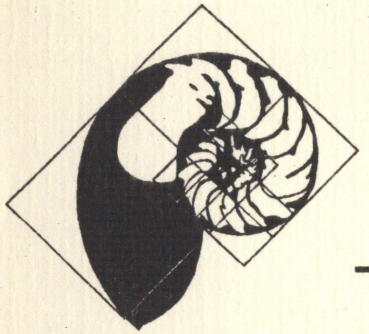
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Edmonton Concert Hall

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EDMONTON CONCERT HALL

By

ALI M. ELSAFADI

A thesis submitted in partial fulfillment of the requirements for the degree

of

Bachelor of Architecture

Montana State University
Bozeman, Montana

December, 1991

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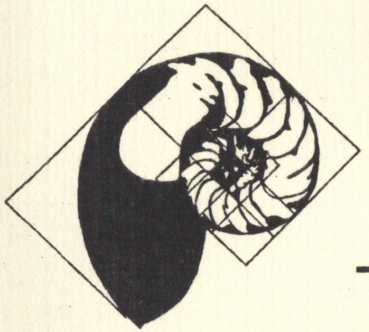
Approved:

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Advisor:

Thomas R Wood

Director School of Architecture:



Acknowledgements

In any undertaking of a project of this magnitude, there are many people whose encouragement, patience and, at times, persistance are essential in getting started and seeing it through to completion.

In appreciation, I would like to dedicate this book to those individuals who made it possible Zainal Baseri, Rob Burda, Shrerum Raj, and especially to my family for being there throughout all events... thank you.

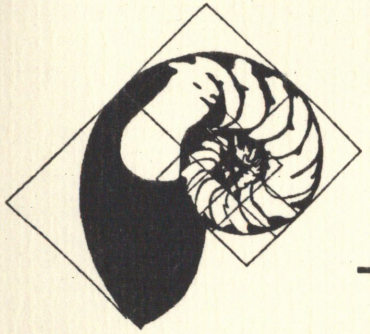




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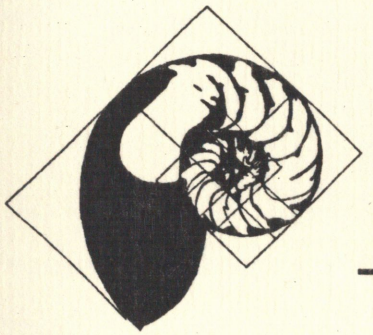
Thesis Statement



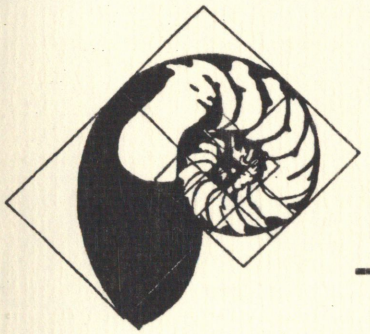


The intent of this thesis is to design for the City of Edmonton a concert hall in Edmonton,Alberta,Canada. The solution shall be reached through analysis of:

Formal	To express the cultural vibrancy of the city
Environmental	To create an environmentally sensitive solution
Physical	To create a solution which is sympathetic to the existing site
Functional	To create a world class concert hall



Introduction

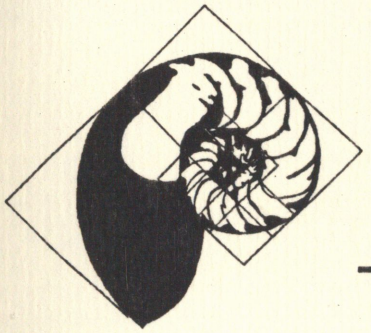


Introduction

Architecture is the art and science of creating spatial experiences, an architecture that finds its language at the point where the inner requirements of a building meet the conditions external to it. This dialogue between a building and its setting has become the source of meaning in architecture.

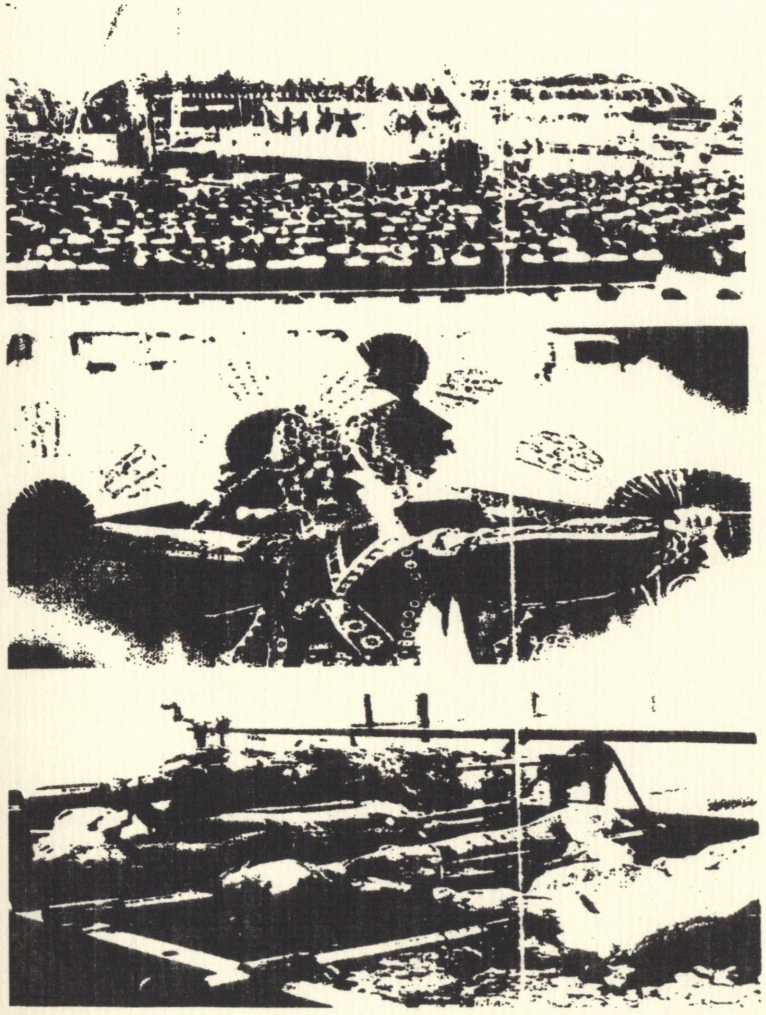
My awareness and preception of architecture is not definable in a few words. This awareness comes from those qualities that make architecture fulfilling and beautiful. This quality has its ground in that subconscious region where we are continually being bombarded with physical, visual, and emotional data, and in turn, have enabled me to develope my own synthesis of these. It has, however only provided me with a base of knowledge on which to build a lifetime of edusation,that I will soon encounter.

For architects are individuals and precieve architecture only through their own eyes and through their view of the world. Our architectural knowledge can be defined as an accumullation of what we have seen, what we have done, and how we precieve it.



Project Statement

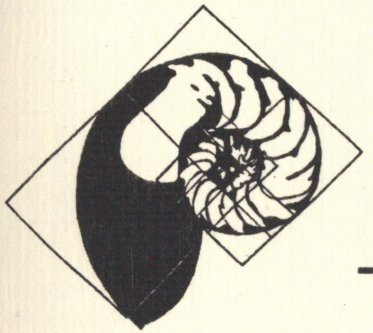
Project Statement



Why does Edmonton need a Concert Hall?

