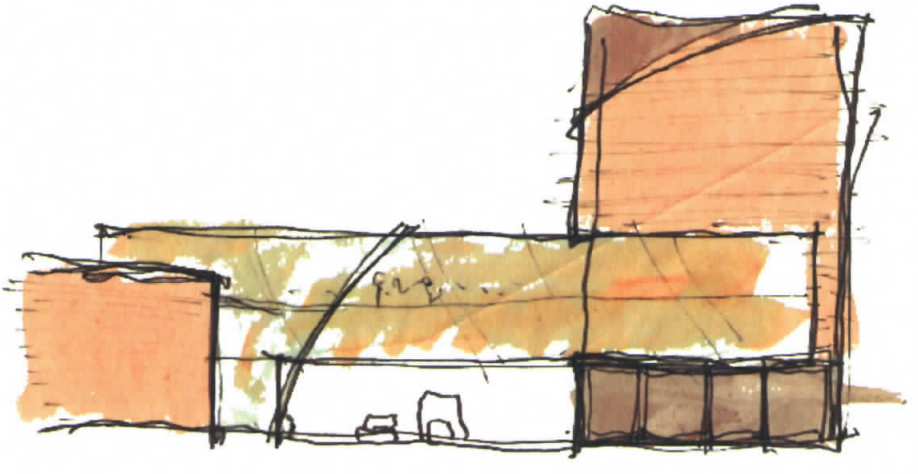




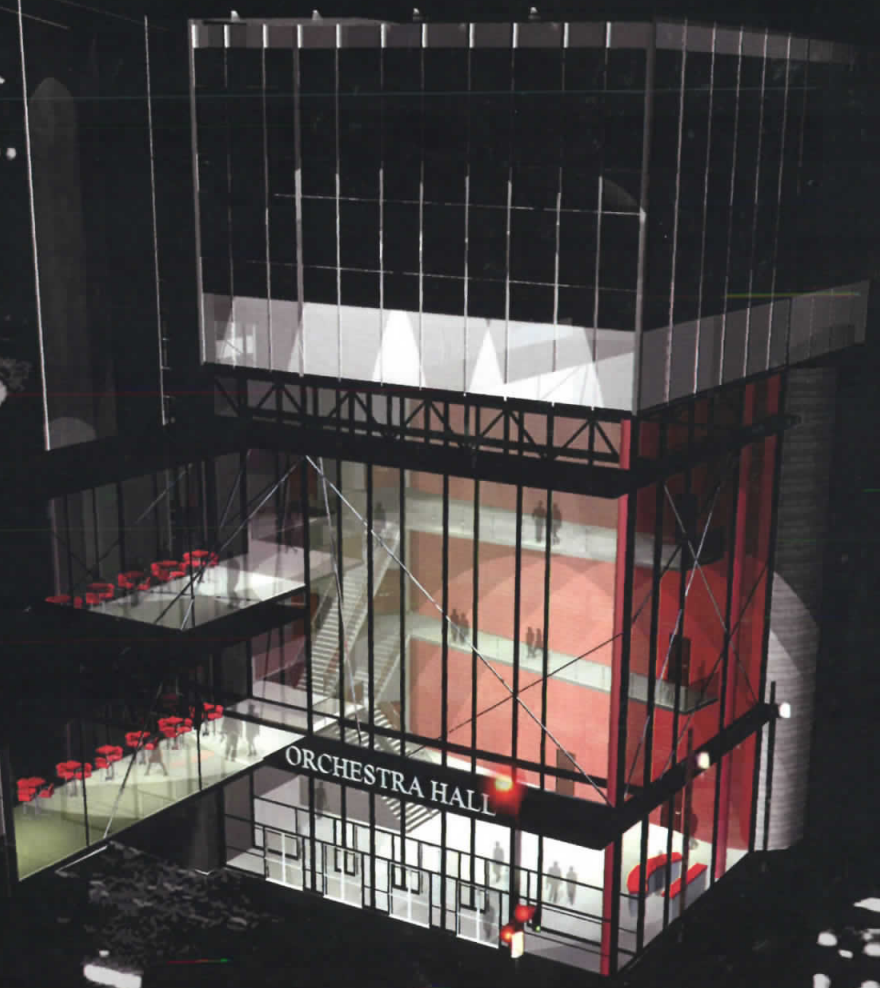
# process sketches







# EXTERIOR



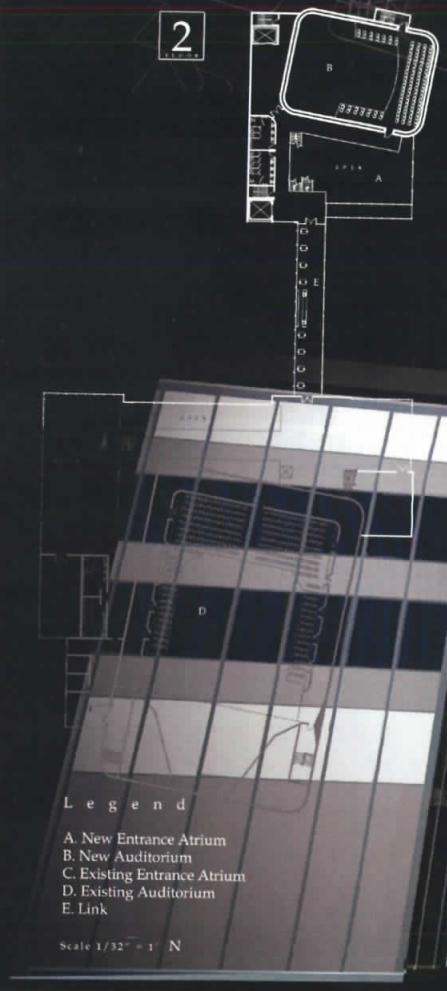

South-East Corner

Amongst the busy and active city life of Minneapolis, a feeling of tranquility is present at the south portion of Nicolet Avenue. Here, sounds of violins and trumpets murmur in the background contributing to the serene mood. For over three decades Orchestra Hall has provided the musical backdrop for not only Peavey Plaza and Nicolet Avenue but also the entire region of the Midwestern United States. It is here where this thesis project occurs.

The Orchestra hall Addition is an attempt to preserve the historical by re-inventing existing spaces with-in the built environment.

Pictured here is the Main Entrance for the addition. The three-story atrium presents the viewer with a grand experience upon entering.

