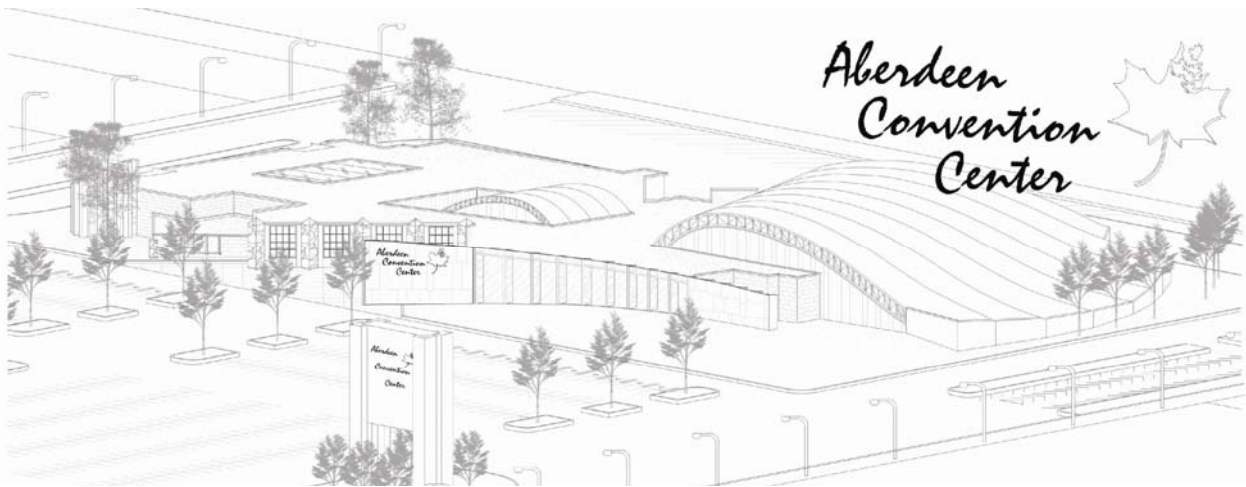


Aberdeen Convention Center

Aberdeen, South Dakota



“Aberdeen Convention Center”

AN UNDERGRADUATE THESIS SUBMITTED TO
THE DEPARTMENT OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE
NORTH DAKOTA STATE UNIVERSITY

by

Ryan J. Schlosser

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

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Abstract

I, Ryan J. Schlosser, am proposing the design of a multi-use convention center in the heart of Aberdeen, SD. The site sits along US HWY 12 and Brown County 19. The main proposal is the design of a facility that would become not only a convention center, venue for concerts and attractions, office space, and restaurants but also a symbol of economic prosperity on the Great Plains of South Dakota. The client is the City of Aberdeen with the Aberdeen Convention and Visitor's Bureau guiding the funding and representation for the building design. The project will reflect a driving emphasis on convention center design, flexible mixed-use design and super-structure capabilities. The overall building design will eventually reflect the hard work and ingenuity that drove the livelihood of Aberdeen to an elevated level.



Introduction

The City of Aberdeen Convention and Visitor's Bureau has seen a steady positive progression in the city's economic sector bringing rise to new area businesses, new trends within the city, and an economic base that is supporting a livelier and more adventurous community within which draws a demand for attractions and large gatherings. As the city expands, so do the facilities that support the area. Existing establishments that traditionally held events and conventions have become obsolete and are waning with the passing years as the city articulates itself before them.

Many suggestions have been made as to how the problem should be absolved, yet one idea has stood alone as the long term solution to this developing problem: the design of a facility that would become not only a convention center, restaurant, and a venue for concerts and attractions but also a symbol of economic prosperity on the Great Plains of South Dakota.

The User/Client Description

The Aberdeen Convention Center, an idea supported in the minds of a city based branch of the Chamber of Commerce, will be orchestrated, funded and overseen by the City of Aberdeen with the Aberdeen Convention and Visitor's Bureau being the primary client.

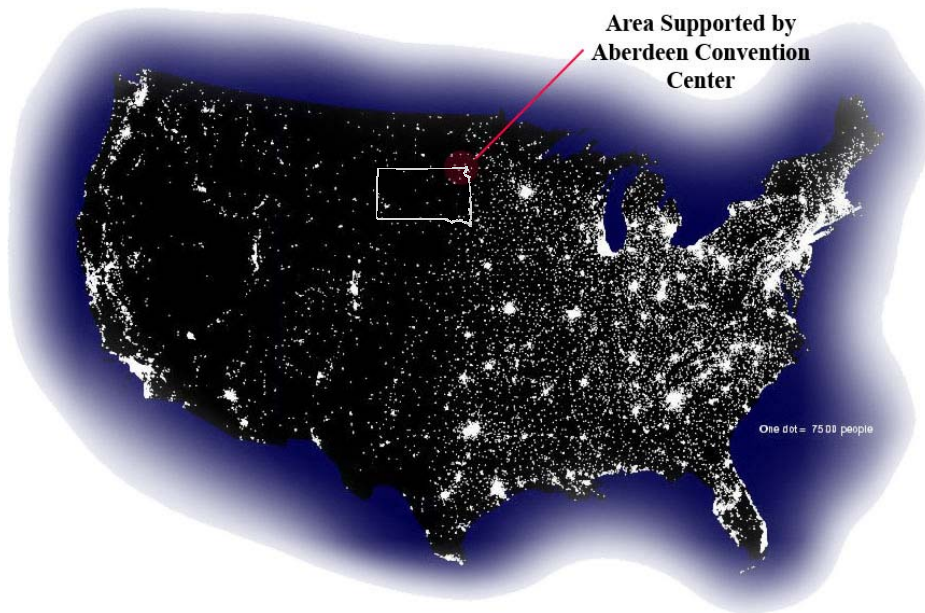
The Aberdeen Convention and Visitor's Bureau has little financial base itself, the city of Aberdeen is the driving force behind the budget and fiscal responsibilities brought to the table by the bureau. Although there is funding that is specifically allotted to the bureau to improve and promote the city's visitor flow, it has no budget for a large scale project, such as a convention center, without the aid of the municipality itself.

A project of this magnitude in a city the size of Aberdeen would mean that the city would have to support the funding of this outside the regular annual budget for the city government. So now, essentially, the client has expanded to the entire city of Aberdeen with the city government organizing the distribution of funds.

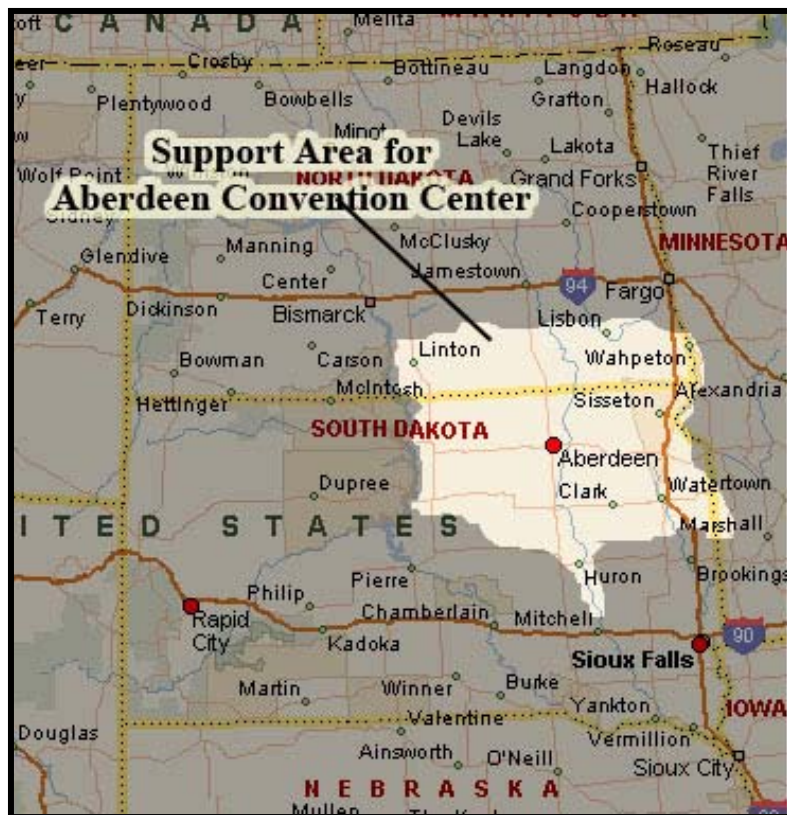
The facility's users would range from Aberdeen citizens themselves to traveling tourists, to working business men and women from all over the globe. The building would need to be flexible to accommodate a vast range in different functions and personalities. From Rock and Roll concerts to Future Farmers of America conventions, the user groups will have to effectively adapt the building to their specific needs.

A civic center style establishment with in-house food service in addition to stadium-type vending would staff an average of one hundred thirty to one hundred fifty individuals in a 7,000 – 7,500 seat arena during an event. The project I am proposing would staff anywhere from twenty-five individuals during normal daily routines and up to one hundred fifty staff members during a larger event. This includes vendors, food service members, security, office workers, custodians, etc. The overall number of users could reach as many as 7,600 including spectators and staff together.

Location and Support Area



With a population of 24,658 (2000 Census), Aberdeen, South Dakota supports a broader area than the thirteen square miles contained within the city limits. A sixty mile radius surrounding the city from extreme western Minnesota to south east North Dakota and west to the Missouri River draws interest to the city's economic, hospitality, and entertainment centers.



The described area, void of any substantial convention or exhibition facility, draws significant interest to the idea of the proposed approach. Progressive in nature, the "Prairie Populist" mentality that thrives in the Upper Great Plains gives fuel to the fire of desire for such a facility.

Sociological Considerations

The nature of the Aberdeen, SD context is largely influenced by the human mental context rather than the tangible, physical context. As I mentioned before, Aberdeen is largely conservative in nature. The twenty-two precincts in Brown County (Aberdeen's home county) has, for example, traditionally voted politically conservative. According to CNN's web site, these precinct have , in combination, never ventured outside the conservative box since Woodrow Wilson's first term prior to the turning of the twentieth century. One hundred four years of conservative views compounded with the ideology of traditional values upheld through the decades makes Aberdeen a city with the most difficult constraint of all, the conservative critic. In order to boast the city's economic and social advancement, the citizens are yearning for a center where all can be displayed, where the ideas of tomorrow can be generated and illustrated. As the public yearns, they also feel a sense of loyalty to the ground they walk on, the foundations they have built through time. Abandoning them now for a new ideal can hinder one's sense of pride, giving them reason to denounce a radical new icon on the wind swept, tradition saturated Great Plains. This issue must be addressed with the utmost care, advanced upon with the most gentle respect for its inhabitants, and molded with the keenest interest of the observer in mind.

A progressive movement within the Upper Midwest and throughout the Great Plains dubbed "Prairie Populism" has been a prominent source of survival and progression throughout the seldom-forgiving Midwest. The movement began in the early twentieth century when people began to recognize the value of plains life, the moral traditions, and the pride for ones sense of home. The land, in the upper Great Plain region, means more to the people who dwell on it than anywhere else in the country. People began to make a stand. They wanted their towns and way of life to continue but they did not want to "advance" their lifestyles to conform to the fast paced technological world outside. This meant that the people had to bring the future to their own doorstep. By generating different cooperatives and companies the movement brought about a renewed sense of progression than skewed form the modernistic urban arenas. This brings about a need for progression, a need and desire for the next successful venture.

"Populism to me is standing up for the interests of the family farmer, business owners on main street, and the rancher," says Sen. Byron Dorgan (D-ND). For Sen. Kent Conrad (D-ND), being a prairie populist means standing up to outside interests that threaten the livelihood of farmers and rural communities.

Sociological Considerations

- Population (year 2000): 24,658
Males: 11,625 (47.1%), Females: 13,033 (52.9%)
- Elevation: 1304 feet
- County: Brown
- Land area: 13.0 square miles
- Median resident age: 36.5 years
Median household income: \$33,276 (year 2000)
Median house value: \$72,800 (year 2000)
- Races in Aberdeen:
- White Non-Hispanic (94.1%)
- American Indian (3.8%)
- Two or more races (1.0%)
- Hispanic (0.8%)
- Ancestries: German (53.6%), Norwegian (14.9%), Irish (8.5%), English (6.8%), Russian (5.9%), Swedish (3.6%).
- Nearest city with pop. 50,000+: Fargo, ND (150.6 miles, pop. 90,599).
- Nearest city with pop. 200,000+: Omaha, NE (336.5 miles, pop. 390,007).
- Nearest city with pop. 1,000,000+: Chicago, IL (783.3 miles, pop. 2,896,016).
- Industries providing employment: Educational, health and social services (23.4%), Retail trade (13.9%), Manufacturing (11.0%), Arts,entertainment,recreation,accommodation and food services (10.9%).*Hospitals/ medical centers in Aberdeen:*
 - AVERA ST LUKES (305 S STATE ST)
 - DAKOTA PLAINS SURGICAL CENTER LLP (701 8TH AVENUE NW SUITE C)
- *Airports certified for carrier operations nearest to Aberdeen:*
 - ABERDEEN REGIONAL (about 5 miles; ABERDEEN, SD; ID: ABR)
 - HURON REGIONAL (about 77 miles; HURON, SD; ID: HON)
 - WATERTOWN MUNI (about 100 miles; WATERTOWN, SD; ID: ATY)
- *Colleges/ Universities in Aberdeen:*
 - NORTHERN STATE UNIVERSITY (Full-time enrollment: 2,356; Location: 1200 S JAY ST; Public; Website: www.northern.edu; Offers Master's degree)
 - PRESENTATION COLLEGE (FT enrollment: 342; Location: 1500 N MAIN; Private, not-for-profit; Website: www.presentation.edu)
- *High schools in Aberdeen:*
 - CENTRAL HIGH SCHOOL (Students: 1,239; Location: 225 3RD AVE SE)
 - SCHOOL FOR BLIND & VI HI (Students: 16; Location: 423 17TH AVE SE)
 - HUB AREA MULTI-DISTRICT (Location: 640 9TH AVE SW)
 - RONCALLI HIGH SCHOOL (Students: 313; Location: 1400 NORTH DAKOTA ST.)

Major Spaces and Functions

The facility will encapsulate a variety of spaces, most notably a large main arena that will seat up to 7,500 spectators. This area will be the largest space and focal point for the remainder of the facility. Surrounding the main arena will be breakout spaces that will consist of smaller meeting rooms that can be opened up to become larger banquet or conference areas. The flexibility of the surrounding breakout spaces will provide an opportunity for smaller organizations and functions to occur within the realm of a large super structure.

To define the building typology even further would suggest a degree of mixed use. As to compliment the large main spaces, smaller retail spaces and open office space would be instituted to make the economics of the establishment more feasible.

Supporting areas, such as vendor stations, staff offices, restrooms, and a restaurant with catering abilities would round out the remainder of the spaces making the facility more complete and flexible.

List of Major Project Elements

- Main Arena
- Breakout meeting rooms
- Exhibit space
- Rentable office space
- Rentable Retail space
- Vendor stations
- Restaurant
- Staff office space
- Media and A/V booths
- Classroom/Workshop areas
- Lobby
- Restrooms
- Parking

Site Information

The site sits on the south east section of town off to the east of Moccasin Creek. The area historically has been more of a commercialized zone yet the land on which the site sits is zoned (R3) residential, yet may soon be re-zoned or allotted the flexibility to develop non-residential establishments within the area.

The area of town is more high-end commerce with a connection to the expanding part of town. The creek serves as a natural barrier between existing residential and the counter flow of commercialism. The site exists on the more commercial side of the river yet is still sandwiched, along with sites to the west, in between being zoned residential or commercial.

The large 420,000 square feet (ten acres) site lies on the south west corner of US highway 12 and Brown County Highway 19. Landforms and landmarks that surround the area consist of Moccasin Creek to the west, River's Edge Park to the south west, Aberdeen Municipal airport to the east and Chicago Milwaukee St. Paul Pacific (CMSPP) railroad two blocks to the north.

The soil type on the existing site is Aberdeen-Nahon silty clay loams. These soils are suited to building site development, but the high shrink-swell potential is a limitation. Backfilling with sandy material, installing foundation drains, and diverting runoff away from the building helps to prevent the structural damage that may be caused by the shrink-swell. The restricted permeability of the soil is also a limitation. The underlying material allows for very slow absorption but if the absorption field is expansive, it can become manageable. One more limitation is the failure of pipelines and steel due to the corrosivity and the salinity. Adding lime or other ways of raising the pH level of the soil will aid in the extended life of the structure.

The water table is stable at four to six feet with drainage access to the nearby creek. Flooding is a non-issue for the site and all sewage and hydrological utilities are installed under street.

Project Emphasis

Convention Center Design

To assemble spaces in a manner that satisfies not only large audiences but also small organizations and clubs while still being able to cater to the public as a central-city focal point.

Flexible mixed-use

By adapting the convention center to an environment within which a large scale convention center may not be able to survive on its own, spaces not generally associated with convention center design may aid in the acceptance and overall success of the building within the setting.

Super-structure capabilities

Super structure is an inevitable focus for the design of large span spaces and multi-storied open-floor designs. By focusing on structure, one can better understand the rest of the building, from the skin to the surrounding materials and eventually to the overall function of the establishment.

Informing design as an intangible focal point

The design of a building can have multiple forms. One such form in this case is aimed toward the symbolization of an intangible notion (economic prosperity) within the physical display of design. The overall establishment will stand as an icon for the hard work of the citizens in promoting the livelihood of the city.