Known as Canada's "Festival City" Edmonton enjoys the distinction of being one of the country's most culturally vibrant centres. Edmonton also has a remarkable reputation throughout the world as a city of fine music. Many of our musicians, individuals and in groups, and as composers, enjoy international recognition. The variety of music groups in Edmonton is exceeded only by their growing audiences-yet Edmonton is virtually the only large Canadian city without a major concert hall. As the demand for cultural services continues to grow, existing facilities find it harder to accommodate the increased activity. Because there is presently no space dedicated specfically to the presentation of music, a concert hall would be a sound investment for Edmonton both economically and culturally. The concert hall will:

* alleviate overbooking of present facilities
* enhance the musical experience through excellent acoustics

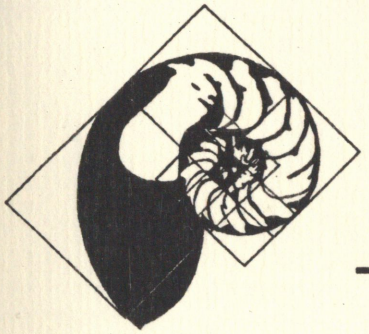


Project Statement

* be a first-class hall for the presentation of all kinds of music from classical to country
* be home to our Edmonton Symphony Orchestra
* showcase our local talent
* attract a wider range of national and international performers
* heighten Edmonton's profile on the musical map
* contribute to the attractiveness of edmonton as an international convention centre
* be an added attraction for tourism and corporate relocation
* contribute significantly to ongoing downtown revitalization
* become a landmark place on Sir Winston Churchill Square
* contribute to the enhancement of music appreciation by today's growing audiences and those of future generations
* be a special place where old friends can gather, new friends can meet and many pleasant evenings of music will long be remembered.

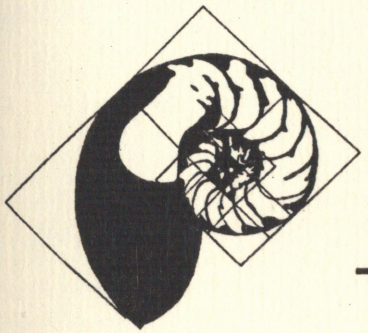
What about the Jubilee Auditorium?

The Jubilee Auditorium that seats 2600 opened in the late 50's when the population of Edmonton-which now exceeds 700,000 was only 226,000. This increase in population together with the developement of an extraordinarily active arts scene has placed a severe strain on the jubilee's ability to meet the demand. In addition, more than 200 resident professional and community arts groups are continually vying with touring shows, festival presenters, and television and radio production companies for space. Also, Edmonton is often by passed by threatical and musical attractions touring Western Canada because an appropriate place to perform is simply not available for the length of time needed to mount such shows. The concert hall is intended to complement not compete with exsisting facilities. The Jubilee would therefore be more accessible for productions it's better suited for such as travelling broadway-type shows like Cats or Les Miserables which



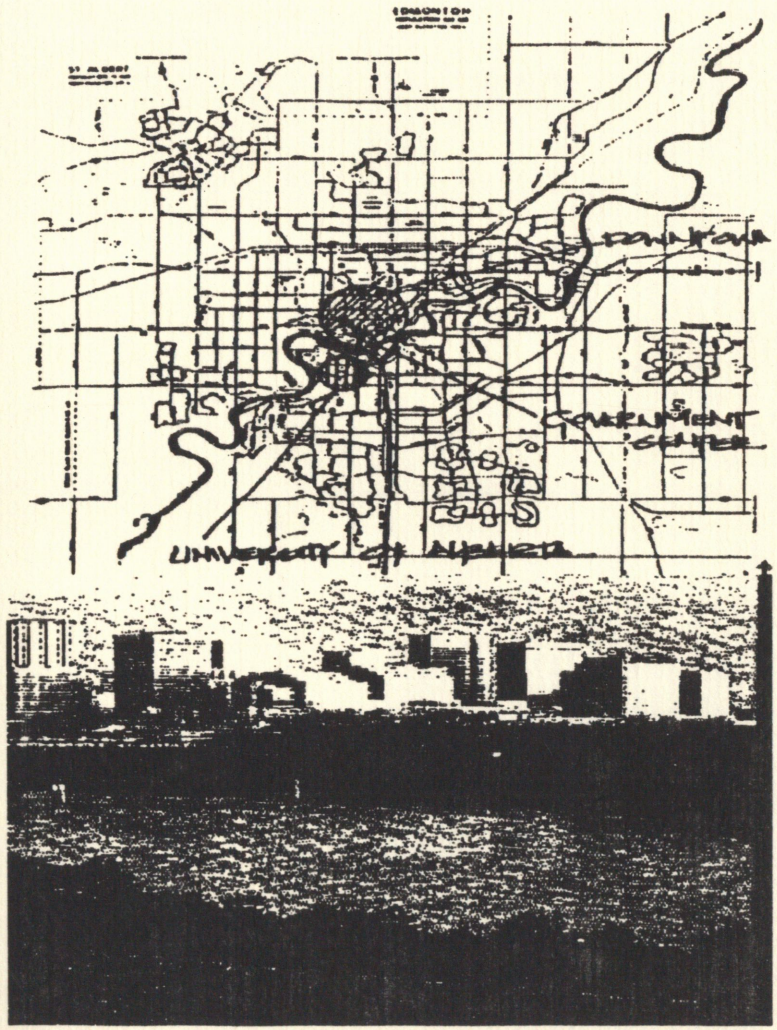
Project Statement

require extended booking time. Currently, the Jubilee simply lacks sufficient back-to-back dates in order to attract such shows, obliging Edmontonians to travel to Calgary or elsewhere to see them. The extra space provided by the concert hall will more adequately serve the needs of existing local and touring performers, encourage and promote the developement of potential new talent, and give Edmontonians and Northern Albertans more entertianment choice than ever before.



Edmonton Information

Edmonton

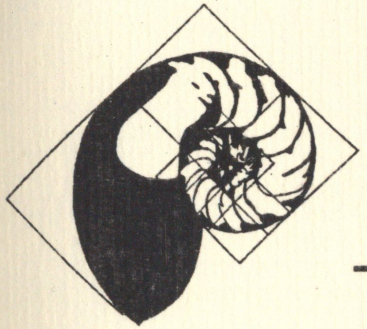


The City of Edmonton is located in Central Alberta, Canada, 350 miles north of the Canada-United States border. The nearby terrain is mostly flat plains with the exception of the Saskatchewan River valley.

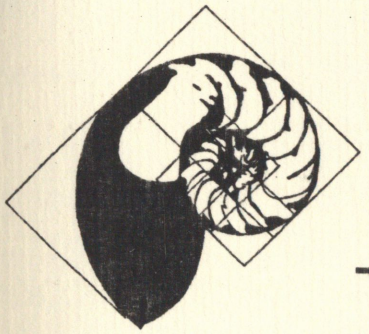
The Saskatchewan River essentially divides the city into a north and a south sector. The Downtown is on the north side of the river nearly in the city. The University of Alberta is located on the south side of the river, a little ways west of the Downtown. Across the river from the University is the government centre.

Due to the oil boom, the population in edmonton grew extensively in the last decade (1970-1980) from 450,000 to700,000. The Population has essentially stabilized at nearly 725,000.

Due to its northern latitude and surrounding plains, the climate in edmonton is severely harsh and cold. temperatures reach well below freezing and wind combines adverse conditions for the winter months. Low sunlight angles make solar applications difficult but sunlight is always encouraged through the use of daylighting.