# SECTION



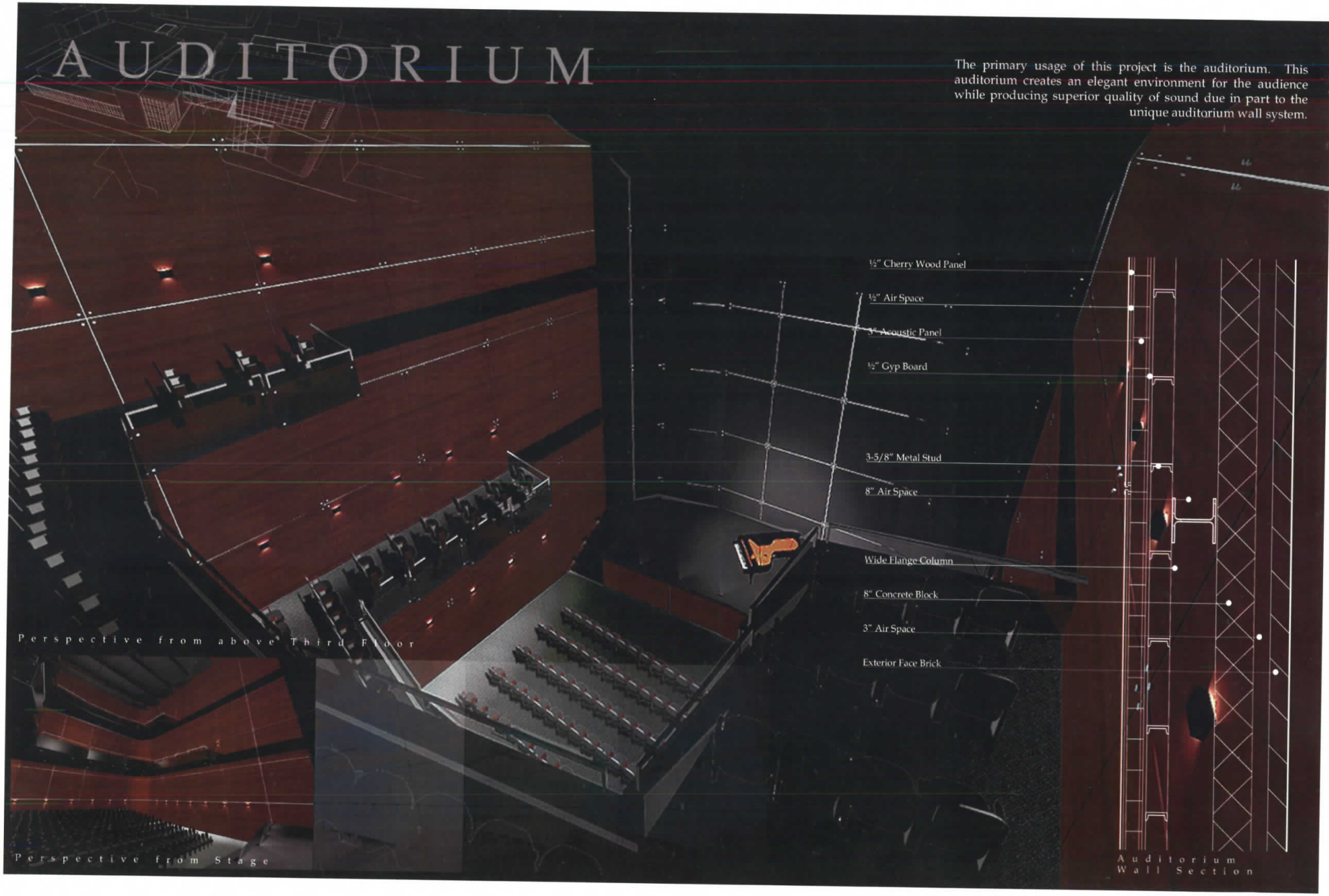

The design solution for this project incorporates the needs defined by the user/client groups. The Minnesota Orchestra, administrative personal, and the audience members are users/clients of primary concern.

Pictured here is a section perspective representing the relationship between the new hall, atrium,a and link to the existing hall. Sitting atop the hall and atrium are three floors designated for administrative use and music storage/practice space.

Section Perspective from the East

# AUDITORIUM

The primary usage of this project is the auditorium. This auditorium creates an elegant environment for the audience while producing superior quality of sound due in part to the unique auditorium wall system.

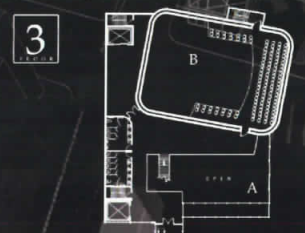



Perspective from above Third Floor

Perspective from Stage

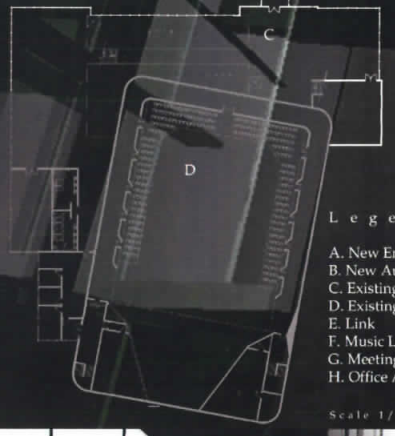
Auditorium Wall Section

# INTERIOR










Legend

A. New Entrance Atrium
B. New Auditorium
C. Existing Entrance Atrium
D. Existing Auditorium
E. Link
F. Music Library
G. Meeting Room
H. Office Area

Scale 1/32" = 1'

N

Perspective looking down Link

The addition not only establishes a physiological connection with the existing hall, but also a physical one. Pictured here is one of two links that function not only as a corridor but also a seating area for a refreshments bar.