Plan for Proceeding

Research Direction:

The areas of research I must accomplish before I can begin to solve the design problem consist of many in-depth subjects as well as broad item points of research. When dealing with the site, I must research points such as building permits, zoning laws, and alternative solutions to soil limitations. When discussing the issue of financial situations, I must organize and research information on how a city would develop and pass tax legislation in order to fund such an undertaking (provided that would be the case). Other, broader categories, suggest that I will need to research super-structure more in depth, study successful convention designs in the past and search for specific code or context constraints that may directly influence the point of departure for this thesis project.

Design Methodology:

Through the use of case studies, personal experience, thorough interviews and other forms of research, I will broaden and gain the appropriate knowledge to design a facility that will illustrate what the design of a public facility can fully represent and iconify. Through the exploration of building materials, day lighting, mechanical equipment, mixed-use positive and negative influx on such a facility, etc., I will instill, within me, a knowledge and drive to perform the task of designing the facility at hand.

The ideal solution would be to satisfy the given agenda and instilling within the community a sense of pride that will aid in the overall success of the proposal. One of the most important issues I must resolve is the issue of usability. Aberdeen and surrounding communities can successfully support a convention center of this magnitude but a series of social implications and usability constraints must be resolved before the project is considered completed. Usability is a concept which is implicitly understood by most people, as we all know what it is like to operate man made designs, and find them more or less easy to use. We rarely appreciate the effort that has gone into well designed building, but are quickly aware of the failings of poorly designed spaces. However usability is a deceptively difficult concept to adequately define, as many aspects of a products contribute to how it is perceived. Also usability is an attribute of the way that a person interacts with a product rather being something which can be assessed independently of usage, and a device which one person finds usable is impossible for another to operate. There are fundamental questions about how to effectively measure usability. Definitions of usability do not help us a great deal in this quest even though they normally break down the concept into measurable elements which include effectiveness, efficiency and satisfaction in use. These are in fact very different concepts, and the grouping of these together may create more difficulties for assessment than they solve.

I must now implement these issues within the source of my intent in order to better form a concept or point of departure from which I can successfully create a building consisting of much more than the materials that will envelope the design.

Research Results and Goals

a) *Results From Theoretical Premise Research:*

Can the design of a civic centered facility symbolize and inspire economic prosperity within the heart of a city? By addressing the underlying theoretical premise that economic necessity *can* inform the design solutions for commerce, this principle will guide the foundation and eventual answers to these given issues.

Throughout the research and investigation of many key convention centers throughout the United States of America and abroad, I have found that the facilities have one common drive or unifying standard: The integration of the success of the city is interdependent with the success of its central civic facilities. The Kansas City City Council, Kansas City, MO, experienced a vivid fluctuation in the Convention Center's success which, in turn, reflected a negative image on the city's ability to cater to upcoming or advancing acts, conventions or businesses. This situation directly impacted the city's economic base, the very premise I hope to successfully employ.

For 22 years the Reunion Arena has been a key player behind Dallas's advancement in culture and commerce. As the city's demand for a higher level of both of these attributes rose, so did the need for facilities to house this swelling potential. The Reunion Arena expanded into what is now one of the most profound statements of a city's prominence in both a commercial and cultural sense: The Dallas Convention Center.

Although both of these studies have proved to exemplify the theoretical premise I hope to employ, many other aspects of these buildings captured the attention of key players who moved these establishments in the direction of functional and representational success. One example, the issue of green building and LEED certification had captured my attention as a viable focal point to the design that could mobilize the iconic nature of the building in order to express aspects of the city that not only Aberdeen citizens but also outside building users could be proud of. By not only focusing on the premise of designing to be the focal point of the city's commercial success but also designing to become a champion of energy efficiency, indoor quality of life and successful context integration.

b) Results From Typology Research

When conducting research and investigation into the typologies included in this project, I have found that although it appeared feasible to incorporate mixed-use functions within the establishment in order to make the establishment appeal to a wider variety of functions therefore more economical, it appears, according to typology case studies, that convention centers, when unflanked by hotel or established restaurants, focus their attention on a primary function in which attention and successful design can find a well-developed primary focus.

This has given me a momentous perspective on what is “expected” of a design solution that caters to this particular situation. Although this aimed me in the direction of a refined typology, the fact that the area needs these additional amenities draws both the client and the designer together to orchestrate an ideal solution while still keeping with the original notion that the mixed use facility can still prevail within the given context. One can still put the focal emphasis on the convention center aspect but by flanking it with supporting functions it can still remain very successful.

Ultimately the typology, which originated with a mixed use convention center with rentable office space, restaurants, and retail space has now narrowed, through research, to a core convention center. The support areas will illustrate the main intent. A supporting restaurant with a full size kitchen will be able to cater to large events held within the facility, and rentable office space will focus primarily on civic offices, most notably a home base for the Aberdeen Convention and Visitor’s Bureau office. This will bring the center all aspects that will draw towards, not away from the main focus: the convention center itself. All the functions in a facility of this typology either compliment each other or repel each other. With this in mind, I chose to bypass the retail sector as it would not compliment the convention center like a restaurant that is capable of catering to events or office space that may house personnel integrated with the buildings function.

c) Historical Context of the Thesis

How does the project relate to similar projects undertaken throughout history? How does it relate to social trends or developments within our society? What is the physical and social context within which the project is set?

These questions are best answered by a series of responses from both the designer and history itself. As the design becomes more refined, responses from historical perspectives become much more clear.

Historically, convention centers stood proudly as a city's or nation's runway where they could showcase their boundless dreams and finally let the dreams free to express themselves. At very few other junctures does a building typography attempt to capture the imagination of such a broad spectrum of users. From sports arenas like the Coliseum of ancient times, to the innovative Dallas Convention Center of today, public convention and civic arenas have been beacons of expressed design throughout all of history. Nearly every time this issue is discussed, the result becomes clear that it must satisfy the fantasies and desires of such a broad range of individuals. No imagination is kept from expression. Such is the case of the Hong Kong Convention Center. This \$4.8 billion, 1.67 million sq. foot Convention and Exhibition Center, is graced with over 200,000 square feet of glazing offering a one hundred-eighty degree panoramic view of the city and harbor through curved one hundred twenty five foot tall glass walls.

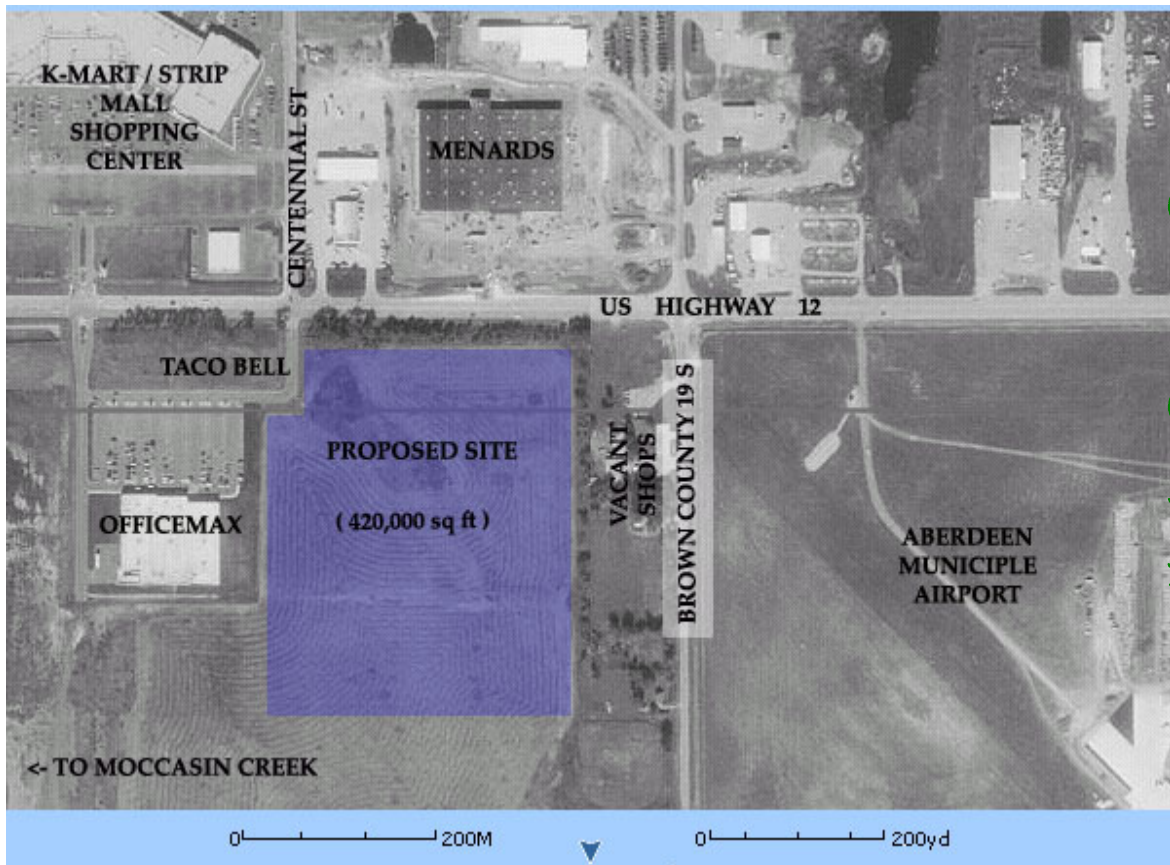
Although my proposed design is of a less grand program, I can learn from the building by studying what exactly was the intent of the designer to push it to this magnificent result. The Hong Kong Convention Center Design and the Aberdeen Convention Center can still follow certain parallels. Since my proposed building is set in a very organic based environment (Aberdeen is very much an agriculture based community) the challenge of adding life to the building is a shared goal by both projects. The challenge to create the effect of movement through form and material use throughout the building, how it reacts to the movement of water and the contrast that it would create against the other linear buildings nearby, and the ability to withstand a vast climactic range and still maintain the elegant aesthetics of the buildings design are all issues both buildings must or had to face in order to become successful.

This also illustrates the context in which my building will be set. The city is of agricultural foundation and support. Although the population is made up of primarily conservative views, the overall consensus strives for a tangible focal point for the city's interest.

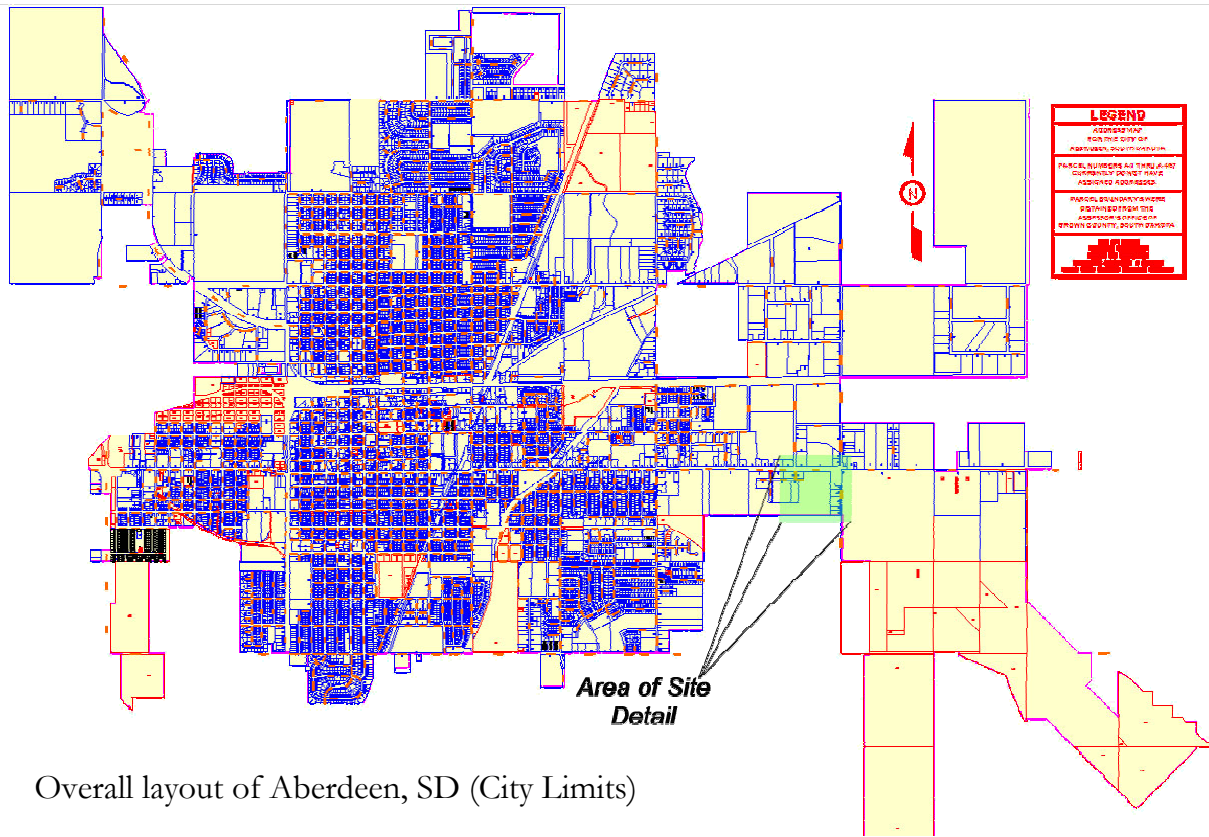
Since the first LEED Certified green convention center was completed in Pittsburg in September 2003, the bar has been raised for designers to follow in the footsteps of the David L. Lawrence Convention Center.

With a 1,486,000 sq ft establishment in downtown Pittsburg, Pennsylvania, this convention center proved to the public that not only can a large scale convention center become LEED Gold Certified, but also become very economical both construction wise and maintaining wise. With a cost of \$385 million, the building cost was kept to under \$200 per sq foot. Green is seamlessly integrated into the building design and belongs to the building as intrinsically as its world-class aesthetics and engineering. As an owner occupied civic building, a payback period of less than ten years was used as a guideline for the center through energy and construct conservation.

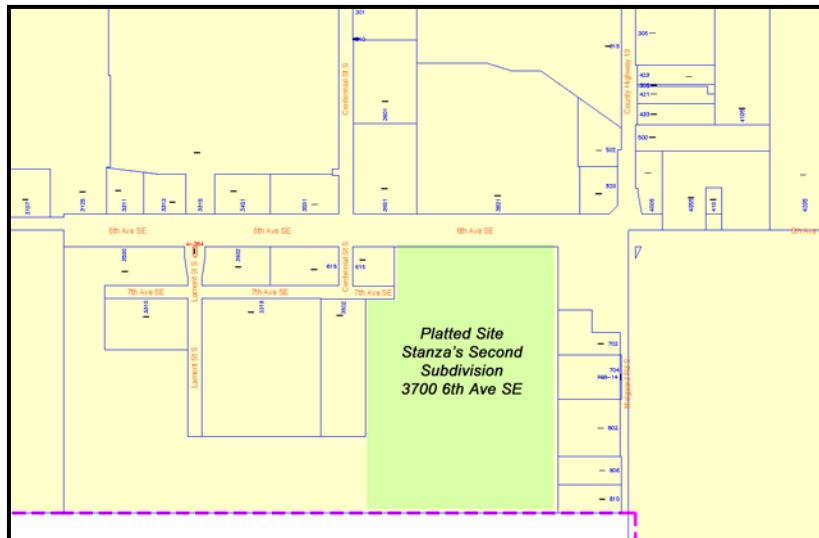
Site Analysis



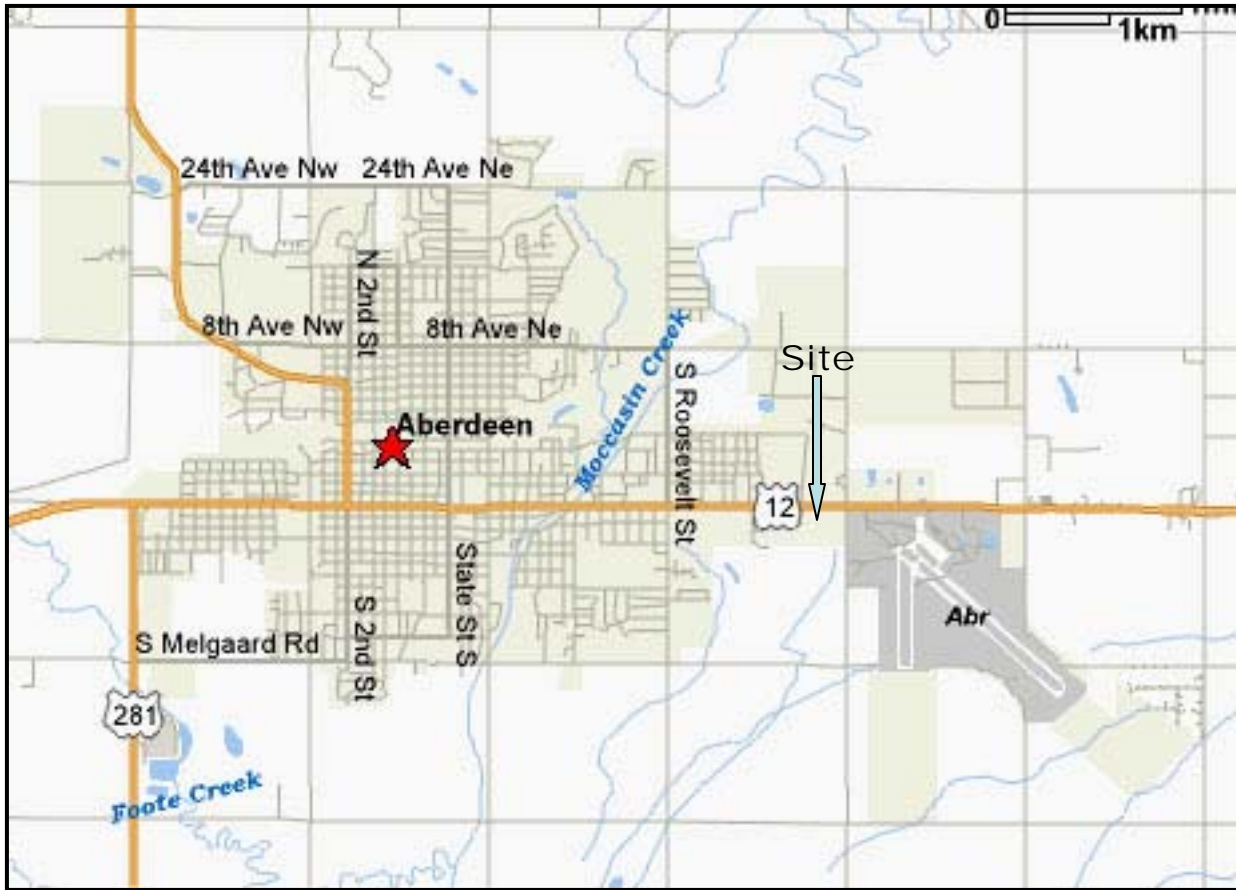
The site, which lies west of Brown County Highway 19 and south of US Highway 12, finds itself subjected to many constraints both contextually and through building codes. Due to the proximity of the site to a municipal airport, we find height restrictions play a key role in the design. The southern $\frac{1}{4}$ of the site is an additional lot which has a higher height restriction. While the north $\frac{3}{4}$ has a height restriction of 45 ft, the south $\frac{1}{4}$ has a limitation of 52 feet. Other contextual constraints include controlled site drainage, a high speed highway on north end of site with a 33 ft right of way and 10 ft utility easement.