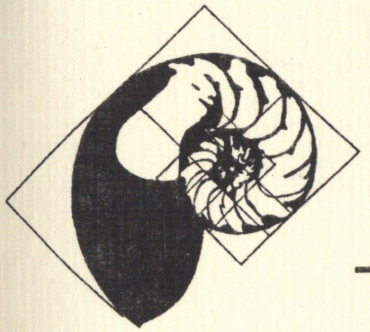


General Climatic Data



General Climatic Data

Temperatures (Degrees F)	Minimum Mean	Maximum Mean	Hours of sunshine
January	- 13.0	8.6	80
February	- 7.6	18.3	110
March	- 2.5	27.5	150
April	7.2	45.0	200
May	14.7	58.5	250
June	18.3	64.9	250
July	20.6	69.1	310
August	17.4	66.9	260
September	14.2	57.6	190
October	9.1	48.4	150
November	- 1.6	29.1	80
December	- 9.0	15.8	75
Yearly Average	5.7	42.5	175.4
Mean Annuals	- 45	90	



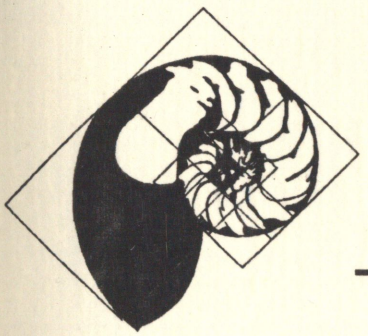
General Climatic Data

Winds	Direction	Ave. Speed
Spring	S	8 - 12 mph
Summer	S	8 - 12 mph
Autumn	W	8 - 12 mph
Winter	SW	4 - 7 mph

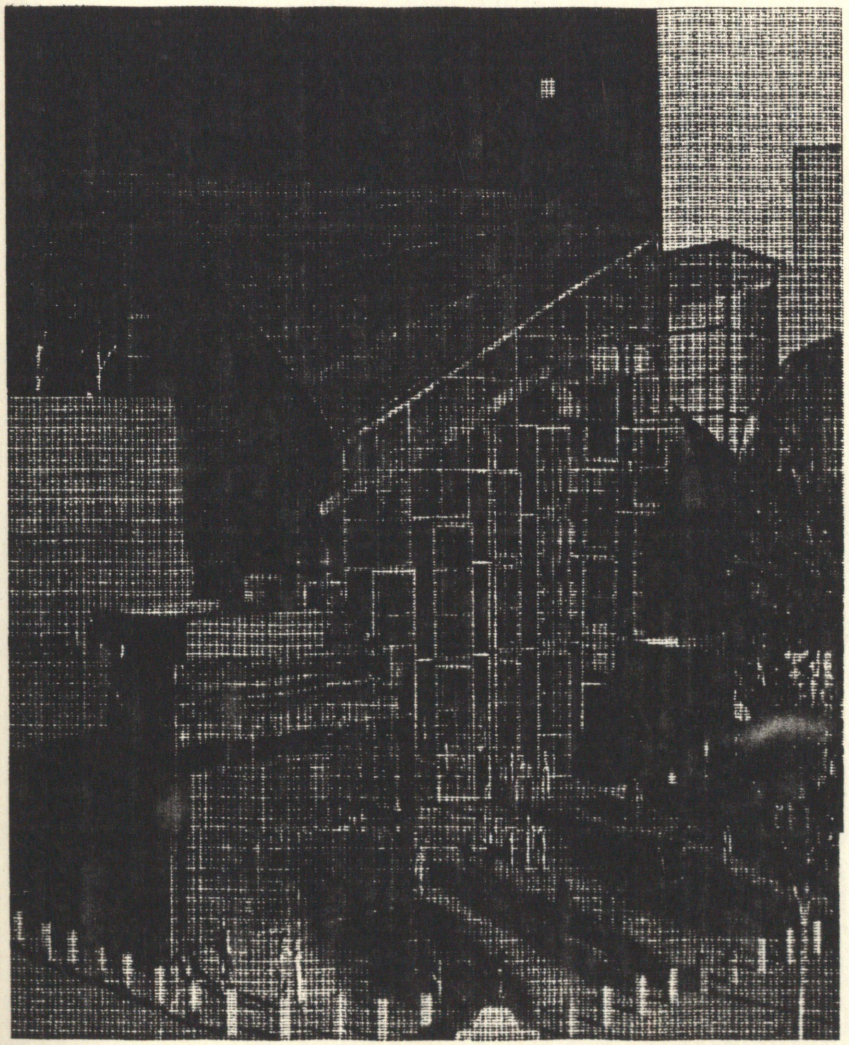
Mean Snowfall	45"
Days w/snowfall	50
Mean Total Precip.	15"
Rainfall	10"
Mean Hrs. of Sunshine	2150

Sun Angles

Edmonton experiences extensive sun coverage in the summer. On July 21, the sunrise azimuth angle is 58 degrees northeast, reaches a peak altitude of 63 degrees at 163 degrees southeast and sunset occurs at an azimuth angle of 310 degrees northwest in total a range of 230 degrees.In the winter, on December 21, the sunrise azimuth is 130 degrees southeast,and reaches its peak altitude of 17 degrees at 169 degrees southeast, and sets at an azimuth of 230 degrees - a range of 100 degrees.



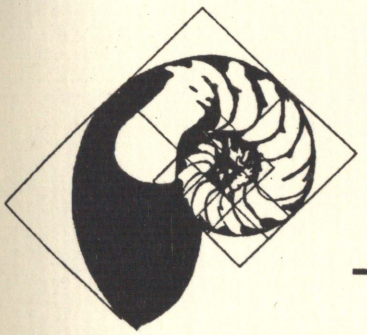
Frank Gehry's Walt Disney Competition



The projects discussed and illustrated in this section, embody certain qualities that I believe, make a building architecture. These examples of work will not be utilized directly, but will aspire to achieve the same richness in my architecture.

Frank Gehry's winning design, at first glance seems as a collision of forms comprising conservatory and foyer with a sweeping gull-wing roof, in a skewed stepped fashion. This spiralling form which radiates like leaves is apparent in the concert hall roof, it adds a sense of movement and dynamism, with its balanced form of the incompleted square of the foyer.

The glass-clad foyer with it skeletal frame looks out over the city. It provides a link between inside and outside and integrates well with the

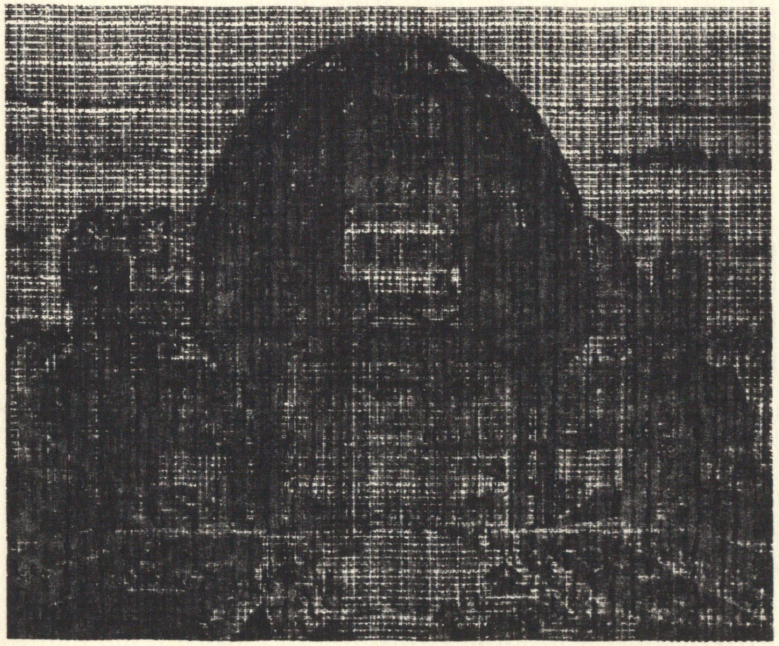


urban context. The tree planted plaza as envisioned by Ivor Richard has become the "living room for the city".

The curved steel frame of the foyer has an elegance, in combination with the variety of materials and colours used. The overall impression of the complex is sophistication.

What is particularly significant is that Gehry has produced an architecture that fits within its form, which is adequately dignified and yet playful. It has a genuine response both in content and programme, Ivor Richard believes that what makes it a successful design, is that Gehry significantly responded to site,which in turn, lead to creating a great place.