The auditoriums' exposed systems and materials that span several stories mimic the north entrance of the existing hall. The grand stairway reinforces a sense of grandeur present in the atrium.

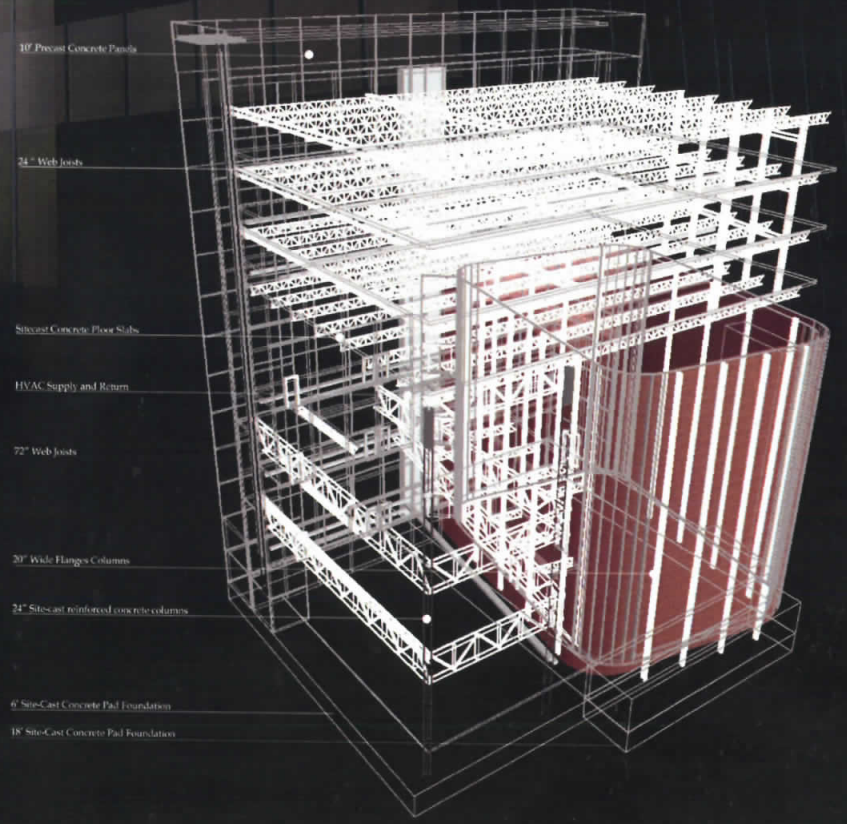
Perspective from First Floor of New Atrium

# STRUCTURE

Re-inventing the existing entrance and establishing the new entrance for the addition, allows two concerts to co-exist simultaneously. The two entrances face each other creating a zone between the two, where interior actions in both buildings can be viewed from one-another.