Overall layout of Aberdeen, SD (City Limits)



Detail plat of site and surrounding lots.



The main arteries feeding the Aberdeen area are US Highways 281 and 12. Direction to the site from the north or south involves a progression along HWY 281 to Interchange of HWY 12. Proceed east along HWY 12 to the site at the corner of Brown Co. 19 and US HWY 12 (6th Ave S). From the east and west one would remain on HWY 12 to the site.

Other site information includes climactic considerations such as annual snowfall, precipitation, temperature fluctuation, etc. While the soil type allows for a frost depth of five feet, one must realize that this segment of soils, in a cross-section, will fluctuate quite noticeably throughout the course of a year due to the temperature fluctuation. Also considering a live load for the snowfall increases the list of constraints.

The final primary climactic consideration is the wind speed and direction. Winter winds prevail from the north and west while summer winds dominate from the south and west.

Vegetation surrounding the site includes Chinese elm trees to the east which line the eastern border. Native grasses border the site also with the site itself being agricultural. The last crop to be raised on the site was soybeans.

Aberdeen, South Dakota

Elevation: 1312 feet Latitude: 45 27N Longitude: 098 25W

Average Temperature												Years on Record: 39	
YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
°F	44	10	18	29	45	57	67	72	70	60	47	30	16

Average Number of Clear Days												Years on Record: 27	
YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
Days	101	8	7	6	7	7	9	11	12	11	10	6	7

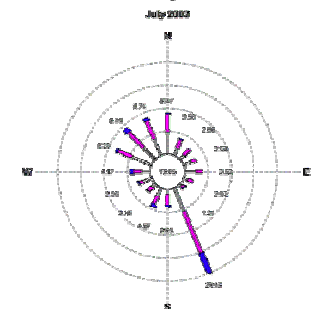
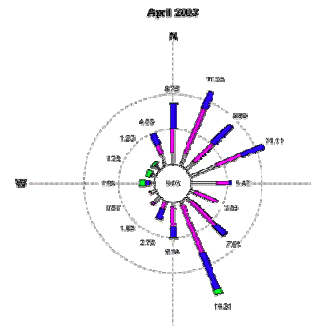
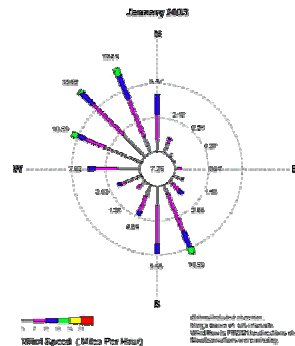
Average Number of Days Above 75F/23C												Years on Record: 39	
YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
Days	108	---	---	---	3	11	21	28	27	14	4	---	---

Average Number of Days Below 45/7C												Years on Record: 39	
YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
Days	246	31	28	31	27	18	4	1	2	15	28	30	31

Average Precipitation												Years on Record: 39	
YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
in.	19.1	0.5	0.5	1.2	1.9	2.5	3.3	3	2.3	1.7	1.2	0.6	0.4

Average Snowfall												Years on Record: 62	
YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
in.	35.8	6.6	6.8	6.7	3.5	0.2	---	---	---	---	0.7	5.2	6.1

Average Wind Speed												Years on Record: 35
YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
mph	12	10	10	16	14	11	11	12	12	11	10	10



NE corner of -> Officemax parking lot looking south.



<-NW corner of site looking east

Case Study Number One

David L. Lawrence Convention Center



Size:	1,486,000 sq ft
Location:	Downtown Pittsburgh, PA
Owner:	Sports and Exhibition Authority
LEED Rating:	LEED 2.0-2.1 Gold Certified
Cost:	\$196 per square foot (\$385,000,000)
Completion Date:	September 2003

Building Overview:

The design for the world's first certified green convention center resulted from an international competition conducted by the Southwestern Pennsylvania Convention Center Design Commission. Encompassing nearly 1.5 million sq ft and costing \$385 million, green is near perfectly integrated into the building design and is as much an attribute to the building as the world-class aesthetics and engineering. As an owner occupied civic building, a payback period of less than ten years was used as a guideline for the center. Current projections indicate that the building still within the guidelines.

Sustainable Sites:

Because the site is downtown, it has quick access to hotels and other conveniences for visitors. Because it reuses a downtown site, the building is accessible by transportation alternatives to automobiles and is served by existing infrastructure. Incorporating public spaces and art into the design contributes to the continual rejuvenation of Greater Pittsburgh's urban core.

Adjacent to public transportation, the building is located within 200 ft of a bus station and within 400 feet of a train station. Additionally, two public bus lines are located within 50 ft. of the Center. 50% of parking spaces are underground to minimize land use and to reduce the urban heat island effect.

Case Study Number One

Water Efficiency:

A gray water system recycles water for use in toilets and urinals. The water is conditioned by an aerobic digestion and submicron filtration system. The effluent is totally colorless and odorless. The system recycles 50% of the Center's water and saves an estimated 6.4 million gallons of water annually. The water reclamation system will reduce potable water use by over 75%. The indigenous landscaping uses no potable water for irrigation.

Energy and Atmosphere:

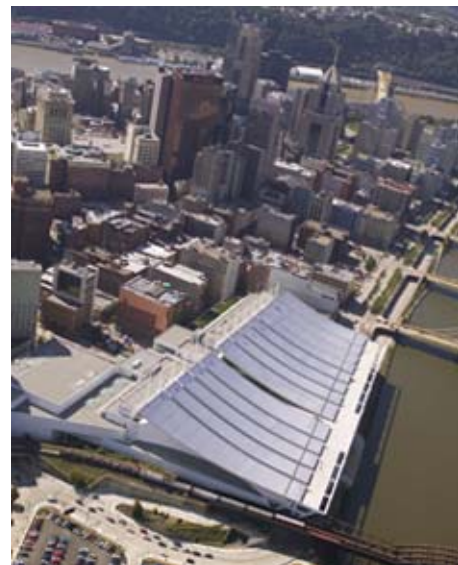
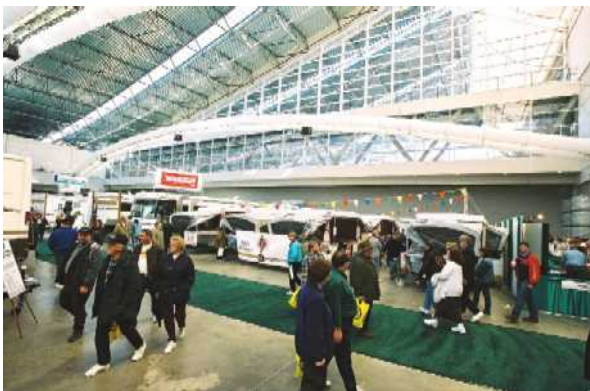
Extensive computer modeling resulted in energy savings of 35.6% when compared to an ASHRAE base model. Daylight design provides natural light for 75% of the Convention Center's exhibition space saving the Center over 9.5 million kWh of energy annually.

Team:

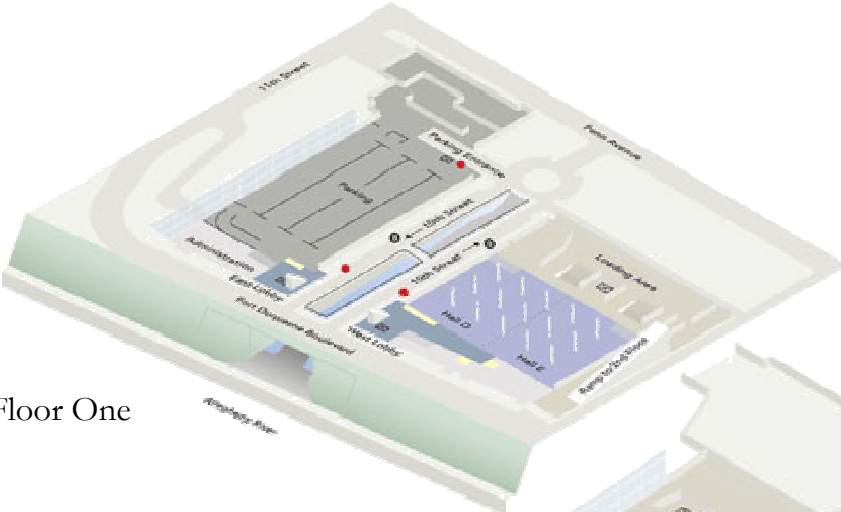
Rafael Vinoly Architects
Burt Hill Koser Rittleman Associates
Turner Construction

Fast Facts:

- 313,400 sq ft exhibit space
- 236,900 sq ft column-free exhibit space
- 76,500 sq ft in secondary hall
- 31,610 sq ft ballroom
- 51 meeting rooms and two 250 seat lecture halls
- 12,000 sq ft kitchen
- 700 car garage



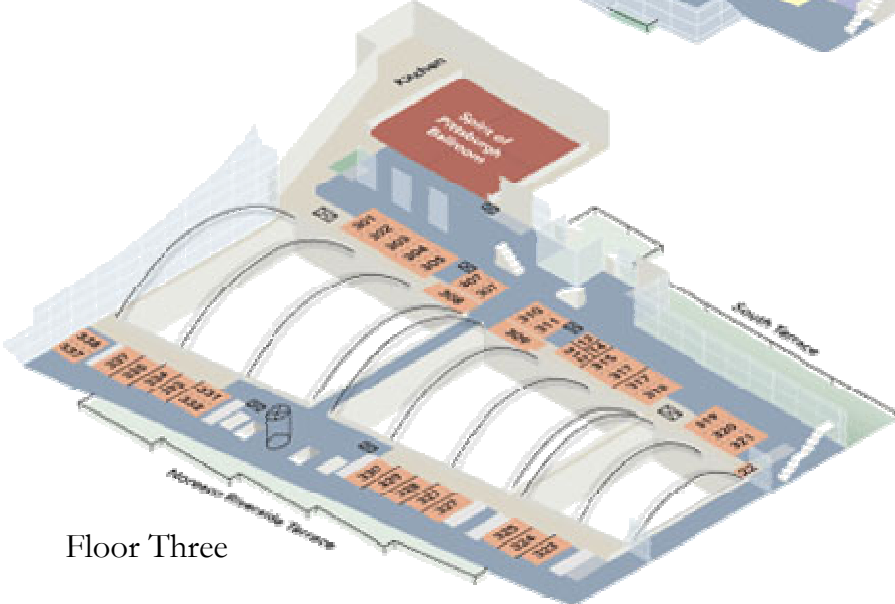
Case Study Number One



Floor One



Floor Two

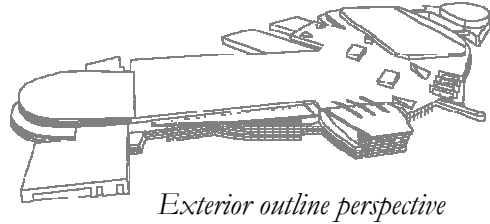


Floor Three

Aberdeen Convention Center

Case Study Number Two

Dallas Convention Center



Exterior outline perspective

Size:	1,000,000 square feet
Location:	I-30 and 35E Downtown Dallas, TX
Owner:	Department of Convention and Event Services
LEED Rating:	(None)
Cost:	\$159,595,112.00 (\$160 per square foot)
Completion Date:	2002

Building Overview:

Big D is bigger and better than ever. The Dallas Convention Center now has over 1,000,000 square feet. It offers a staggering 726,726 square feet of prime, contiguous exhibit space along with a 203,000 square foot column-free exhibit hall, the largest in the US. Also, the Dallas Convention Center offers even more great features, like a 9,816 seat arena, a theater with a 1,770 person capacity and 105 meeting rooms. Access is very easy also from our 75 truck berths. There are 2 gigantic ballrooms, the worlds largest vertiport. Plus, world-class dining and entertainment.



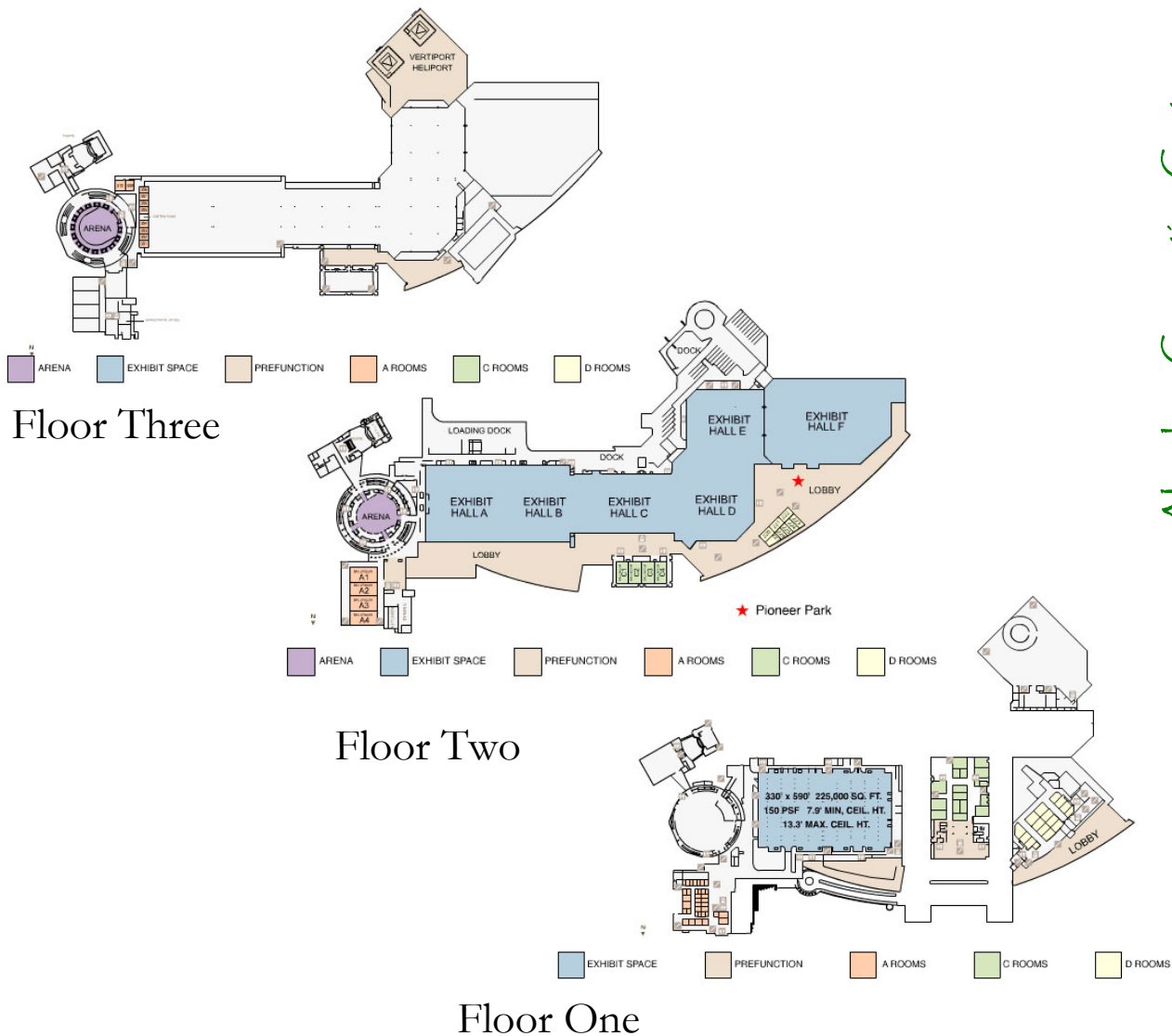
New Entrance



Lobby Overlooking City

Overview:

- The convention center features the world's largest column-free exhibit hall – 203,000 square feet with 40-foot ceilings.
- The Dallas Convention Center offers more than one million square feet of space including nearly 800,000 square feet of same level, contiguous prime exhibit space.
- Metropolitan Dallas has more hotel rooms than New York City and four times as many restaurants per person. They also have more shopping centers per capita than any other major US city.
- More than 3.8 million people attended more than 3,600 conventions in Dallas last year alone.