Gottfried Bohm's Walt Disney Competition

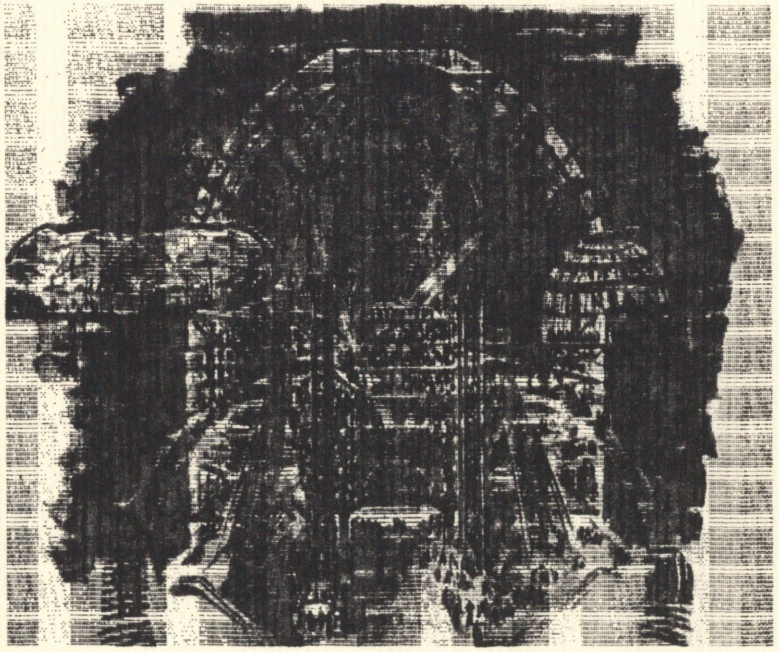


Gottfried Bohm's concert hall is extremely challenging and exciting. It's architecture and form expressing both unity and the extraordinary, it's the meeting point of two urban plazas linking the cultural and civic facilities with the financial and business districts of the city. The urban concept defines an area in the heart of the city attracting human interaction and enhancing cultural life,which is quality that I purpose to achieve,since the site I've chosen is very similar in character.

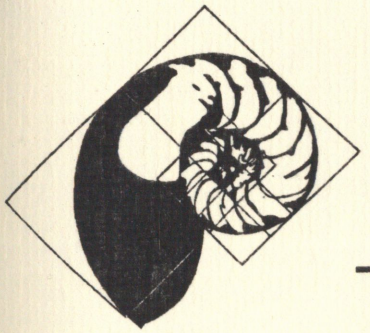
This form of the concert hall seems to have developed through joining together the major auditorium and the secondary functions into a large common hall, "Like architectural music where each instrument has its own specific character" as described by Ivor Richards. The multiple levels within this impressive hall offer exceptional and extraordinary possibilities for a multitude of events.

The auditorium was designed to maximize its acoustics by using richly articulated, flowerlike spaces which in turn, were subdivided into smaller segments creating a multifaceted closed shell, allowing for prismatic broken surfaces which enhances the acoustics.

The acoustical issue of great importance, the concert hall needed non-



absorbent materials. preferred materials for the walls and ceilings were wood. Location of the stage was another issue to be dealt with for optimum acoustics. A central location was chosen for the stage in order to achieve ideal distribution of direct sound, as well minimizing the distance from the farthest seat to the stage.

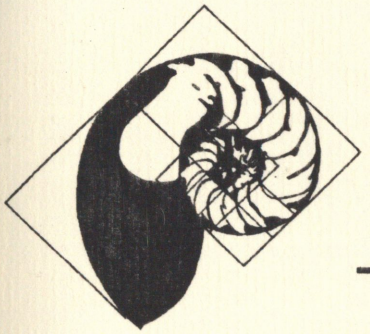


Morton H. Meyerson Hall

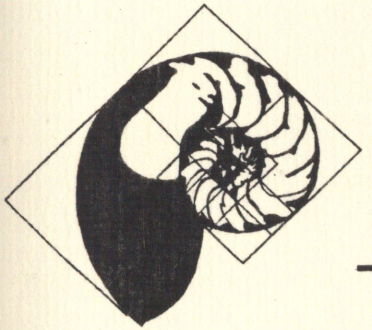
Located in the fledging arts district of dallas, Texas, the Morton H. Meyerson Symphony center called for a building providing "acoustical and architectural qualities of world wide distinction.

Conceived of as interrelated projects, the Meyerson is essentially an intimate, "interiorized" concert hall surrounded by a grand , exteriorizing lobby. The asymmetrical lobby is, in fact, a composite of several spaces whose various geometries are implied but never completely defined. Along "defining " edges, lines, planes, and multiple vanishing points which elude from one geometry to the next. This instability and interpenetration of spaces can be apprehended -not comprehended - only by experiencing them.

Spaces inside and forms outside the lobby are both described by different sides of the same geometries. Spaces inside can only be apprehended by the senses from a particular point at a particular time.



Design Approach



Design Approach

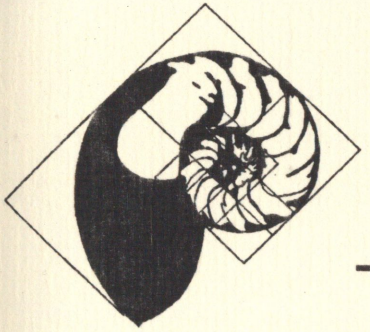
I wish to prove the site can and should have and influence during the design process, and thus in the resulting building .

Just how the the site actually affects the design process is a difficult concept to record. Right at the beginning of the design process the site has begun to give the designer certain tendencies which will continue to affect the finished building or product. Each of us as designers keys into certain elements and moods of a site.

These tendencies may even be present during the analytical stage of a project . However , limitations are not always bad because they give the designer a starting point, the idea. What I believe makes many designs unresponsive to their sites is the fact that the designer may not explore deep enough into the site to realize its potential. We as individuals have tendencies to look for surface elements to inspire us for images, and in doing so, we overlook the actual factors that have produced these elements. The shallowness found in much of our architecture today is a result of architects barely brushing the surface of site. It seems as though architects answer site influences with a few token elements placed on the facade. What often gets lost is the fact that the site should influence more than just the facade of a building.

For example, a plan of a building should address site forces. The program should also begin to address the needs particular to the site. Obviously materials and techniques should be consistenly with the surroundings. This is not to say that the building should "copy" its surroundings, for if it does this then it loses its individuality.

The impact of culture and civilization is an approach to explore a site. "Culture" is the behavior or social characteristics peculiar to a specific group, while civilization is the conformity of people to conventional patterns of behavior and/or expression, and concerns itself with reason. In relation to the response of site the designer must determine : who are the users particular to the site (see appendix A) , how and why they use the site , and how has this been expressed in the architecture.

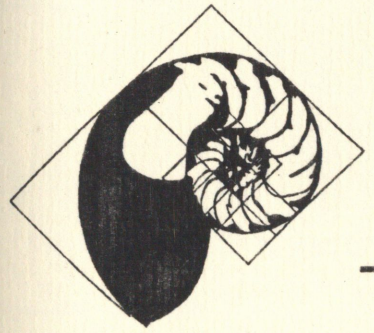


Design Approach

Also important, the architecture must somehow express the density and character of a place, but not by placing a replica or clon within. This would result in the building simply disapearing into the context.

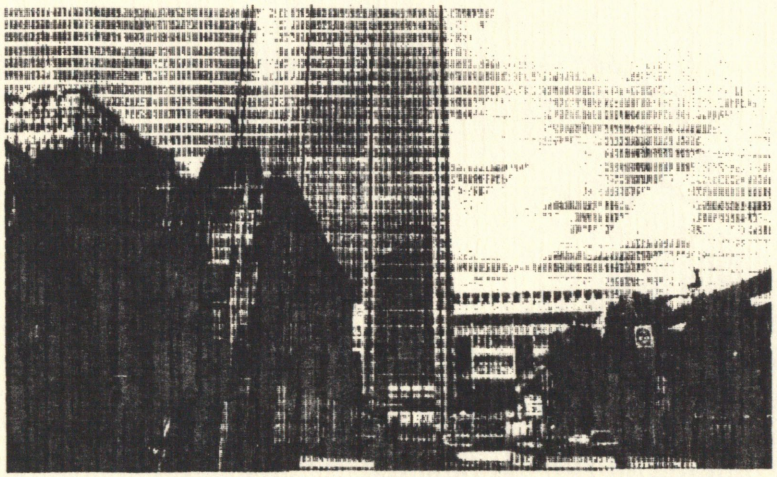
Arthur Erikson has suggested that once the character of the the site understood, then and only then is it possible to think about building, for every building should have a sense of place.