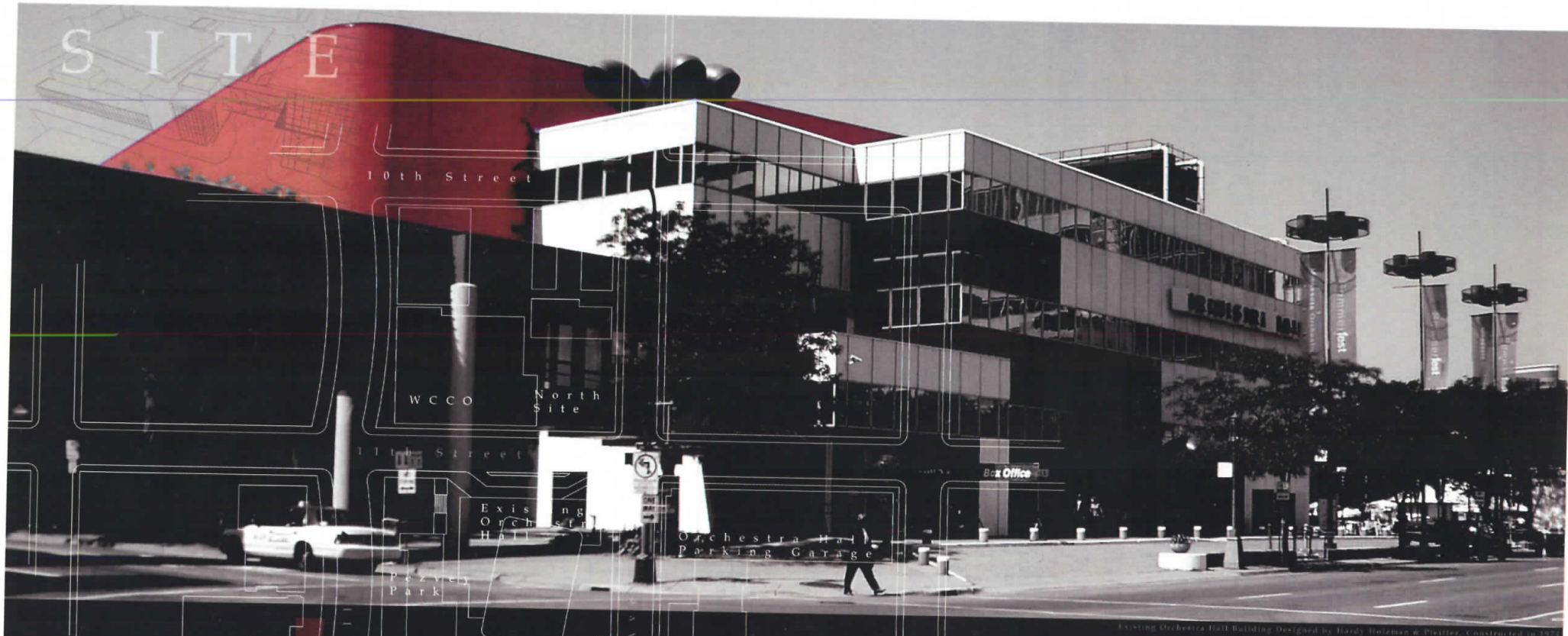

New Front Entrance to Existing Orchestra Hall Building


Front Entrance to New Orchestra Hall Building



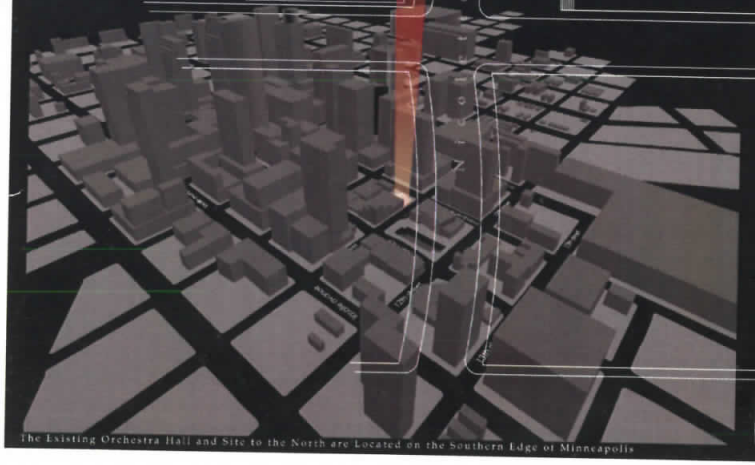

Perspective of Systems and Structural Members from the East

# SITE




Existing Orchestra Hall Building Designed by Hardy Holzman & Pfeiffer. Constructed in 1974

The current urban context is one that is well established within the city boundaries. To interrupt this mature microenvironment would be counterproductive. The addition supplements the surrounding context which insures the Hall a comfortable existence in the environment.



The Existing Orchestra Hall and Site to the North are Located on the Southern Edge of Minneapolis

Proposed Site is Located to the North of the Existing Orchestra Hall

# appendix a

# a plan for proceeding



Research and analysis of that research will be performed using mixed methodology. It is important to conduct this research in order to consider all influencing elements of the project. First a strategy for research must be defined. Second this strategy will be applied to both quantitative and qualitative research. Next case studies will be examined and compared to this project's context. After all of these acts are performed, all information will be considered and summarized in order to produce a concluding summation of all influencing parts of the project.