Case Study Number Three

Overland Park Convention Center

Size:	237,000 sq ft	Total Space
	60,000 sq ft	Exhibit Space
	25,000 sq ft	Ballroom Space
	15,000 sq ft	Meeting Space



Location:	Overland Park, Kansas
Owner:	Managed By Global-Spectrum under the direction of Overland Park Convention Center Committee.
Cost:	\$60,000,000.00 (\$253 per sq ft)
Completion:	December 2002

Building Overview:

After more than 20 years, the City of Overland Park realized their dream to build a convention center complex to fill the void of local exhibit space. The resulting Overland Park Convention Center and attached Sheraton Hotel not only provide exceptional exhibit space; both facilities set new standards in the hospitality industry. Design criteria for the convention center and hotel included:

- Maximum visibility/identity
- Expansion capability
- Easy accessibility
- Separation of service areas
- Convenient, ample parking
- Unique sense of place



Case Study Number Three



The design team focused on crafting the convention center and adjoining hotel as signature buildings for the City. A prominent 26-acre site adjacent to the major interstate looping around Kansas City offered prime exposure opportunities.

At more than 230 feet tall, the hotel tower is one of the tallest buildings in Overland Park and immediately visible throughout the city. Lacking the height of the hotel tower, designers had to create a focal point for the convention center. The resulting illuminated glass icon tower serves to signify the main entrance to the center as well as provide a branding tool in marketing and communications materials for the convention center and city.

Designers were also challenged to provide individual identities for each facility while keeping them joined as a single destination complex. Complimentary contemporary designs and similar building materials tie the 237,000 s.f. convention center to the contiguous 412-room hotel. Both buildings have similar envelopes – brick on low elevations, exterior insulation finishing systems at higher elevations, large glass curtain wall windows, standing seam roofing and membrane roofing.

The three main convention center components include 60,000 s.f. of exhibition space, 15,000 s.f. of meeting space, and 25,000 s.f. of banquet/multi-purpose space with a full-service kitchen. The exhibit and banquet spaces can be combined to provide a full 90,000 s.f. of space (incorporating a 5,000 s.f. service corridor between the two.)

The City of Overland Park also requested a design for the convention center to allow for possible future expansion. Walls on the north side of the center have an EFIS façade to facilitate demolition of the walls where the expansion would occur.

The main entrances for both facilities, as well as primary vehicular access to the complex is located off a major city thoroughfare on the south side of the site; a large drop-off circle serves both facilities. For improved facility access and parking, civil engineers rerouted and completed an existing secondary city street on the north side of the complex. Surface parking is on the north side, as well as access to covered convention center parking. Covered hotel parking is accessed from the southwest side of the site.

Case Study Number Four

Minneapolis Convention Center

Size: 806,330 square feet
Usage: 6-10 Major Events/month
Location: Downtown Minneapolis:
250 Marquette Ave S.
Owner: City of Minneapolis
Cost: N/A
Relevance to Current Project:



Exterior view of entrance element in the foreground with Concert Hall roof in the distance.

The site contains 900 underground spaces with access to over 8,000. This is an important attribute pertaining to the Aberdeen project due to the fact that site size may limit my ability to fully place all required parking above ground. Or within the boundaries of the site.

Completion Date: December 2000
Spatial Breakdown:

Exhibit –	363,607 ft ²
Concert Hall –	320,583 ft ²
Office/Meeting -	123,140 ft ²

Building Overview:

The Minneapolis Convention Center is a state-of-the-art convention and trade show venue located in the heart of downtown. The city's world-class meeting space is user-friendly and will make your meeting a pleasure. With restaurants, hotels, nightlife and more located within walking distance, and the skyway system connected to everything, getting to and from the Convention Center is a breeze.



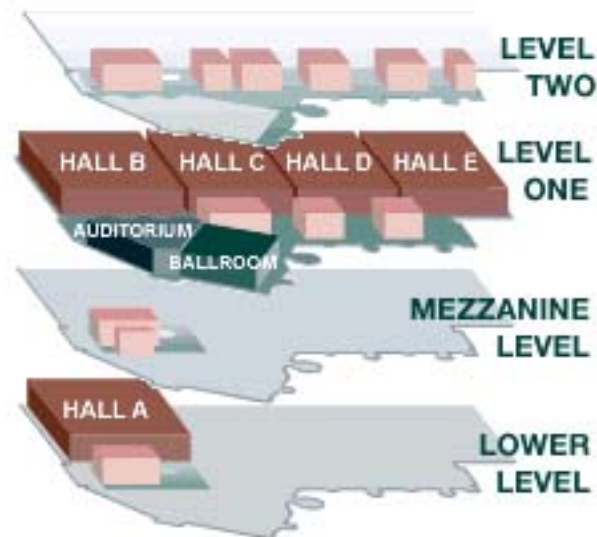
Exhibition space with iconic roof structure and other structural elements used as aesthetic qualities.

Case Study Number Four



Concert Hall B

Concert Area is set up for acoustical perfection. Seating can be used as either event seating or actual performance seating.



Floor Layout

Separating function is a large issue with both the spatial and floor layout. Noise level control, circulation patterns, egress, fenestration, and user type all play key rolls in this arrangement.

Case Study Number Four

LEVEL ONE EXHIBIT HALLS

Area	Square Feet	Dimensions (Feet LxW)	Ceiling Height	Theater Capacity	Classroom Capacity	Banquet Capacity	10' x 10' Booths
Exhibit Halls B - E	376,000	330' x 1,140'	30 - 85'	N/A	N/A	N/A	2,090
HALL B	99,000	330' x 300'	30 - 85'	7,500	5,000	6,000	550
HALL C	99,000	330' x 300'	30 - 85'	7,500	5,000	6,000	550
HALL D	79,000	330' x 240'	30 - 85'	5,500	4,000	5,270	440
HALL E	99,000	330' x 300'	30 - 85'	7,500	5,000	6,000	550

BALLROOM A and B

Area	Square Feet	Dimensions (Feet LxW)	Ceiling Height	Theater Capacity	Classroom Capacity	Banquet Capacity	Reception 10' x 10' Booths
BALLROOM A-B	27,522	139' x 198'	30'	3,500	2,144	2,200	3,111
BALLROOM A	18,070	139' x 130'	30'	2,500	1,360	1,260	2,011
BALLROOM B	9,452	139' x 68'	30'	1,000	704	630	1,056

LEVEL ONE MEETING ROOMS

Area	Square Feet	Dimensions (Feet LxW)	Ceiling Height	Theater Capacity	Classroom Capacity	Banquet Capacity	Reception 10' x 10' Booths
101 A-J (each section)	14,948	101' x 148'	18'	2,184	1,160	1,040	1,660
102 A-F or 103 A-F (each section)	6,622	86' x 77'	16'	1,000	512	420	735
Show Offices	694	56'-8" x 12'-3"	8'-10"	AUDITORIUM MAIN		2,143	
Show Office C/D	728	59' x 12'-4"	8'-10"	AUDITORIUM (All Sections)		3,433	
Show Office D/E	694	56'-8" x 12'-3"	8'-10"	AUDITORIUM ROOMS 1, 2 & 3		428 each room	

Located mid-level between Level One and Level Two, accessible by elevators and stairs

Spatial layouts include four levels of function. The top left table shows Level One functions. The Lower Left table shows Level two Functions. The top right illustrates the Mezzanine Level distribution of space and the lower right table lays out the data for all spaces contained in the lower level meeting rooms.

LEVEL TWO MEETING ROOMS

Area	Square Feet	Dimensions (Feet LxW)	Ceiling Height	Theater Capacity	Classroom Capacity	Banquet Capacity	Reception 10' x 10' Booths
200 A-J (each section)	12,348	84' x 147'	14' (12'-6" to light fixture)	1,849	928	910	1,367
201 A-B (each section)	1,248	39' x 32'	14'	140	72	60	140
202 A-B (each section)	608	19' x 32'	14'	68	40	30	69
203 A-B (each section)	1,248	39' x 32'	14'	140	72	60	140
204 A-B (each section)	608	19' x 32'	14'	68	40	30	69
205 A-D (each section)	1,050	25' x 42'	16'	135	56	60	116
206 A-B (each section)	525	25' x 21'	16'	50	24	20	58
207 A-B (each section)	1,050	25' x 42'	16'	135	56	60	116
208 A-D (each section)	525	25' x 21'	16'	50	24	20	58
209 A-B (each section)	1,050	25' x 42'	16'	135	56	60	116
210 A-B (each section)	525	25' x 21'	16'	50	24	20	58
211 A-D (each section)	4,386	51' x 86'	16'	648	320	280	490
212 A-B (each section)	1,075	25' x 43'	16'	140	56	60	120
213 A-B (each section)	1,248	39' x 32'	14'	140	72	60	139
Seasons Lounge A & B (Alice Rainville Room)	2,454	56' dia.	20'	-	-	400	500
Show Office B	1,085	37' dia.	23'	-	-	60	75
Show Office B	499	16'-8" x 29'-11"	9'	-	-	-	-

MEZZANINE LEVEL MEETING ROOMS

Area	Square Feet	Dimensions (Feet LxW)	Ceiling Height	Theater Capacity	Classroom Capacity	Banquet Capacity
M100 A-J (each section)	12,201	83' x 147'	12'	1,849	928	910
M101 A-C (each section)	1,176	42' x 28'	(10'-5" to light fixture)	148	72	60
M101 A-C (each section)	3,420	38' x 90'	12'	507	236	240
M101 A-C (each section)	1,140	38' x 30'	12'	142	72	60

EXHIBIT HALL A / BALLROOM SPACE

Area	Square Feet	Dimensions (Feet LxW)	Ceiling Height	Theater Capacity	Classroom Capacity	Banquet Capacity	Reception 10' x 10' Booths
EXHIBIT HALL A	99,000	330' x 299'-6"	27' 10"	7,000	5,000	6,000	10,000
LOWER LEVEL BALLROOM	54,550	183' x 299'	27' 10"	5,000	3,200	3,360	4,800

LOWER LEVEL MEETING ROOMS

Area	Square Feet	Dimensions (Feet LxW)	Ceiling Height	Theater Capacity	Classroom Capacity	Banquet Capacity	Reception 10' x 10' Booths
L100 A-J (each section)	14,847	101' x 147'	18'	2,184	1,160	1,040	1,652
Show Office A	281	30'-2" x 9'-4"	9'-4"	196	96	80	160

Case Study Number Five

Anaheim Convention Center

Size: 1,007,330 square feet
Usage: 25-30 Events/month
Location: 800 Katella Ave Anaheim, CA
Public transit hub is 500 ft east
Owner: City of Anaheim, CA
Cost: N/A

Relevance to Current Project:

The City of Anaheim was attracted to the lower cost and unique benefits to the building offered by photovoltaic. With no emissions, fuel use, or noise, solar generated electricity has become not only a fiscally beneficial system but also an environmentally friendly system as well.

Anaheim's solar-powered installations spare the environment from thousands of tons of harmful emissions such as nitrogen oxides, sulfur dioxide and carbon monoxide, which are major contributors to smog, acid rain and global warming.



Photovoltaic Roof Panels



Exterior Perspective

Completion Date: December 2000
Spatial Breakdown:
Exhibit – 813,607 ft²
Meeting – 130,583 ft²
Arena - 23,140 ft²

Building Overview:

The Anaheim Convention Center is the newest and largest convention center on the West Coast and one of the largest convention centers in the world. After three years of expansion and renovation, this new jewel has quickly become known as a regional architectural landmark.

Along the way, designers and building operators identified a major challenge. Anaheim Public Utilities needed a fast solution to rising energy costs for the Anaheim Convention Center and other public buildings. The heavy load of electrical power required from the center on a daily basis initiated the need to look for alternatives to existing energy providers.

Case Study Number Five

The solution came in the form of a solar photovoltaic (PV) rooftop system. The solar electric systems installed on Anaheim's Convention Center totals over 200 kW, producing the equivalent energy during the day to power 200 homes. Silent, unobtrusive and easy to maintain, the PV system reduced Anaheim's utility costs substantially. On-site solar electric generation reduces overall energy costs, and in particular, reduces the purchase of expensive, peak energy from the utility grid.

In addition, the Convention Center features a system performance display to educate the public about the benefits of solar energy. The City of Anaheim was attracted to the lower cost and unique benefits to the building offered by photovoltaic. With no emissions, fuel use, or noise, solar generated electricity has become not only a fiscally beneficial system but also an environmentally friendly system as well. Anaheim's solar-powered installations spare the environment from thousands of tons of harmful emissions such as nitrogen oxides, sulfur dioxide and carbon monoxide, which are major contributors to smog, acid rain and global warming.

Overall, there is 10,256 square feet of photovoltaic panels overtop an existing roof membrane. The system, even though very large scale, will pay for itself within the decade and has a lifespan of over thirty years.

Site selection for the building was crucial in the overall success of the project. Located a mere five-hundred feet from a public transit hub and less than twenty minutes from an international airport, the facility can accommodate a broad range of users, from world travelers to citizens of Anaheim itself, rendering itself very accessible in most all cases.

Case Study Number Four

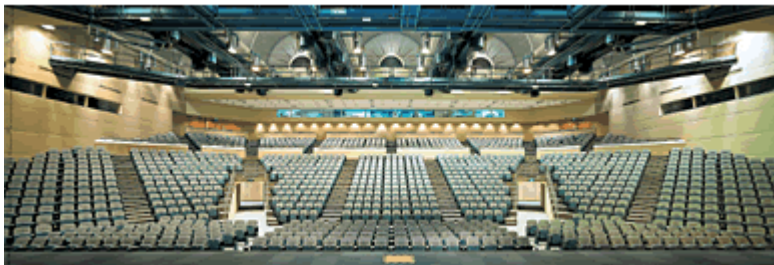
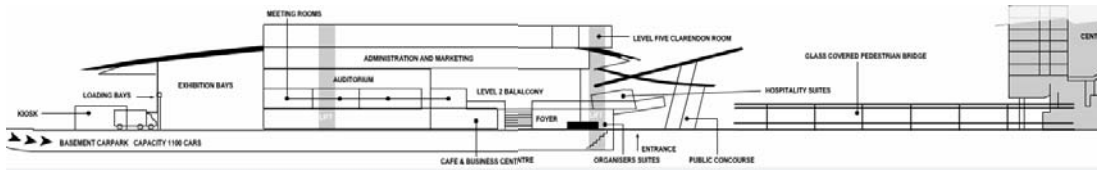
Melbourne Exhibition Center

Size: 400,000 square feet
Usage: 32 Events/month
Location: Along Yarra River
 Melbourne, Australia
Owner: City of Melbourne
Cost: \$92 million



Completion Date: Spring 2003
Spatial Breakdown:

Exhibit –	260,000 ft ²
Plenary –	80,000 ft
Circulation/ Prefunction –	20,000 ft ²
Lobby/Other –	20,000 ft ²



Concert Hall

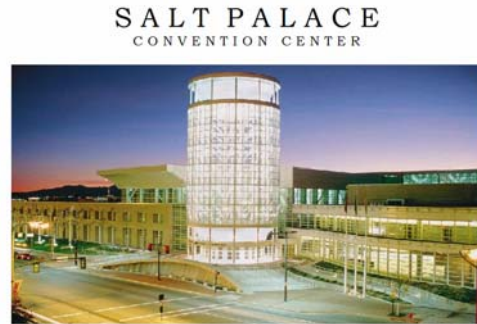


Banquet Hall

Case Study Number Seven

Salt Palace Convention Center

Size: 670,000 square feet
Usage: 200 events annually
Location: Covered walks to Hotels and Public Transit
Owner: Salt Lake City UT Chamber of Commerce
Cost: \$748 million



Completion Date:	Spring 2003	
Spatial Breakdown:	Exhibit –	850,000 ft ²
	Meeting/Office –	900,000 ft ²
	Circulation/ Prefunction –	150,000 ft ²
	Lobby/Other –	100,000 ft ²

Building Overview:

The Salt Palace boasts a whopping 365,000 square feet of continuous exhibit space, with flexible walls allowing for 1 to 8 halls. A 45,000 square foot ballroom -- one of the largest in the West -- with roughly enough space to hold a banquet for 2,900 ballerinas in tutus and the flexibility to break down into 10 sections, each capable of holding over 400 people theater style.

52,000 square feet of flexible meeting space, for a total of 53 possible meeting rooms including Ballroom space. The curved metal trusses holding up the ceiling were actually built by the world's foremost designer of roller coaster right here in Utah. They incorporated a stunning snowflake motif in many of the windows and wall designs.

Miles of wires and fiber optic cable slither through the walls of the Salt Palace for up-to-date internet and computer connections, including satellite uplink capability.

Case Study Number Eight

Orange County Convention Center

- Size:** 1,100,600 square feet
- Usage:** 32 major/ 70 minor events per month
- Location:** 25 minutes to airport – Orlando, FL
- Owner:**
- Cost:** \$748 million
- Completion Date:** Spring 2003

Spatial Breakdown:	Exhibit –	850,000 ft ²
	Meeting/Office –	900,000 ft ²
	Circulation/ Prefunction –	150,000 ft ²
	Lobby/Other –	100,000 ft ²



*Link between new and original centers.
(New on left).*



Main Entrance

Building Overview:

If Chicago's Sears Tower was laid on its side (including the antenna on top), the entire structure would fit lengthwise inside level two within the Orange County Convention Center's exhibition space. Located in the midst of Orlando's popular International Drive, the Center is comprised of 1,100,600 total square feet, with eight contiguous exhibit halls 2,500 feet in length.