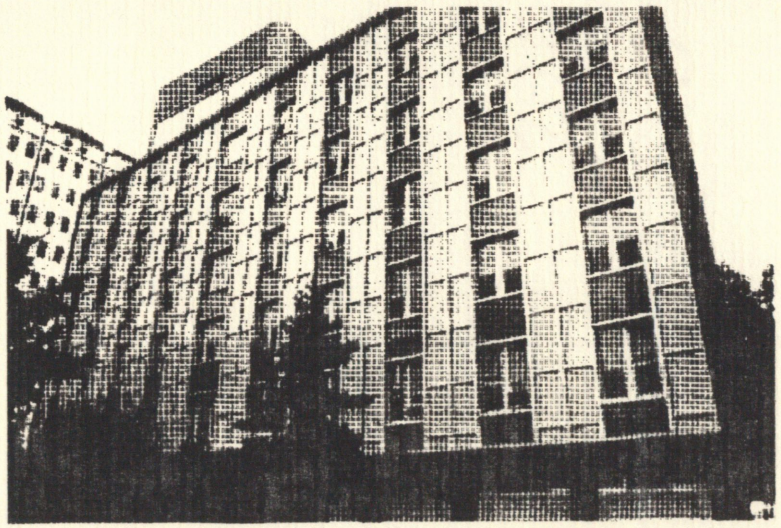
The final issue that should be raised is that of culture vs. nature. This addresses influences created by issues as: topography, climate, light and their effects on tectonic form. The issue of light further illusrates this. The response to light should become regional, becouse the quality of the light is particular to that area. The fact that this light becomes incorporated into the response is what begins to make the architecture regional. How the issue of light is dealt with is what begins to create context. Another point raised by Erikson is that the site provides the context and motivation, context comprises not only the obvious matters of topography climate, and surrounding structures, but also the more elusive ones : the general character of the site and the quality of of light has become the source of meaning in architecture for myself.



Site Information

Site Information

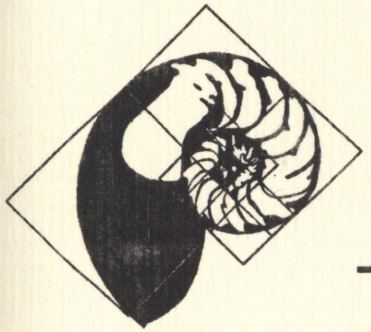




The Site

The legal description of the site is lot 7, block 5, plan 1839 TR (see map). The site meets the criteria: it can accommodate the size and scale of the concert hall ; it has a central location which allows for maximum audience draw and easy access within the city ; and it offers patrons close proximity to complementary hospitality facilities for before-and-after performance entertainment.

The Churchill LRT Station is located at the southwest end of the site and major bus connections are nearby. In addition, there is ample parking within a one block radius of the site. Canada Place adds 515 parking stalls downtown, the Centennial Library parkade provides 900 stalls, and the proposed old towne market plans include parking for 730 vehicles. All these facilities in the future shall be connected to the concert hall by pedways.

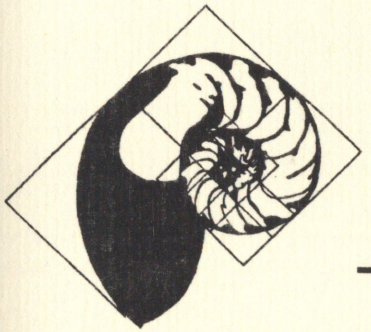


Site Information

The buildings near the site are cultural and civic facilities embodied by financial and governmental buildings; the Centennial Library, Art Gallery, Citadel Theatre and China Town. Other buildings include Canada Place, Supreme Courts, Chancery Hall, and the new City Hall.

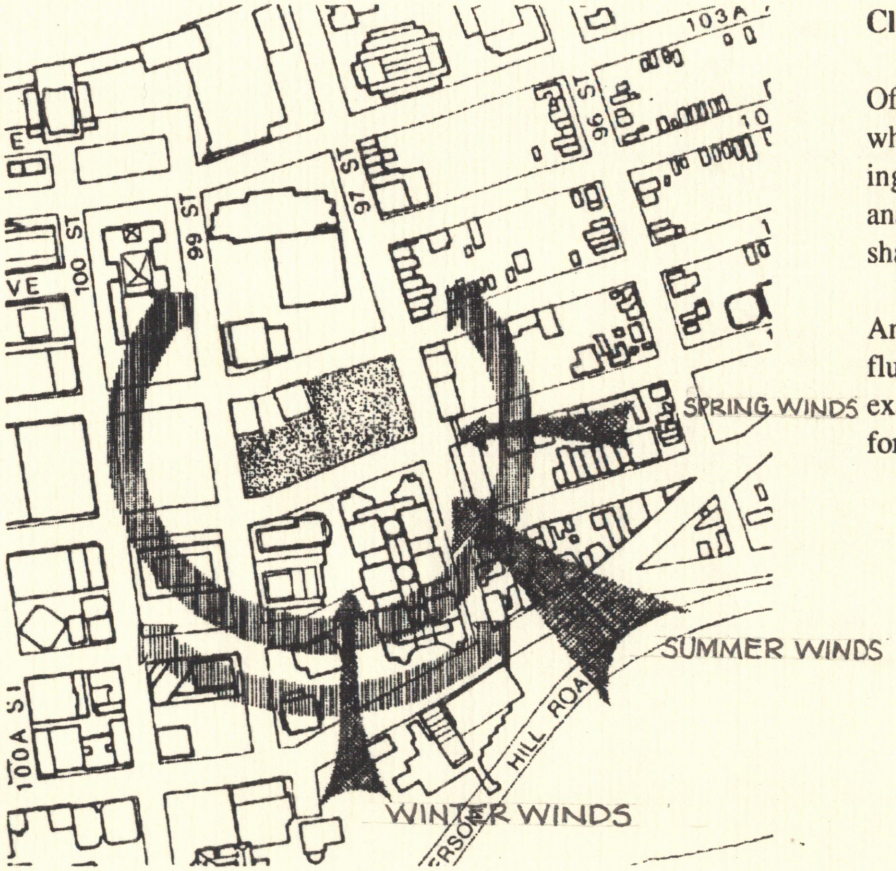
The architecture in the area is a curious mixture of new and old. The older buildings are mostly brick with somewhat classical features, while the new buildings have no particular style in common. A unifying factor in the area is the large decidious trees located around the buildings to tie into Sir Winston Churchill Square. The older buildings in the vicinity are in average 2 to 4 stories in height, while the newer buildings are approximately 12 stories in height.

In general, the views from the site are excepionally good. The park is well-kept and the trees obscure the view of Edmonton Centre. The two large buildings on the northwest corner block the view of the new attractive City Hall. The vehicular traffic is fairly heavy all day and buses run every 15 minutes.



Site Analysis

Climate Analysis



Climate:

Of primary conern is the large change in seasonal sun paths which may undoubtlly have a extreme effect on the buildings image, both internally and externally. One should analyise the implications of the long morning and evening shadows caused by varying seasonal sun paths.

Another concern which should be dealt with is the extreme fluctuation of seasonal temperatures. The response should exasmine the surface materials, colours, orientation, and forms, and etc.

Vegetation



Vegetation:

Tall decidous trees which are planted along the sidewalk create a canopy for pedestrians and should be maintained to add human scale to the area. The trees play an important roll in the area, they create a link to the park which in turn, unify the entire area. It is also important to note that the surrounding buildings have individual grassed islands or courtyards with a few small trees.