Before continuing through the design process a strategy of attack must defined. The first step of the strategy is to visit the site. It is important to experience the site first hand before analyzing and researching for the project. I have visited the site twice and have found each visit to be invaluable. Now that I have visited the site, research can begin.

As mention the second step of the strategy is to gather qualitative information. This step will be guided by the theoretical premise. The most important source for this type of information is a site visit. Components of the project including sounds, smell, feelings, scale, interaction, void, juxtaposition, an others can only be identified if the site is experienced first hand. However in addition to a site visit, a full research investigation will identify other qualitative information. This search will include books, journals, web sites, magazines, and any other source that might contribute to qualitative information. Historical changes, neighboring forms, pedestrian interaction, context materiality, and tectonics are types of information that is appropriate to include in the qualitative research.

# a plan for proceeding



Like qualitative information, quantitative information is necessary in order to consider all influencing elements of the project. Both statistical and scientific data will be collected. Statistics, maps, charts, and diagrams are all forms of quantitative research that will be performed in order to collaborate quantitative information. Precipitation measurements, wind current diagrams, transportation maps are all examples of such research tools. The product of this search will be hard facts about the site and project, which are nothing but raw data but must be considered when designing.

Case studies are the last form of research that will be performed regarding preparation and for this project. A case study will include both qualitative and quantitative information about other projects that share similarities with this one. Similar typology, contexts, scales, and premise are all characteristics of case studies that will be explored. When locating such case studies it is important to take examples form more than the surrounding region. A case study from each of the following regions will be performed; midwestern, northwestern, southwestern, northeast, southeast, and southern United states. In addition to these domestic regions, foreign projects of appropriate characteristics will be considered.

After all these forms of research are preformed, all information will be gathered and considered. Useful information will be embraced and considered, while useless information will be no longer investigated. Both graphic and language based analysis will be included. Interaction matrix, interaction net, Venn diagramming, and morphological charting will be forms of graphical analysis that will be performed. Philological logic, phenomenology, and dialectical tools will all be language-based forms of analysis. A summation of all these statistics, studies, maps, and observations will be produced in order to assign a headachy of importance to each piece of information, in turn this hierocracy will be considered while schematic design of the project begins.

# a plan for proceeding



Documentation of both the process described here and the design process will be included in the concluding document of this project. Photography of models, collection of sketches, and drawings will all be saved in order to illustrate the design process.

Before any of these steps are performed a schedule of events will be defined. This will serve as a template and chronological guide for the design process.