In 1980, ground was broken for Phase I in the construction of the new civic center, designed to accommodate large conventions/trade shows and multipurpose community activities. The first phase, completed in 1983, called for 150,000 square feet of column-free exhibit space and 30,000 square feet of meeting rooms. Subsequently, Phases II, III and IV were finished in February, 1990, January, 1996, and August, 1996, respectively, bringing the total exhibition space to over one million square feet. The final phase of the project, due for completion in December, 1997, involves a retrofit of 150,000 square feet of existing exhibit space to bring it into compliance with current building code requirements.

Programmatic Requirements

ABERDEEN CONVENTION CENTER

Civic Arena, Restaurant, Business, and Convention Center

Aberdeen, SD

3-Story Convention Center, Restaurant, Lounge, Coffee Shop, and Business Center

LOBBY & REGISTRATION AREAS

TOTAL: 7,198 s.f.

As with most things, the first impression is very important. It can determine whether or not your guests may or may not return. With that in mind, the Lobby is a key component and must be designed with originality, quality, and scale. The main entry must lead directly into the Lobby and Registration Area; it must be easily identified, with the Registration Desk immediately visible. The Lobby handles room access, ticket sales and distribution and all messages. The Cashier Area is integral with the Registration Desk and needs close contact with the Accounting Office and adjacent to the hotel vault. There will be times when more than one group will be checking in, out, or both. These people need to be able to occupy the Lobby and not get in each other's way. Access to the Conference Center should be off the Lobby, but separated from the Registration Desk, to eliminate conflicting circulation paths. The Lounge and Restaurant should also be off the Lobby.

Spatial Requirements:

Entry	150 s.f.
Porte Cochere	1,500 s.f.
Lobby	2,800 s.f.
Front Desk	1,700 s.f.
Registration	
Information Desk	
Telephone Switchboard	
Cashier	
Reservations	
Ticket booths	
Storage	100 s.f.
Men's Public Restroom	200 s.f.
Women's Public Restroom	200 s.f.
Circulation (15%)	548 s.f.

CONVENTION CENTER

TOTAL: 79,180 s.f.

The key component of the Convention Center is the main arena, which seats 7,000 people and includes a table set-up where one could hold conferences with internet access to all users. Twelve small Meeting Rooms should be included; these rooms accommodate seating for 50 around a large conference table. These 12 rooms should be designed with moveable partition walls so that they can easily be modified into 2 Large Meeting Rooms that would seat 100. This Convention Center will be used extensively by conference guests and should be set up with the latest state-of-the-art equipment and design. The Conference Center is equipped with an Information Desk, a Registration Desk, Breakout Areas and its own audio-visual support area.

Spatial Requirements:

Registration Desk	200 s.f.
Information Desk	150 s.f.
Breakout Area	500 s.f.
Auditorium (seats 7,000)	60,000 s.f.
Conference Center Foyer / Lobby	1,000 s.f.
Conference Center Storage	1,750 s.f.
Small Meeting Rooms (12 rooms @ 1,000 s.f./ea.—seats 50/ea. with tables). w/partition walls to form 2 Larger Meeting Rooms—seats 48 total w/tables)	12,000 s.f.
Coatrooms	200 s.f.
Men's Restroom (shared w/Conference Center)	300 s.f.
Women's Restroom (shared w/Conference Center)	300 s.f.
Audio-visual Support	100 s.f.
Public Phones	100 s.f.
Circulation (15%)	2,580 s.f.

DINING FACILITIES & LOUNGE**TOTAL: 9,430 s.f.**

The Restaurant and Coffee Shop can and should be flexible in the ability to adapt to changing crowds. A separate entrance should be provided for those patrons that only wish to use the Restaurant, if possible. A majority of the Lounge patrons will be hotel guests using the Conference Center; so, the location of the Lounge should be placed close to the Conference Center or near by. Smaller, more intimate, and inviting spaces should be provided within the Lounge.

Spatial Requirements:

Restaurant (seats 150)	3,300 s.f.
Coffee Shop (seats 75)	1,500 s.f.
Lounge (seats 150)	2,700 s.f.
Coatrooms	100 s.f.
Men's Restroom (shared w/Hotel Lobby)	300 s.f.
Women's Restroom (shared w/Hotel Lobby)	300 s.f.
Circulation (15%)	1,230 s.f.

FOOD PREPARATION AREAS**TOTAL: 1,438 s.f.**

The kitchen must be set up as a full-service commercial kitchen, as it provides meals for the restaurant, room service, and catering. The "dishwashing" facilities must be isolated from the cooking and serving areas, but need to be close to the Dining Area. Typically a commercial kitchen design specialist is asked to specify the kitchen design; but, the architect should be aware of the relationships that are finally decided on.

Spatial Requirements:

Kitchen	1,000 s.f.
Coffee Shop Kitchen	150 s.f.
Food Prep Office	100 s.f.
Circulation (15%)	186 s.f.

ADMINISTRATION**TOTAL: 2,369 s.f.**

The Administration Areas work closely with the 'back of the house'. The general spaces should be private, but accessible to the public. Typically the Reception Area acts as a buffer between the public and the administration personnel.

Spatial Requirements:

General Manager	200 s.f.
Assistant Manager	120 s.f.
Sales Office	120 s.f.
Banquet Manager	120 s.f.
Purchasing Clerk	120 s.f.
Convention Center Coordinator	120 s.f.
Personnel Manager	120 s.f.
Secretary	120 s.f.
Security Office	120 s.f.
Mailroom	200 s.f.
Vault	80 s.f.
Accounting Office	120 s.f.
Men's Staff Restroom	50 s.f.
Women's Staff Restroom	50 s.f.
Employee Break room (includes lockers)	400 s.f.
Circulation (15%)	309 s.f.

MECHANICAL, HVAC, & UTILITY**TOTAL: 3,860 s.f.**

The Mechanical, HVAC, and Utility spaces constitute the extreme 'back of the house' concept that no guest should ever see. The Maintenance Shop is provided for routine maintenance and upkeep.

Spatial Requirements:

Boiler Room	1,400 s.f.
Mechanical Rooms (Air Handling)	1,100 s.f.
Electrical Room	350 s.f.
Communications Room (data / phone)	200 s.f.
Maintenance / Engineering	450 s.f.
Maintenance Shop	250 s.f.
Storage	100 s.f.
Engineering Office	100 s.f.
Circulation (15%)	360 s.f.

CUSTODIAN & LAUNDRY**TOTAL: 1,571 s.f.**

Each custodian can service a lever per evening with a storage room on each floor. A larger linen storage should be provided near the Laundry Room. Service elevators must provide service access to all floors.

Spatial Requirements:

Custodial Manager	120 s.f.
Laundry Facilities	1,000 s.f.
Chemical and Cleaning Storage	200 s.f.
Staff Restroom (optional)	50 s.f.
Circulation (15%)	201 s.f.

SHIPPING, RECEIVING, & STORAGE**TOTAL: 4,106 s.f.**

All incoming food, furnishings, supplies, etc. arrive here. They pass Security and are checked-in, sorted, and removed to storage areas. Beverages should be locked up as soon as possible to deter unwanted losses due. Perishable items should be put into their respective coolers to prevent spoilage. The service entrance should also be secure against unauthorized personnel and against pilfered goods leaving with the staff. Staff personnel usually come through a point close or adjacent to the Receiving Area. For security purposes, it is important to have a tight control at the points of entry and egress that quickly splits the personnel from circulating by the Storage Areas.

Spatial Requirements:

Receiving Area	500 s.f.
Receiving Clerk Office	120 s.f.
General Storage / Food Storage (Dry)	1,000 s.f.
Refrigerated / Frozen Storage	700 s.f.
Beverage Storage (optional)	600 s.f.
Fragile Storage	250 s.f.
Garbage Compaction / dumpsters	400 s.f.
Circulation (15%)	536 s.f.

SUMMARY OF SPACE ALLOCATION **BUILDING TOTAL: 109,152 s.f.**

LOBBY & REGISTRATION AREAS	4,198 s.f.
CONVENTION CENTER	79,180 s.f.
DINING FACILITIES & LOUNGE	9,430 s.f.
FOOD PREPARATION AREAS	1,438 s.f.
ADMINISTRATION	2,369 s.f.
MECHANICAL, HVAC, & UTILITY	2,760 s.f.
HOUSEKEEPING & LAUNDRY	1,571 s.f.
SHIPPING, RECEIVING, & STORAGE	4,106 s.f.

Spatial Considerations

Space: <i>Entry</i>		General	
Primary Links:	Porte Cochere	Net Area	150 s.f.
	Lobby	Number of Identical	1
	Front Desk	Users	All
Secondary Links:	Restrooms	Activities	Entrance

Qualitative		Access	
Natural Light	Yes	Direct Exterior	Yes
Glare Control	Yes	Near Public Entrance	Yes
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	No		

Space: <i>Porte Cochere</i>		General	
Primary Links:	Entry	Net Area	1,500 s.f.
	Lobby	Number of Identical	0
	Front Desk	Users	Vehicular
		Activities	Vehicular

Qualitative		Access	
Natural Light	Yes	Direct Exterior	Yes
Glare Control	No	Near Public Entrance	Yes
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	No	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	No		

Spatial Considerations

Space: <i>Lobby</i>		General	
Primary Links:	Porte Cochere	Net Area	2,800 s.f.
	Entry	Number of Identical	0
	Restrooms	Users	All
	Registration	Activities	Entry Sequence
Secondary:	Lounge		
	Restaurant		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	Yes
Glare Control	Yes	Near Public Entrance	Yes
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	Yes		

Space: <i>Front Desk</i>		General	
Primary Links:	Lobby	Net Area	1,700 s.f.
	Porte Cochere	Number of Identical	0
	Entry	Users	Visitor
Secondary Links:	Restrooms	Activities	

Qualitative		Access	
Natural Light	No	Direct Exterior	Yes
Glare Control	Yes	Near Public Entrance	Yes
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	No	Bulk Shipments	No
Acoustical Attention	No		

Spatial Considerations

Space: Restrooms		General	
Primary Links:	Conference Center	Net Area	1,500 s.f.
	Offices	Number of Identical	6
	Coffee Shop	Users	All
	Front Desk	Activities	Restroom
	Lounge		
	Restaurant		

Qualitative		Access	
Natural Light	No	Direct Exterior	No
Glare Control	No	Near Public Entrance	Yes
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	No	Bulk Shipments	No
Acoustical Attention	No		

Space: Registration Desk		General	
Primary Links:	Lobby	Net Area	200 s.f.
	Information	Number of Identical	0
	Restrooms	Users	Visitor
	Auditorium	Activities	Conference registration
	Entry		
Secondary Links:	Lounge		
	Restaurant		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	Yes
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	No	Bulk Shipments	No
Acoustical Attention	Yes		

Spatial Considerations

Space: <i>Information Desk</i>		General	
Primary Links:	Conference Lobby Auditorium Registration	Net Area	150 s.f.
		Number of Identical	0
		Users	Visitors
Secondary Links:	Lounge Restaurant	Activities	Information Distribution

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	Yes
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	No	Bulk Shipments	No
Acoustical Attention	Yes		

Space: <i>Registration Desk</i>		General	
Primary Links:	Lobby Information Restrooms Auditorium Entry	Net Area	200 s.f.
		Number of Identical	0
		Users	Visitor
Secondary Links:	Lounge Restaurant	Activities	Conference registration

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	Yes
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	No	Bulk Shipments	No
Acoustical Attention	Yes		

Spatial Considerations

Space: Breakout Area		General	
Primary Links:	Conference Center	Net Area	500 s.f.
	Auditorium	Number of Identical	0
	Coffee Shop	Users	Visitors
	Front Desk	Activities	Intermission/Prefunction
	Lounge		
	Restaurant		

Qualitative		Access	
Natural Light	No	Direct Exterior	No
Glare Control	No	Near Public Entrance	Yes
Flexible Configuration	Yes	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	No	Bulk Shipments	No
Acoustical Attention	Yes		

Space: Auditorium (Plenary)		General	
Primary Links:	Conference Lobby	Net Area	60,000 s.f.
	Information	Number of Identical	0
	Restrooms	Users	Visitor (7,000 capacity)
	Registration	Activities	Conference Functions
Secondary Links:	Lounge		
	Restaurant		

Qualitative		Access	
Natural Light	No	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	Yes	Near Service Entrance	Yes
Temperature Control	Yes	Bulk Deliveries	Yes
Natural Ventilation	No	Bulk Shipments	No
Acoustical Attention	Yes		

Spatial Considerations

Space: <i>Meeting Rooms</i>		General	
Primary Links:	Conference Lobby	Net Area	12,000 s.f.
	Auditorium	Number of Identical	12
	Coffee Shop	Users	Visitors (600 total capacity)
	Front Desk	Activities	Meeting/ Banquet
Secondary Links:	Lounge		
	Restaurant		

Qualitative		Access	
Natural Light	No	Direct Exterior	No
Glare Control	No	Near Public Entrance	No
Flexible Configuration	Yes	Near Service Entrance	Yes
Temperature Control	Yes	Bulk Deliveries	Yes
Natural Ventilation	No	Bulk Shipments	No
Acoustical Attention	Yes		

Space: <i>Restaurant</i>		General	
Primary Links:	Kitchen	Net Area	3,300 s.f.
	Lounge	Number of Identical	0
	Restrooms	Users	Visitor (150 capacity)
Secondary Links:	Auditorium	Activities	Dining Catering
	Breakout		
	Meeting Rooms		
	Registration		
	Conference Lobby		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	Yes
Glare Control	Yes	Near Public Entrance	Yes
Flexible Configuration	Yes	Near Service Entrance	Yes
Temperature Control	Yes	Bulk Deliveries	Yes
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	Yes		

Spatial Considerations

Space: *Coffee Shop* General

Primary Links:	Meeting Rooms	Net Area	1,500 s.f.
	Lounge	Number of Identical	0
	Restaurant	Users	Visitors (75 total capacity)
Secondary Links:	Auditorium	Activities	Eatery/Refreshments

Qualitative

Natural Light	Yes
Glare Control	Yes
Flexible Configuration	No
Temperature Control	Yes
Natural Ventilation	Yes
Acoustical Attention	No

Access

Direct Exterior	No
Near Public Entrance	No
Near Service Entrance	Yes
Bulk Deliveries	Yes
Bulk Shipments	No

Space: *Lounge* General

Primary Links:	Coffee Shop	Net Area	2,700 s.f.
	Restaurant	Number of Identical	0
	Restrooms	Users	Visitor (150 capacity)
Secondary Links:	Auditorium	Activities	Dining/Entertainment
	Breakout		
	Meeting Rooms		
	Registration		
	Conference Lobby		

Qualitative

Natural Light	Yes
Glare Control	Yes
Flexible Configuration	No
Temperature Control	Yes
Natural Ventilation	Yes
Acoustical Attention	Yes

Access

Direct Exterior	Yes
Near Public Entrance	Yes
Near Service Entrance	Yes
Bulk Deliveries	Yes
Bulk Shipments	No

Spatial Considerations

Space: <i>General Manager</i>		General	
Primary Links:	Other Offices	Net Area	200 s.f.
	Restrooms	Number of Identical	0
	Front Desk	Users	Administration
Secondary Links:	Vault	Activities	Administrative
	Mailroom		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	No		

Space: <i>Assistant Manager</i>		General	
Primary Links:	General Mngmnt.	Net Area	120 s.f.
	Restrooms	Number of Identical	0
	Front Desk	Users	Visitor (150 capacity)
Secondary Links:	Vault	Activities	Dining/Entertainment
	Mailroom		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	No		

Spatial Considerations

Space: <i>Sales Office</i>		General	
Primary Links:	Other Offices	Net Area	120 s.f.
	Restrooms	Number of Identical	0
	Front Desk	Users	Administration
Secondary Links:	Vault	Activities	Administrative
	Mailroom		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	No		

Space: <i>Banquet Manager</i>		General	
Primary Links:	Other Offices	Net Area	120 s.f.
	Restrooms	Number of Identical	0
	Front Desk	Users	Administration
Secondary Links:	Vault	Activities	Administrative
	Mailroom		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	No		

Spatial Considerations

Space: <i>Purchasing Clerk</i>		General	
Primary Links:	Other Offices	Net Area	120 s.f.
	Restrooms	Number of Identical	0
	Front Desk	Users	Administration
Secondary Links:	Vault	Activities	Administrative
	Mailroom		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	Yes
Acoustical Attention	No		

Space: <i>Convention Coordinator</i>		General	
Primary Links:	Other Offices	Net Area	120 s.f.
	Restrooms	Number of Identical	0
	Front Desk	Users	Administration
Secondary Links:	Vault	Activities	Administrative
	Mailroom		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	Yes
Acoustical Attention	No		

Spatial Considerations

Space: <i>Personnel Manager</i>		General	
Primary Links:	Other Offices	Net Area	120 s.f.
	Restrooms	Number of Identical	0
	Front Desk	Users	Administration
Secondary Links:	Vault	Activities	Administrative
	Mailroom		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	No		

Space: <i>Secretary</i>		General	
Primary Links:	Other Offices	Net Area	120 s.f.
	Restrooms	Number of Identical	0
	Front Desk	Users	Administration
Secondary Links:	Vault	Activities	Administrative
	Mailroom		

Qualitative		Access	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	Yes
Acoustical Attention	No		