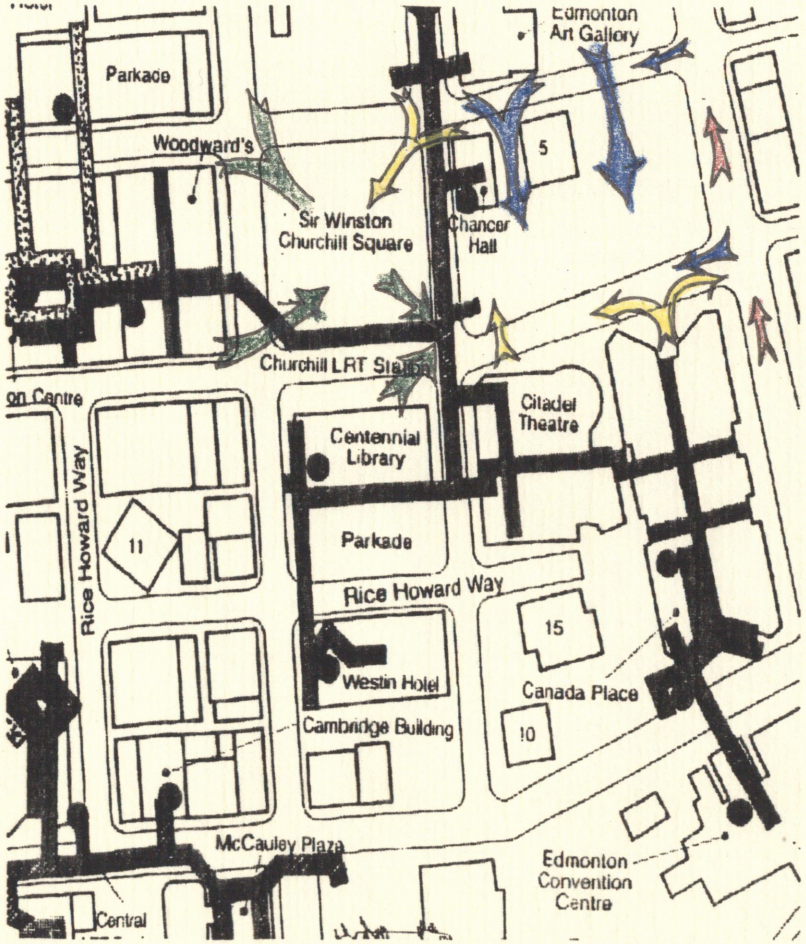
Heavy

Moderately Heavy

Moderate

Light

Pedway /Pedestrain



Pedestrain Circulation

Moderate to heavy pedestrain traffic occurs throughout the entire day,with the heaviest traffic occurring in the morning and evening as residents commute to and from work.

Traffic patterns show the most used area per day occurs on the east and southwest sides of the site.The Churchill Light Rail Station is located on the southwest corner of the site, which acts as gathering place. The park area sees extensive pedestrain traffic which is also on the west side of the site.

On the east side the heaviest traffic occurs on weekends during with the open markets.

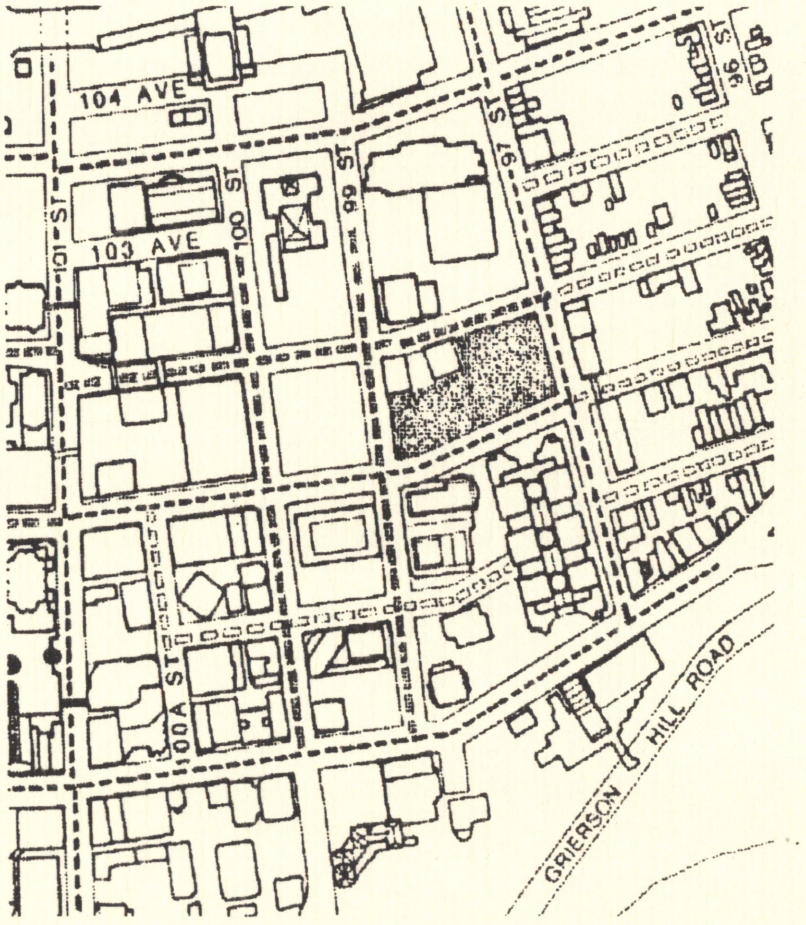
Heavy

Moderately Heavy

Moderate

Light

Vehicular



Vehicular Circulation

Since the area is primarily, civic and cultural facilities which is surrounded by the financial district, which in turn means dense population during working hours . The effect unevoidably heavy vehicular traffic to moderately heavy, even though bus stops are located in close proximity. Extreme amount of traffic occurs at parkades located, which are located in close proximity to the site.

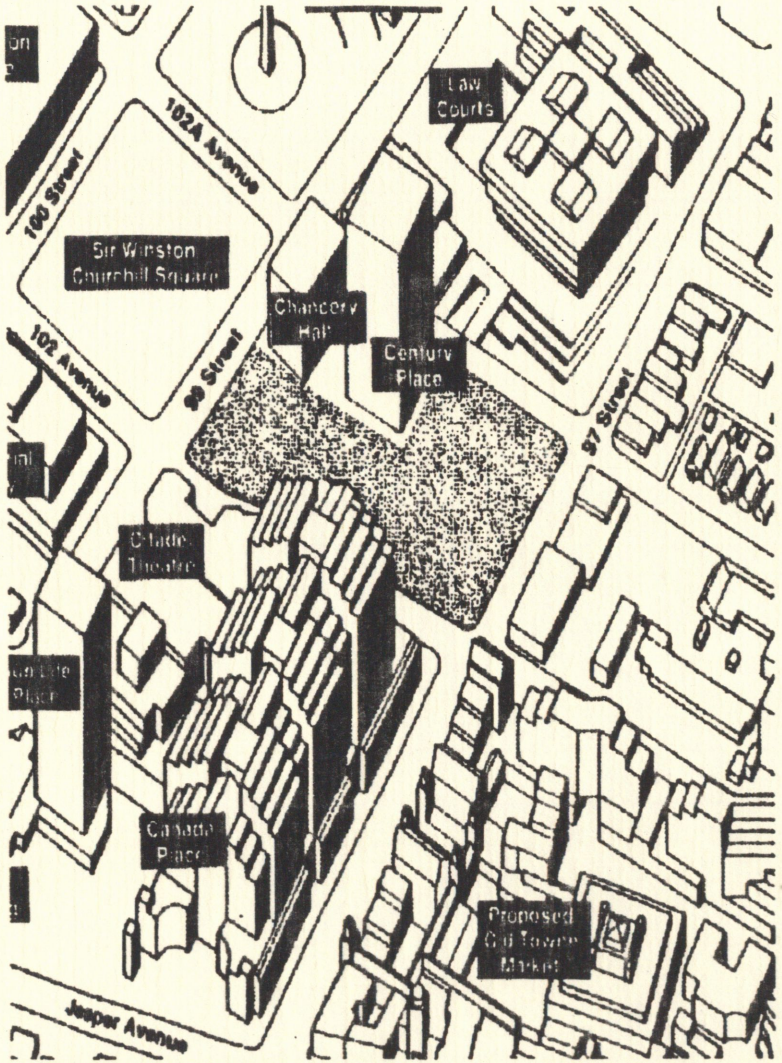
Heavy

Moderately Heavy

Moderate

Light

Views



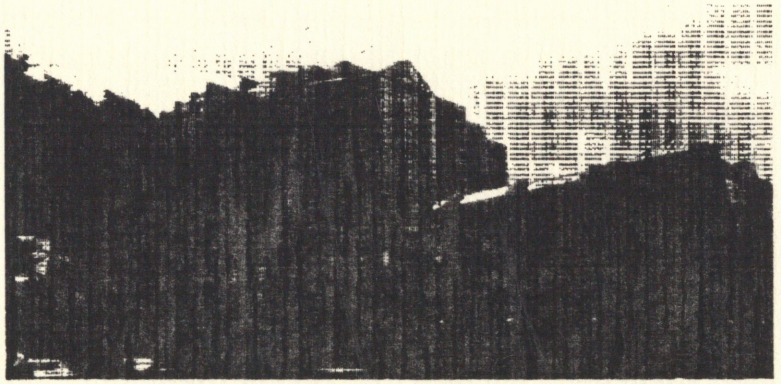
Views:

The views surrounding the site are extremely pleasant and vibrant with life. There is unfortunately only a single fault with the site, that is obstruction on the northwest corner, chancery and century hall prevent us from viewing the new city hall.

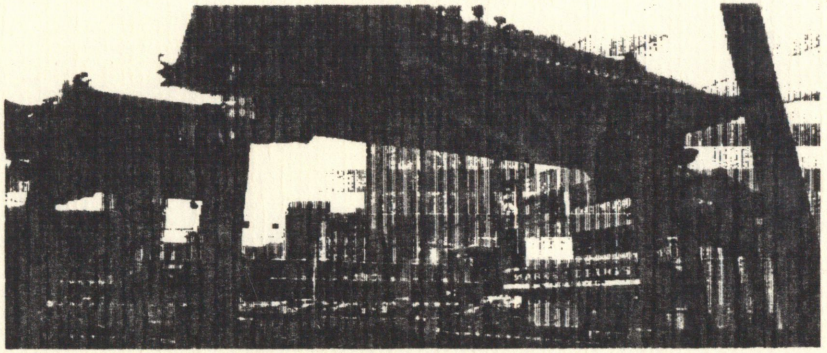
On the other hand, the views of the south and west in there size, sytle, materials express monumentiality. To further add elegance the Citadel Theatre along with the other buildings illuminate the evening city sky.

On the east side "China Towne Memorial Gates" welcome visitors from all over. The buildings in this district retain there flavour of the 1920's, when transportation was by horse drawn carts.
On the west side the view is tranquil, with Sir Winston Churchill Squares trees and grassy lawn acting like an oasis for the entire downtown working force during luncheons.

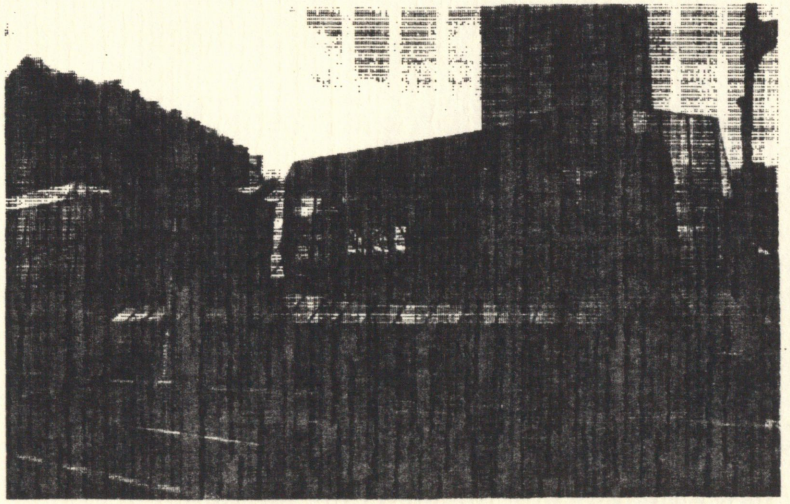
Pictorial Views



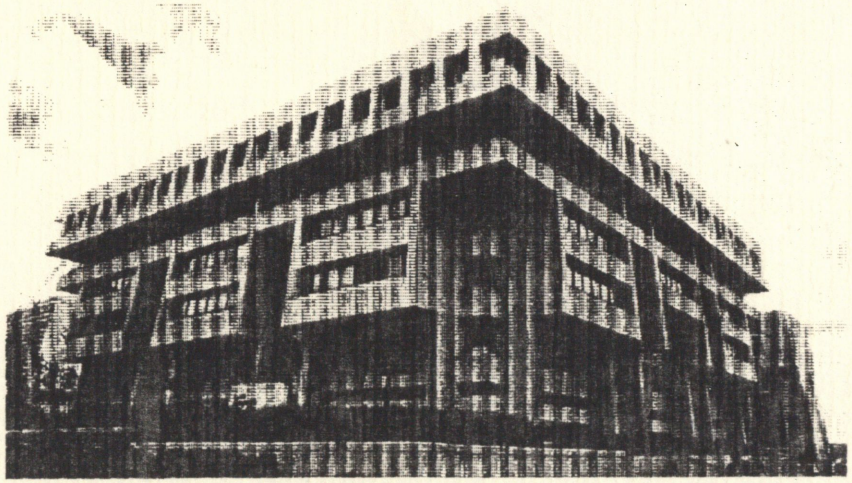
Canada Place (Federal Government Building)



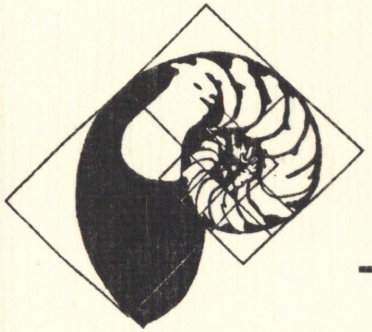
Chinese Memorial



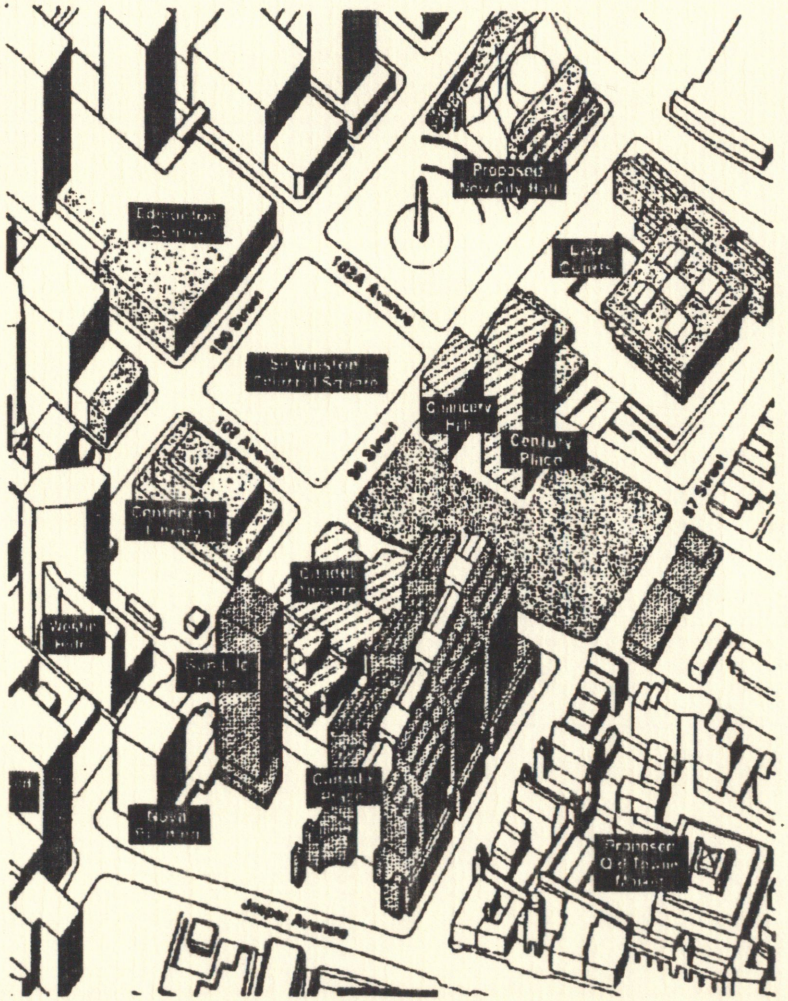
Citadel Theatre (Performing Arts Centre)