**Plan for Proceeding Summary**

**Research & design schedule**

**Define research strategy**

**Conduct qualitative & quantitative research**

**Conduct case studies**

**Analysis of research**

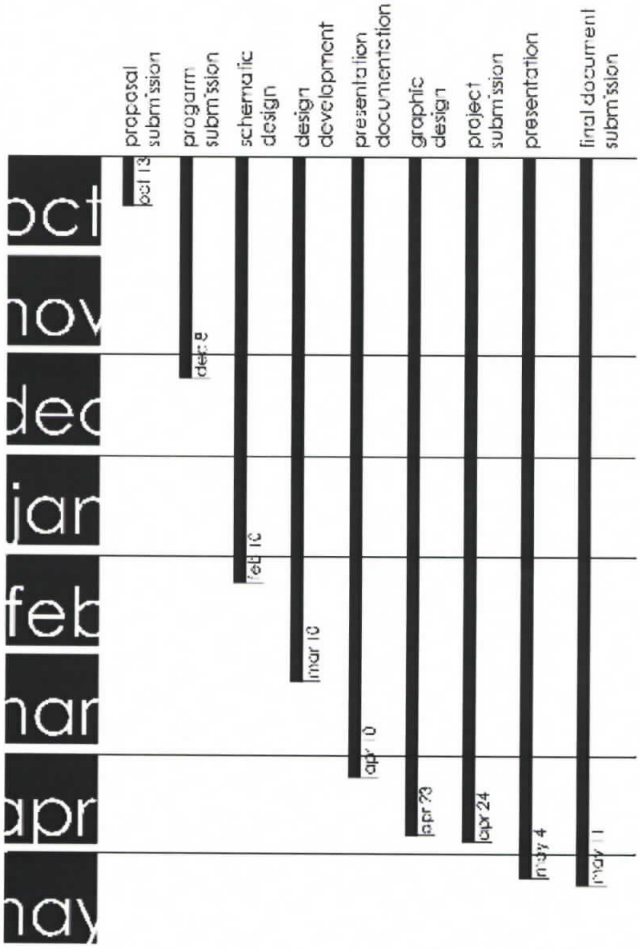
# a plan for proceeding



| | |
|---|---|
| Week 1:Jan 01 to Jan 07 | Schematic Design |
| Week 2:Jan 08 to Jan 14 | Schematic Design |
| Week 3:Jan 15 to Jan 21 | Schematic Design |
| Week 4:Jan 22 to Jan 28 | Schematic Design |
| Week 5:Jan 29 to Feb 04 | Schematic Design |
| Week 6:Jan 05 to Feb 10 | Schematic Design |
| Week 7:Feb 12 to Feb 18 | Design Dev. |
| Week 8:Feb 19 to Feb 25 | Design Dev. |
| Week 9:Feb 26 to Mar 04 | Design Dev. |
| Week 10:Mar 05 to Mar 10 | Design Dev. |
| Week 11:Mar 11 to Mar 18 | Presentation Doc. |
| Week 12:Mar 19 to Mar 25 | Presentation Doc. |
| Week 13:Mar 26 to Mar 04 | Presentation Doc. |
| Week 14:Apr 05 to Apr 10 | Presentation Doc. |
| Week 15:Apr 11 to Apr 15 | Presentation Doc. |
| Week 16:Apr 16 to Apr 23 | Presentation Doc. |
| Week 17:Apr 24 to May 04 | Submit/Present |
| Week 18:May 05 to May 11 | Final Doc. Submission |

# a plan for proceeding





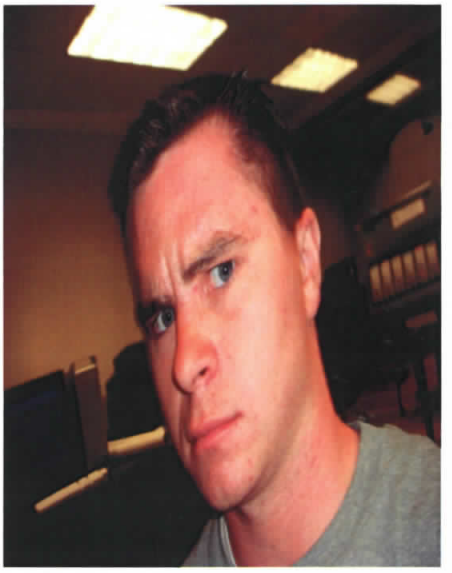
# previous studio experience



| | |
|---|---|
| 2nd year studio: | Fall 2002 |
| Professor: | Nadja Palenzuela |
| Projects: | Principles of architectural design |
| 2nd year studio: | Spring 2003 |
| Professor: | Bakr Aly Ahmed |
| Projects: | Hotel/retail center (Fargo, ND)<br>Affordable housing (Fargo, ND) |
| 3rd year studio: | Fall 2003 |
| Professor: | Steve Martens |
| Projects: | Golf clubhouse (Fargo, ND)<br>Boathouse/museum (Brooklyn, NY) |
| 3rd year studio: | Spring 2004 |
| Professor: | Harold Jenkinson |
| Projects: | Animal shelter (Fargo, ND)<br>Community center (Fargo, ND) |
| 4th year studio: | Fall 2004 |
| Professor: | Frank Kratky |
| Projects: | Urban design/retail center (St. Paul, MN) |
| 4th year studio: | Spring 2005 |
| Professor: | Don Faulkner |
| Projects: | Residential/retail skyscraper (San Francisco, CA)<br>NDSU art & architecture bldg (Fargo, ND) |
| 4th year studio: | Fall 2005 |
| Professor: | Vince Hatlen |
| Projects: | Fargo public library (Fargo, ND) |