Spatial Considerations

<u>Space: <i>Security Office</i></u>		<u>General</u>	
Primary Links:	Other Offices	Net Area	120 s.f.
	Restrooms	Number of Identical	0
	Front Desk	Users	Administration
Secondary Links:	Vault	Activities	Administrative
	Mailroom		

<u>Qualitative</u>		<u>Access</u>	
Natural Light	Yes	Direct Exterior	No
Glare Control	Yes	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	No
Temperature Control	Yes	Bulk Deliveries	No
Natural Ventilation	Yes	Bulk Shipments	No
Acoustical Attention	No		

<u>Space: <i>Mailroom</i></u>		<u>General</u>	
Primary Links:	Offices	Net Area	200 s.f.
		Number of Identical	0
Secondary Links:	Vault	Users	Administration
		Activities	Postal

<u>Qualitative</u>		<u>Access</u>	
Natural Light	No	Direct Exterior	No
Glare Control	No	Near Public Entrance	No
Flexible Configuration	No	Near Service Entrance	Yes
Temperature Control	No	Bulk Deliveries	Yes
Natural Ventilation	No	Bulk Shipments	Yes
Acoustical Attention	No		

Spatial Considerations

Space: *Custodial & Laundry* General

Primary Links:	Boiler Room	Net Area	1,571 s.f.
	Maintenance	Number of Identical	0
	Electrical	Users	Maintenance
Secondary Links:	Engineer Office	Activities	Cleaning/Storage

Qualitative

Natural Light	No
Glare Control	No
Flexible Configuration	No
Temperature Control	Yes
Natural Ventilation	Yes
Acoustical Attention	No

Access

Direct Exterior	No
Near Public Entrance	No
Near Service Entrance	Yes
Bulk Deliveries	Yes
Bulk Shipments	No

Space: *Receiving Area* General

Primary Links:	Receiving Clerk	Net Area	500 s.f.
	Frozen Storage	Number of Identical	0
	Dry Storage	Users	Shippers/Staff
Secondary Links:	Maintenance	Activities	Shipping/Receiving

Qualitative

Natural Light	Yes
Glare Control	No
Flexible Configuration	No
Temperature Control	No
Natural Ventilation	Yes
Acoustical Attention	No

Access

Direct Exterior	Yes
Near Public Entrance	No
Near Service Entrance	Yes
Bulk Deliveries	Yes
Bulk Shipments	Yes

Spatial Considerations

Space: *General Storage* General

Primary Links:	Receiving Area	Net Area	2,550 s.f.
	Food Prep	Number of Identical	0
	Receiving Clerk	Users	Staff
Secondary Links:	Restaurant	Activities	Storage

Qualitative

Natural Light	No
Glare Control	No
Flexible Configuration	No
Temperature Control	Yes
Natural Ventilation	No
Acoustical Attention	No

Access

Direct Exterior	No
Near Public Entrance	No
Near Service Entrance	Yes
Bulk Deliveries	Yes
Bulk Shipments	No

Space: *Garbage Compaction* General

Primary Links:	Receiving Area	Net Area	400 s.f.
		Number of Identical	0
Secondary Links:	Maintenance	Users	Staff
		Activities	Waste Management

Qualitative

Natural Light	No
Glare Control	No
Flexible Configuration	No
Temperature Control	No
Natural Ventilation	Yes
Acoustical Attention	No

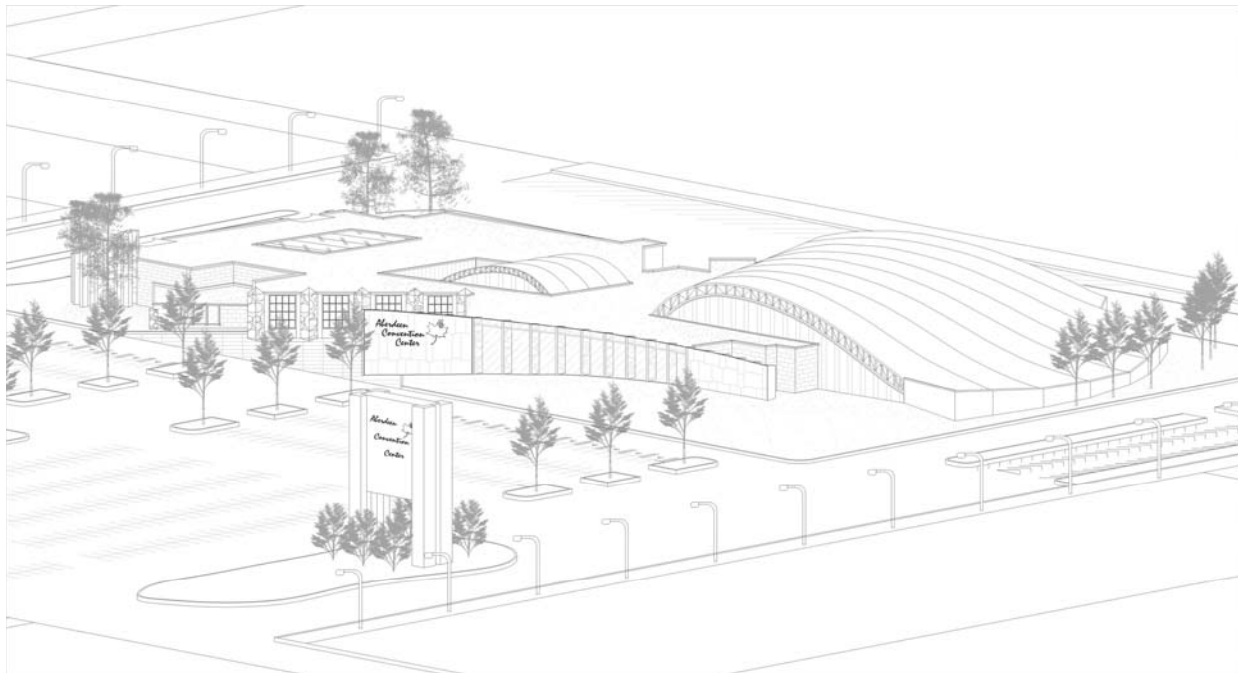
Access

Direct Exterior	Yes
Near Public Entrance	No
Near Service Entrance	Yes
Bulk Deliveries	Yes
Bulk Shipments	Yes

Design Conclusions

In the following section, I will discuss the overall results, productions, and goals reached by the design process itself. The first issue I will present will be the process and strategy that I thoroughly had embraced throughout the design phase. The next matter I will discuss is the *point of departure*, or concept. At this juncture, my goals were set and the project design could fully be explored. It was not until the next stage, the form and spatial arrangement phase, was underway that the building began to take on the properties and character that I had strived for in the objectives laid out prior to engagement.

At this point, I knew that the design needed a signature; a signature so unique, yet meaningful, that everyone who experienced the design could relate to it on some level. We, as humans, would come to know its meaning not through what someone told us, but through what we perceived. The aesthetic would be just that, a response of our senses to a given object, not merely a tangible object appealing only to the sense of sight, but both a tangible and intangible beacon tantalizing all our earthly senses, bringing to life everything we expected to experience through this unique potential laid before not only the citizens of Aberdeen, but also all those who seek for purity and honesty in design.



Concept

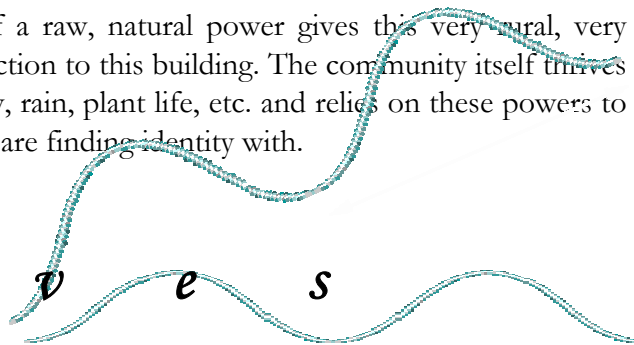
As I had discussed earlier, the concept came as a signature for the design. Although it began as an unrefined point of departure, the design process quickly nurtured it into a meaningful expression within the overall design of the building. Every wall, every corner, all forms of transport inside the building and out revolve around a solitary ideal that reaches back to the foundation of the principles of the design and reveals a purpose hidden deep in the soul of the building.

The location, being very rural in nature, brings with it many societal conditions that have a significant impact on how the community and surrounding users are going to perceive the outcome of the design. As I progressed, I was very careful not to vastly interrupt the conservative nature of the locale. This brought me to a crossroads with one vast constraint: The Human Mind. A design typically has to consider the perception of the user but to what juncture does one need to sacrifice the underlying premise of the project in order to maintain a human mental perception one hopes exemplify?

That perception comes from the unique ability of the citizens of Aberdeen to not only survive, but also thrive on the vast stretches of the American Great Plains. The rural, natural state of existence called out as a powerful cry of far reaching significance. The vision and design guidance came in the form of one of the most raw natural forms of motion in the natural world: The wave.

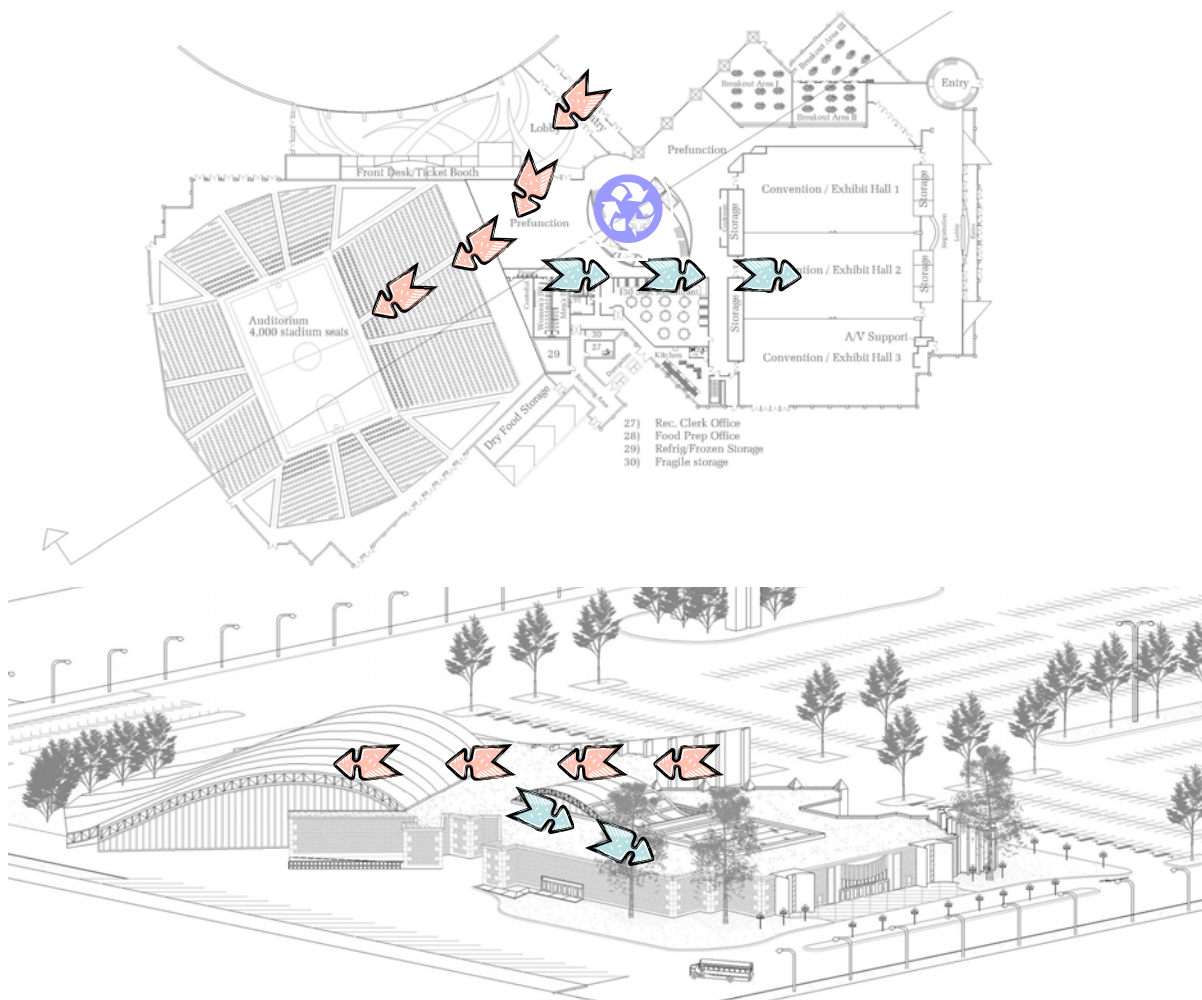
The wave expresses itself on so many different levels in nature; sound, light, the sea, open wheat fields, etc. As I watched the waves break over the stretches of a ripening wheat field, I noticed the waves breaking as if they were at sea. This awesome, raw, natural power became evident to me. The power and structure of a wave moves in one direction until it breaks upon an opposing force (gravity, continental shelf, complimentary waves, etc.). When this occurs, we see basic laws of physics at work: "For every action there is an equal and opposite reaction..." this is where you see the out-current or complimentary force moving in the other direction. This power, though not as evident as the primary wave, can have as much power to move you as the primary wave itself.

In conclusion, the concept of a raw, natural power gives this very rural, very natural community a sense of connection to this building. The community itself thrives on the natural powers of wind, snow, rain, plant life, etc. and relies on these powers to an extent that fewer and fewer cities are finding identity with.

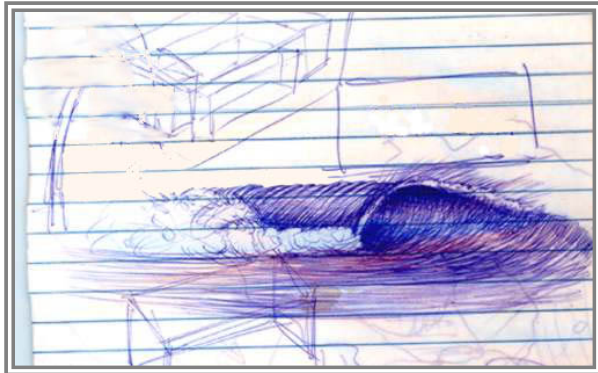


Concept Application

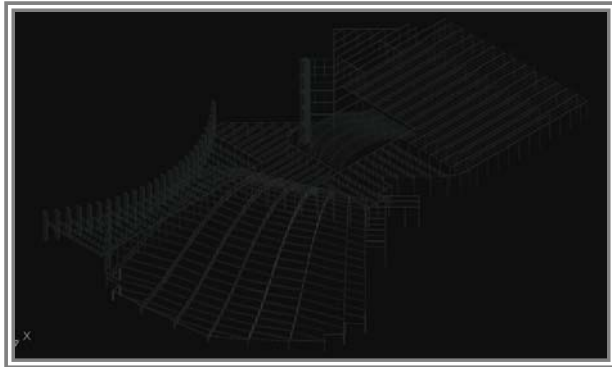
The application of the concept to the design is expressed in terms of not only the physical attributes, but also the intangible functions as well, for example, how one would move throughout the building in general. One would begin in the entry system on the north and through the flow of the wave, the natural course would bring you through the lobby, through the pre-function area and into the primary arena. As the wave breaks the natural force brings the user back to the pre-function area (the natural reaction of the complimentary wave). Which causes an undertow right at the central core of the building. This is a unique space and should be dealt with accordingly. The swirling motion brought on by the undertow was the primary driver in the generation of the vertical transportation core. This brings us up to a level where one would seem to be at the crescendo or pinnacle of the building. This is true in a conceptual sense because this occurs at the crest of the complimentary wave.