Supreme Courts



Materials



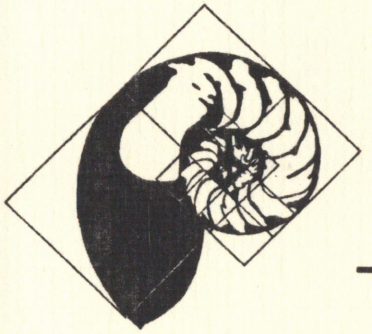
Materials

The primary materials extensively utilized in the vicinity were brick on both new and old buildings, concrete was primarily used on newer complexes such as: Supreme Court Building , City Hall and partially on Edmonton Centre. Other materials utilized in the area were steel , aluminum and glass. The modern materials which were used of recent are apparent, which makes the site stand out.

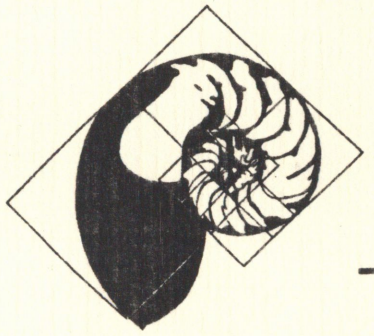
Brick

Concrete

Steel & Glass



Concert Hall Program



Program

Program:

Front Of Concert Hall

Foyer / Lobby	3000 sq. ft.
Ticket office	150 sq. ft.
Checkroom	250 sq. ft.
Box office	1400 sq. ft.
Gallery	3000 sq. ft.
Lounge / Cafe	3000 sq. ft.
Public toilets	2000 sq. ft.
Business office	400 sq. ft.

Main Theatre - Auditorium

Seating: 7.5 sq.ft. per seat	16500sq.ft
Control / projection booth	275 sq.ft.
Sound booth	275 sq.ft.

Ample Theatre

Seating: 7.5 sq.ft. per seat	2250 sq.ft.
Performance area	1000 sq.ft.

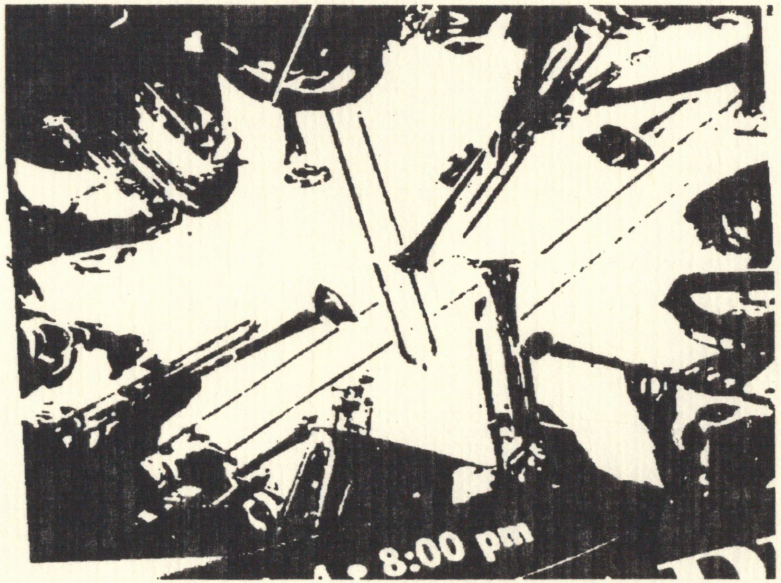
Cast Quarters

Principals (3, 2- person rooms):	
Dressing area	600 sq.ft.
Make up area	400 sq.ft.
Toilets / shower	200 sq.ft.
Chorus (3, 15- person rooms):	
Dressing area	2250 sq.ft.
Make up area	625 each
Toilet / shower	400 each

Auxiliary Space

Rehearsal space	3000 sq.ft.
Storage	2000 sq.ft.
Corridors, stairs , elevators walls, mechanical equipment	20 % Gross area

Bibliography



Bibliography

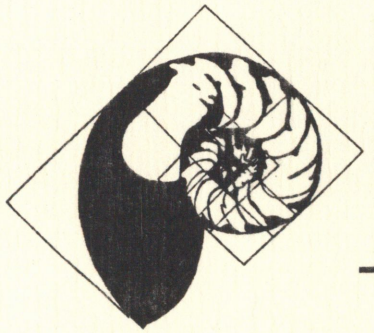
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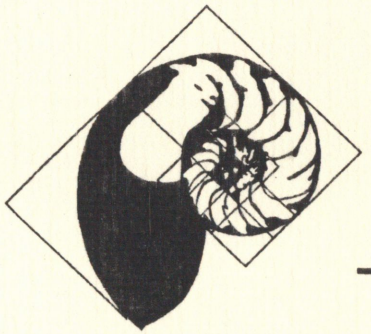
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Appendix



Appendix A

The following groups were contacted to identify requirements that would have a major impact on the facility:

Performing Groups

Instrumental:

Alberta Jazz Repertory
Cosmopolitan Music Society
Edmonton Symphony Orchestra
Edmonton Youth Orchestra

Choral:

Barber Shop Harmony Society
Da Camera Singers
Edmonton Columbian Choirs
Edmonton School Systems,School Based Choirs
Greenwood Singers
Kiwanis Singers
Pro Coro Canada
Richard Eaton Singers
Sweet Adelines

Presenters:

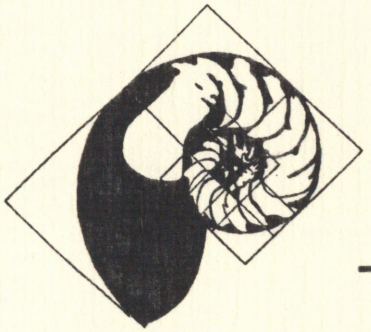
Alberta College
Edmonton Chamber Music Society
Edmonton Folk Music Festival
Edmonton Jazz Society
Kiwanis Music Festival

Production:

Allarcom Production (CITV),Edmonton
Brimstone Production,Calgary
CBC-TV,CBC Radio,Edmonton
CFRN-TV,Edmonton
Concert Productions International,Toronto
Doug Hutton Video,Edmonton
Perryscope Concerts (Productions),Vancouver

Artist Management:

Celtic Productions,Edmonton
KDM Management and Studio City Music Ltd.,Edmonton
Prestige Productions, Edmonton
Royalty Shows, Edmonton
Vani Enterprises, Edmonton



Appendix B

Existing Edmonton Facilities

Existing Edmonton Facilities and Seat Capacity

University of Alberta	Patrons	Orchestra
Convocation Hall	450	
Student Union Theatre	700	
Universiade Pavilon	5,200	
Province of Alberta		
Northern Alberta Jubilee Auditorium	2,694	150/500
Provincial Museum Auditorium	397	
City of Edmonton		
Edmonton Art Gallery	180	
Northlands:		
Sportex	3,000	
Agricom	5,600	
Coliseum	18,500	
Convention Centre	10,000	
Edmonton Public Library Theatre	247	
Kinsmen Sports Centre	1,800	50/100
Commonwealth Stadium	60,100	

Schools and Colleges		
Alberta College	600	50/100
Victoria Composite	719	50/100
GMCC-Jasper Theatre	346	6/12
Other		
Citadel		
Maclab Theatre	685	60/100
Rice Theatre	240	15/30
Shoctor Theatre	240	60/100
Zeidler Hall	240	15/30

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