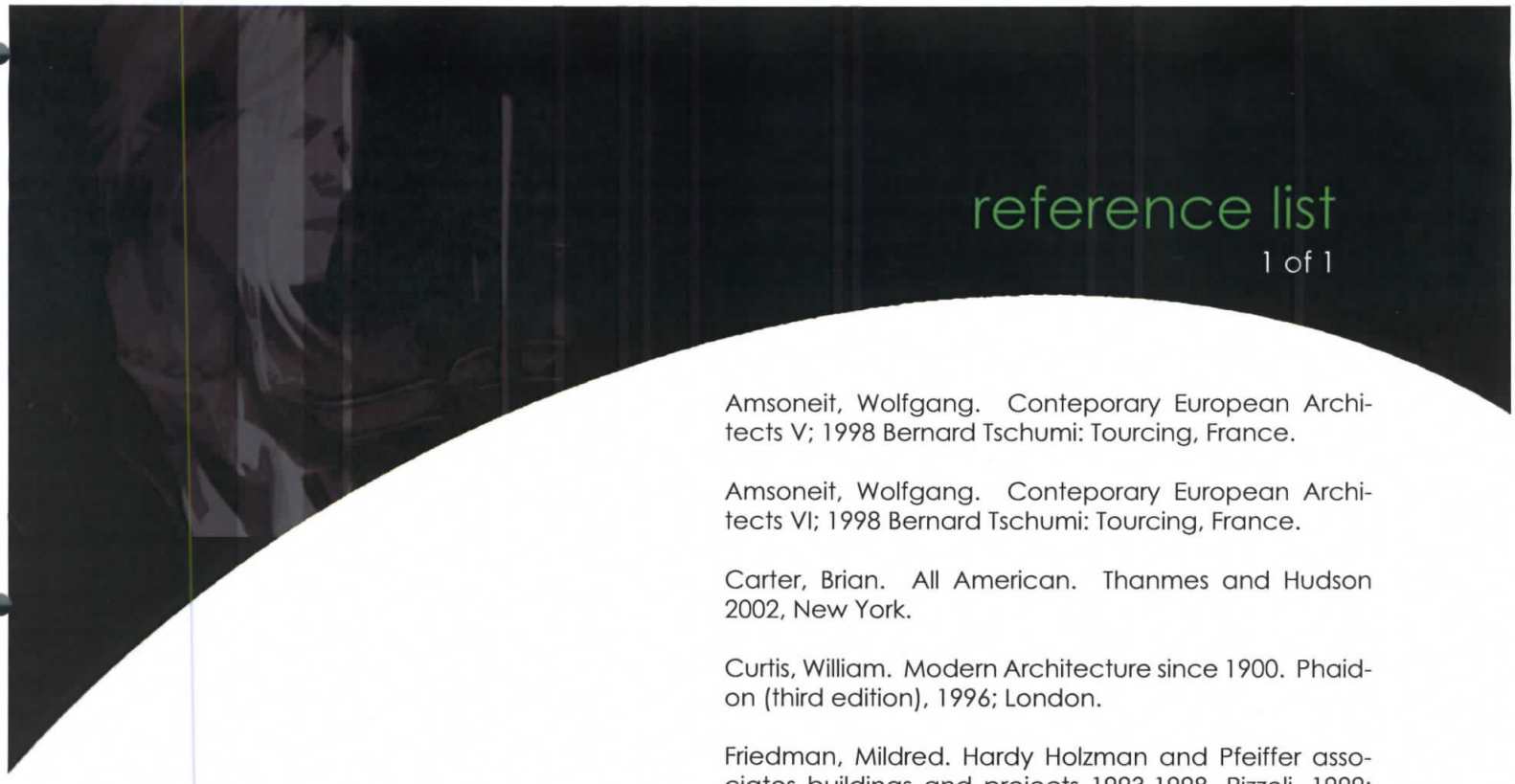
# personal identification





Grant Carlson

NDSU Quote: "I'm Done...Off to Cali"



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