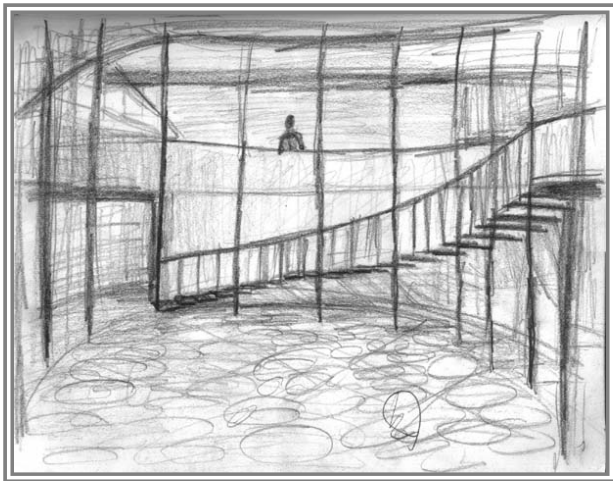
Design Process



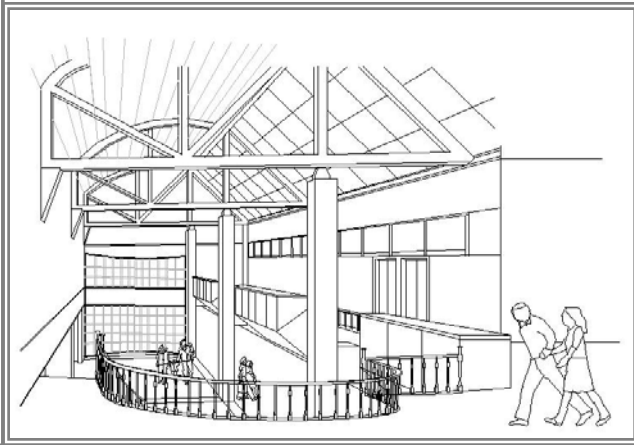
Wave concept sketch



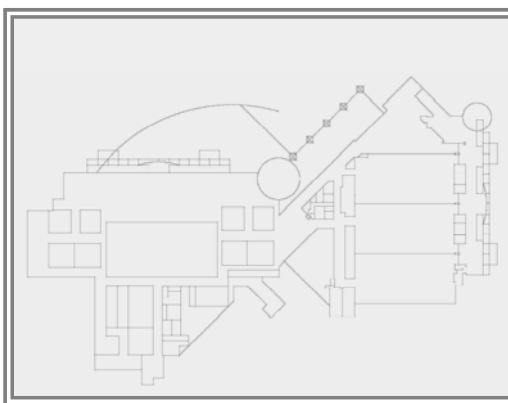
Structural reflection of wave concept



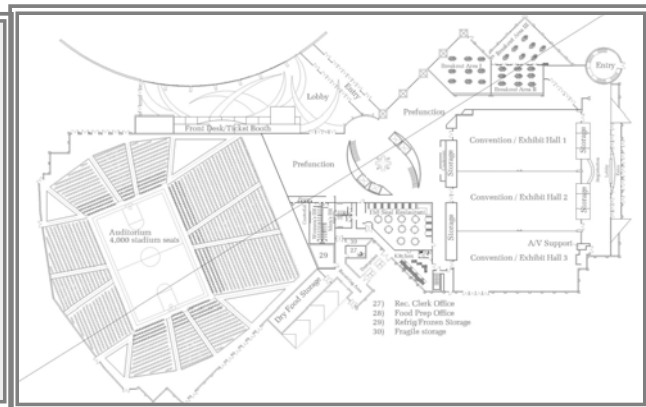
Central stair core study sketch



Incorporation of concept and structure



Spatial layout according to program



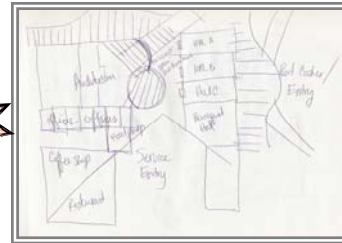
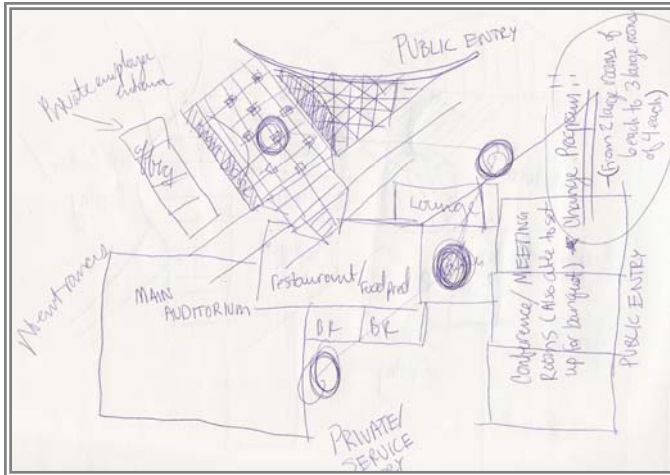
Spatial response to context and concept

Aberdeen Convention Center

Design Process

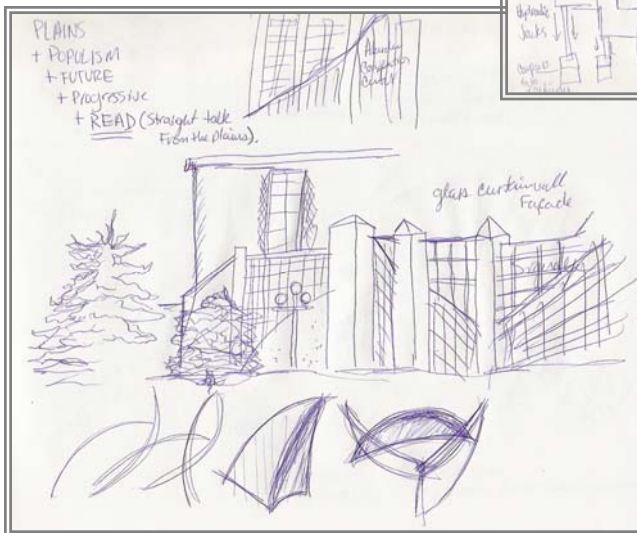
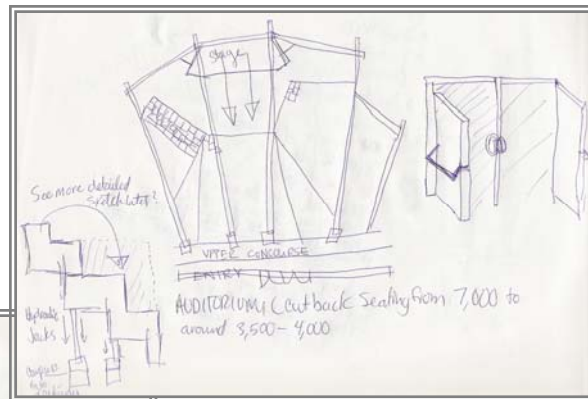
In this whole movement, content that was originally in memory continually passes into and becomes an integral feature of the environment, so that... the two participate in a single total process in which analysis into separate parts (e.g. thought and thing) has no meaning.

- Paolo Portoghesi, *Nature and Architecture Fundamental Structure*



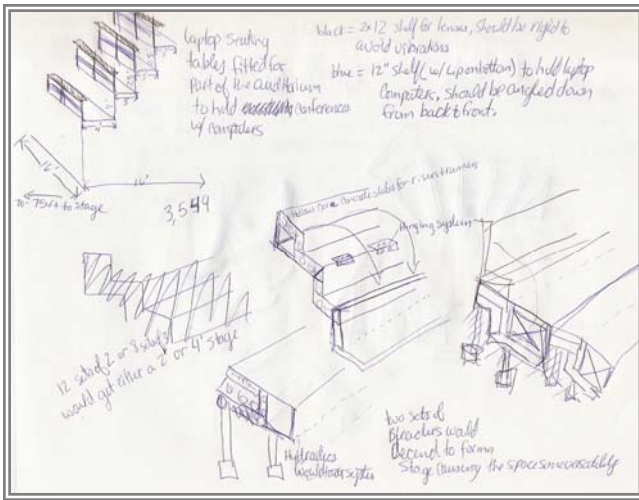
Spatial Arrangement: The beginning was crude with many spaces not incorporated well with the overall ideals.

Individual Space Focus: After the spaces began to come together, I focused on the individual shapes, stretching, skewing, and fitting the space with the concept and context.



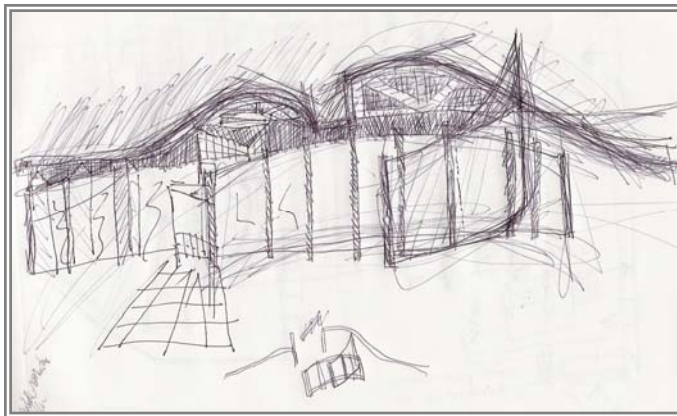
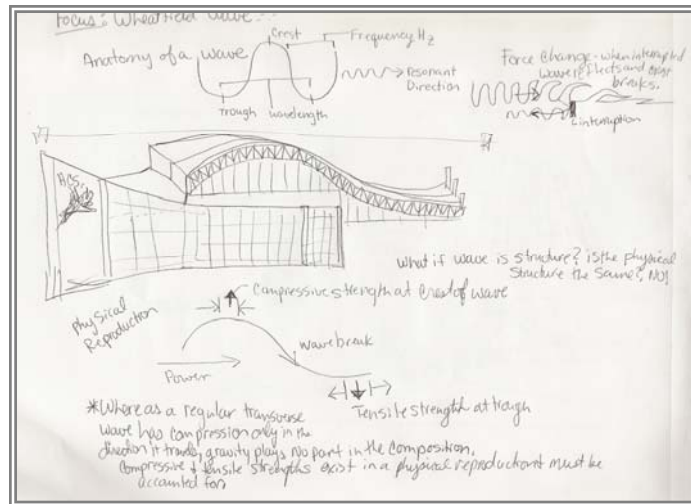
Exterior Reflection: The concept, although evident in the floor plan, was also reflected in the exterior. Many Shapes were tested and ideas such as this one were brought into play.

Design Process



Flexible Detail: In order for the building to exemplify the flexibility I wanted to achieve, many details had to be addressed, such as the bleacher function. The west bleacher can completely collapse and transform into a stage where multiple types of performances can be exhibited.

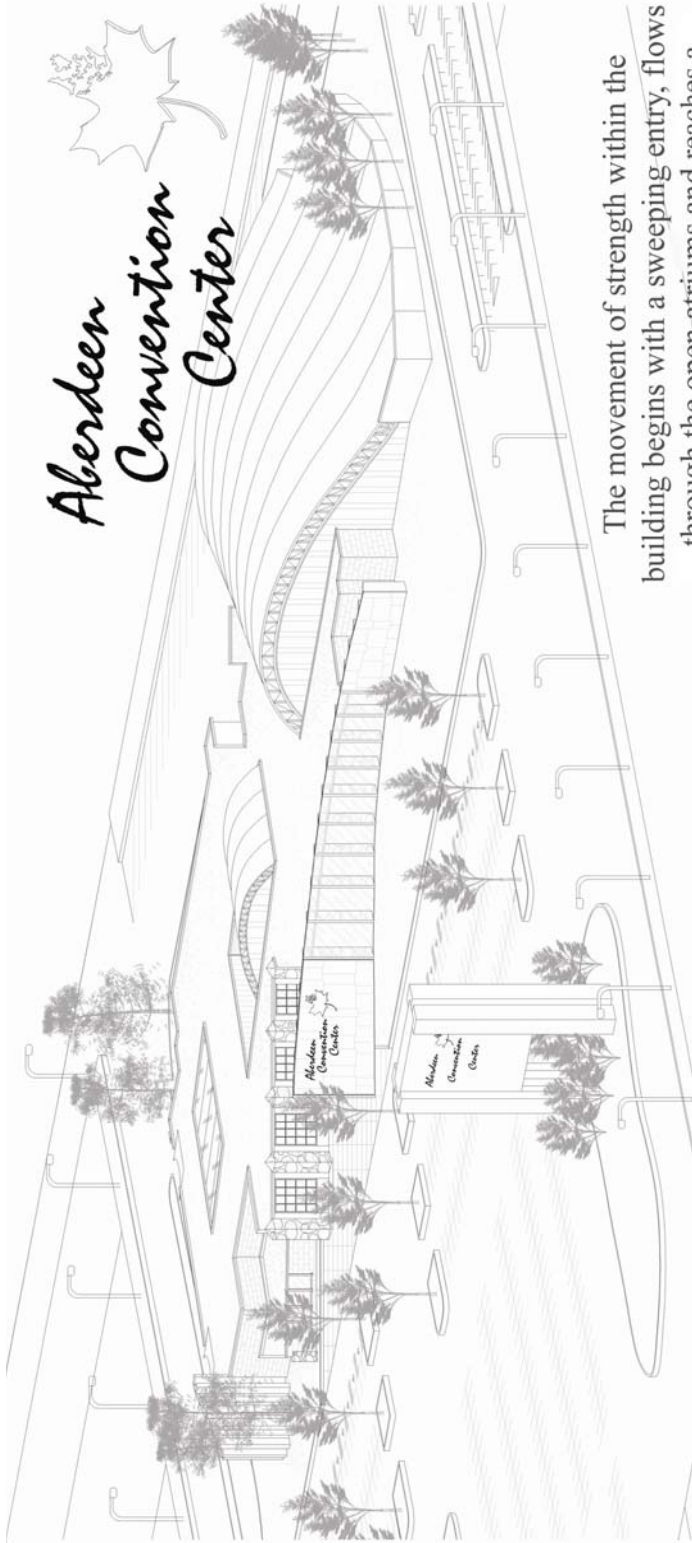
Conceptual Detail: The physical reproduction of a wave and the natural existence of one carry very different characteristics. In order for the building to reflect the true concept, these issues must be understood and addressed.



Exterior Concept Reflection: When many of the exterior reflections were studied and the structure analyzed, the shapes and materials gave rise to the overall molding of the exterior as a reflection of everything embodied inside the building as well as in the minds of the users.

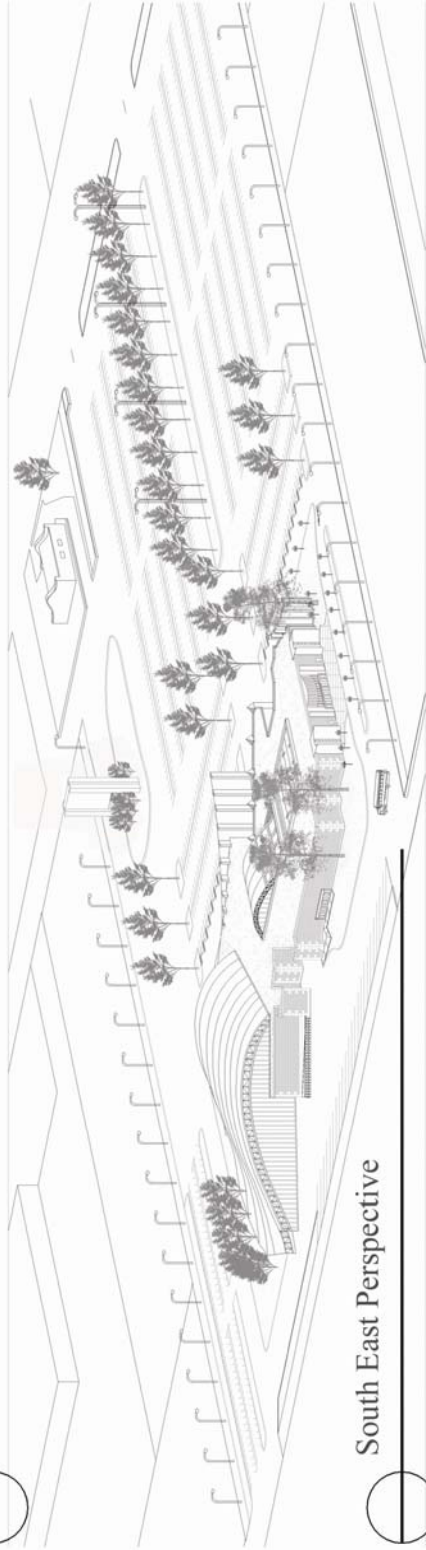
Design Conclusions (Board #1)

Aberdeen Convention Center



The movement of strength within the building begins with a sweeping entry, flows through the open atriums and reaches a high point in the main function areas

North West Perspective



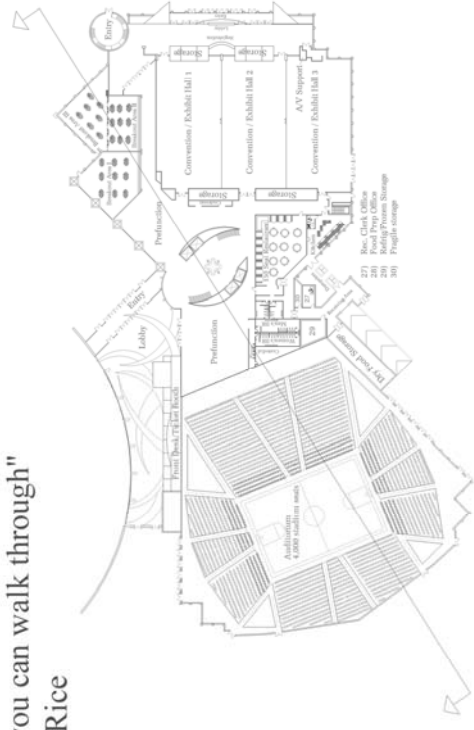
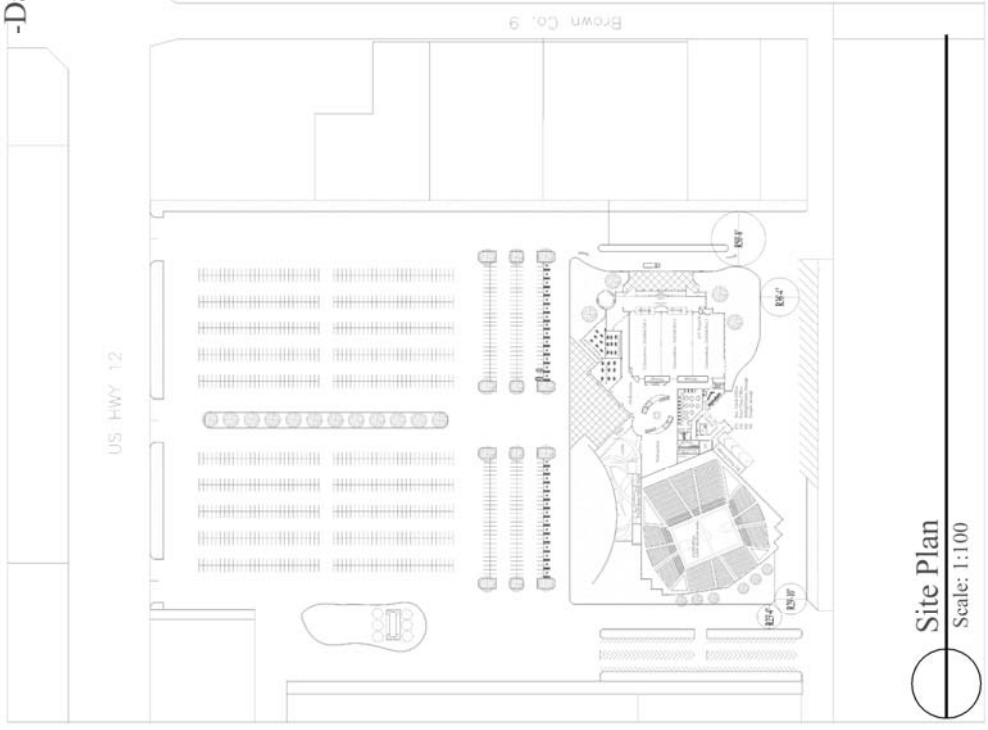
South East Perspective

Aberdeen Convention Center

Design Conclusions (Board #2)

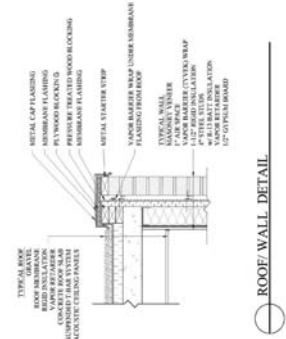
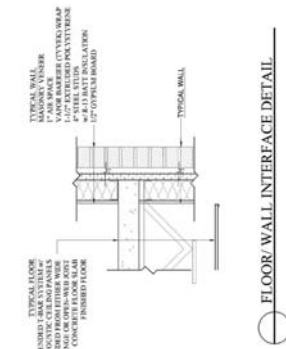
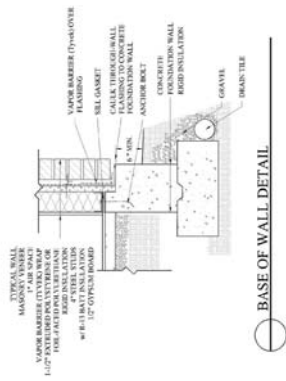
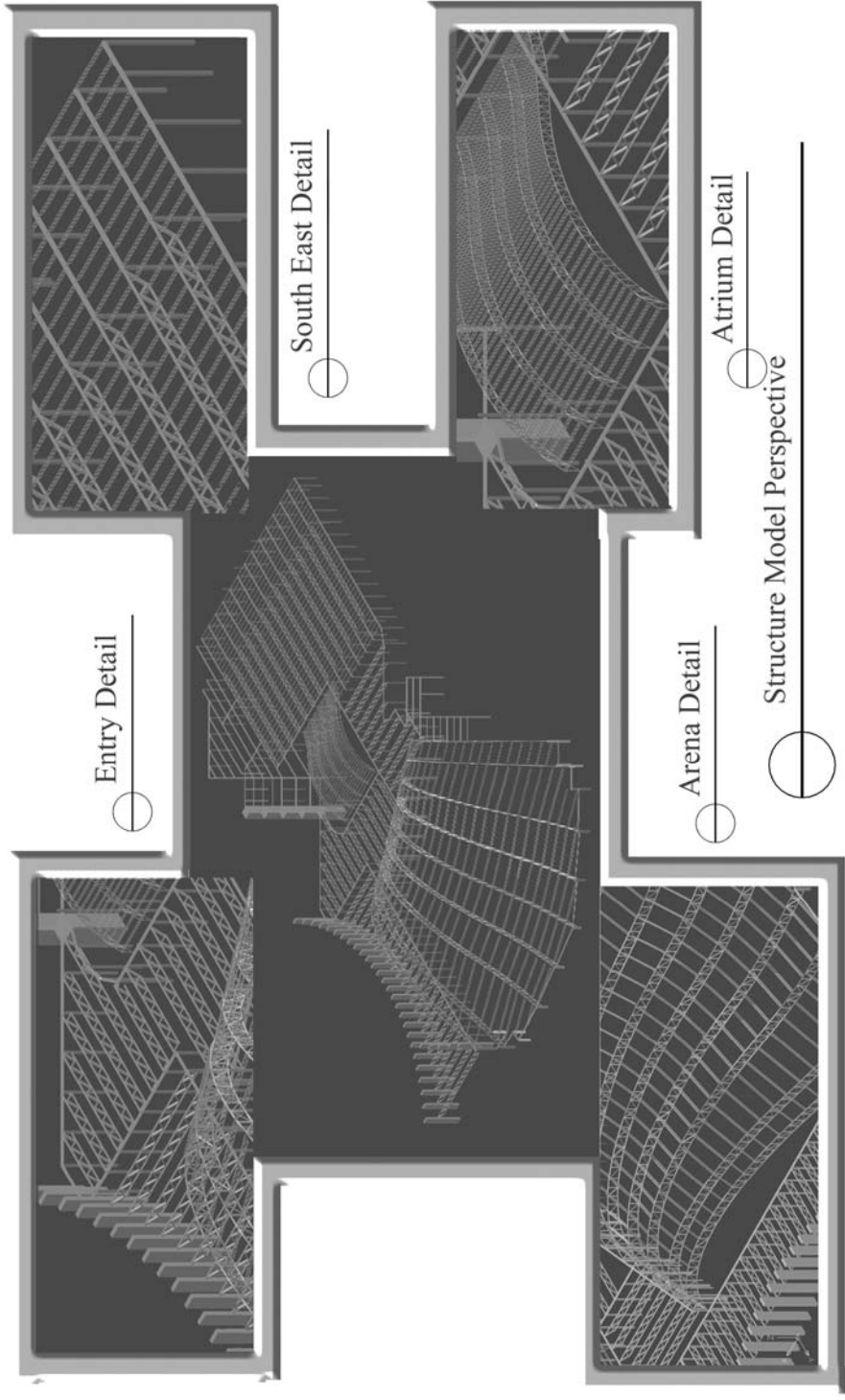
"There are three forms of visual art: Painting is art to look at,
 sculpture is art you can walk around,
 and architecture is art you can walk through"

-Dan Rice



Aberdeen Convention Center

Design Conclusions (Board #3)

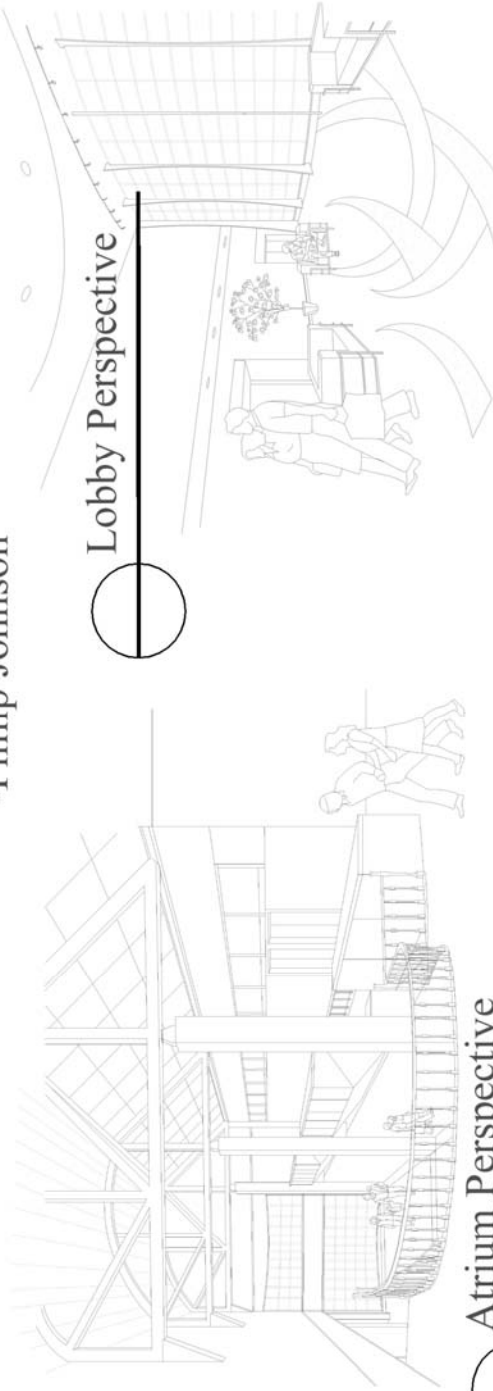


Aberdeen Convention Center

Design Conclusions (Board #4)

"All architecture is shelter, all great architecture is the design of space that contains, cuddles, exalts, or stimulates the persons in that space."

-Philip Johnson



Atrium Perspective

Lobby Perspective



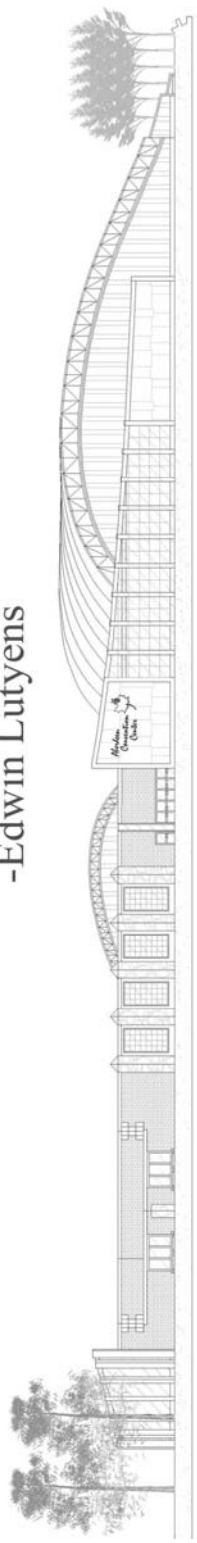
Flexible Arena Perspective

The flexibility of space, the comfort of the user, and the aesthetic of design make each space within the overall design important links that, in themselves, possess unique attributes which ultimately leads to a whole that is greater than a mere sum of its parts.

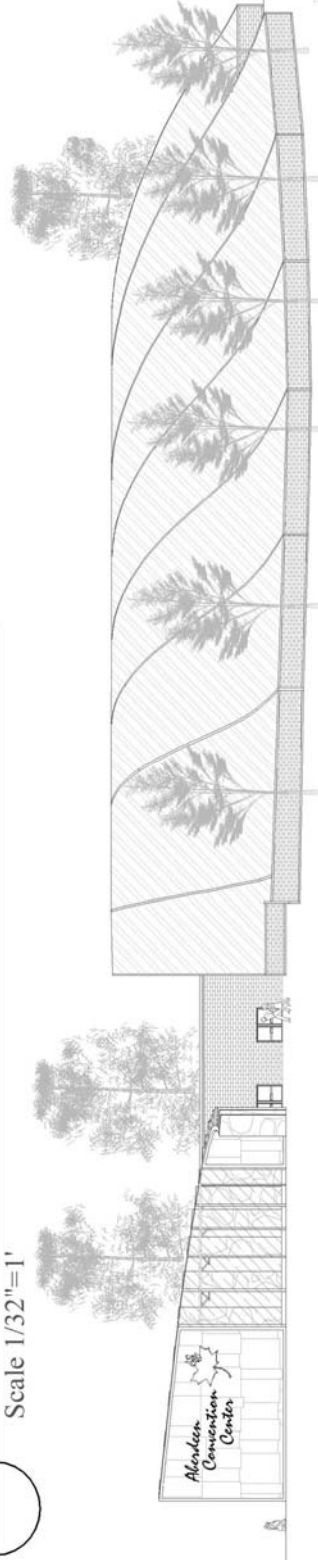
Aberdeen Convention Center

Design Conclusions (Board #5)

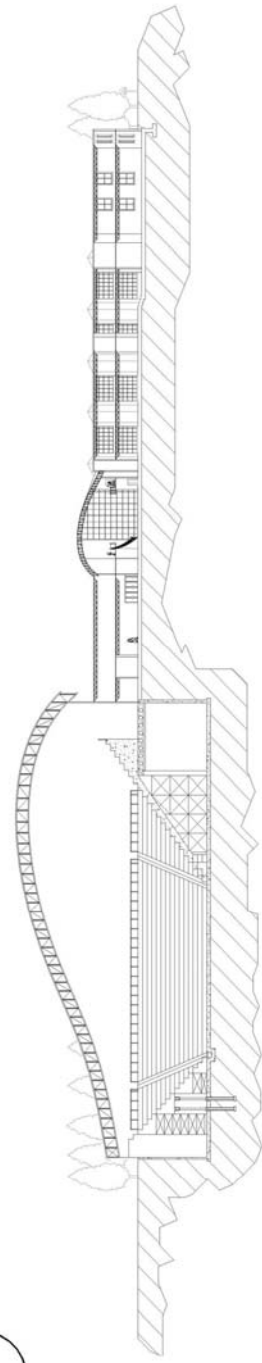
"There will never be great architects or great architecture without great patrons."
-Edwin Lutyens



North Elevation
Scale 1/32"=1'



West Elevation



East-West Section
Scale 1:50

Aberdeen Convention Center

Design Conclusions (Board #6)

"Architecture, of all the arts, is the one which acts the most slowly, but the most surely, on the soul."

-Ernest Dimmet



Photovoltaic panels are installed within the roof system utilizing the sun's natural energy to supplement the on-grid energy usage by the building. Since the panels are used as a mere supplement, the load of the 155 watt panels takes over the system only during peak usage hours. This system is monitored by a switch that determines when the system is better supplemented. According to studies of similar instances, the panels could render the building up to 70 percent self-sufficient during peak usage. This is a considerable load relief which not only maximizes cost saving strategy but also moves toward environmental conservation.



Grey water issues become another pressing matter when it is noted that a facility of this size and function can use, during peak times, enough water to supplement 120-130 homes. All of the sinks, fountains and kitchen faucets will supply pristine drinking water- but why use drinking-quality water to flush toilets? Eliminating unnecessary use of drinking water drawn from the municipal system by 50% reduces water returned to the treatment system to almost nothing. The Center's recycled water comes from an on-site treatment system that collects the waste water from all drains, filters and cleans it, and puts it back to use.

Drinking water from the municipal system is delivered from a central plant to a building, used once, and then returned to another plant for treatment. Moving a single gallon of water through the Aberdeen system requires pumping it through 4 miles of pipe, treating it with 17 milligrams of chemicals and using enough energy to drive a car 25 feet. Most often, that gallon of water is simply used to flush a toilet.

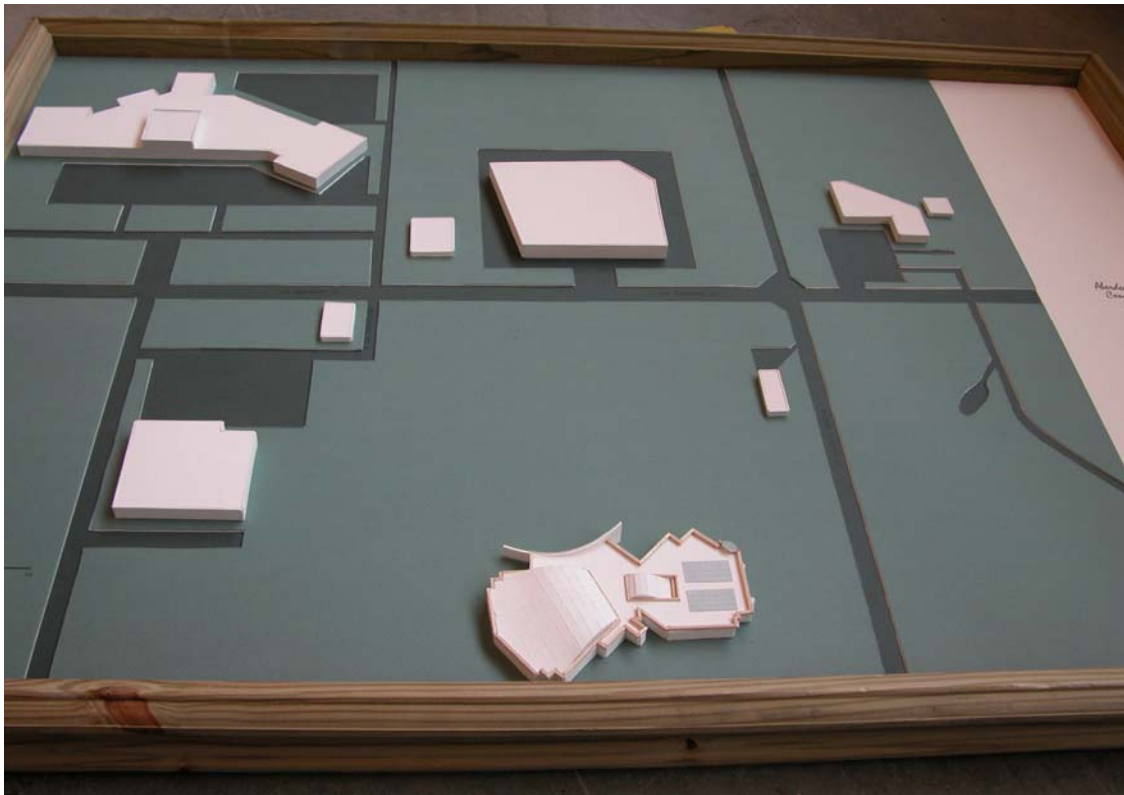


The ultimate goal and overriding concept of this design falls on not only the advancement of the Great Plains ideals but also in preserving the life and environment that engulfs it. The waves on the sea of the Great Plains of South Dakota break with the sweeping winds, reflecting an image on the soul of the land. This feeling is conveyed to the form of the building's design. The rolling wave-like roof, the wisp of the sweeping entry, and the heart of the spaces inside bring together an ultimate good, bringing this unique culture a splendid place.

Ryan Schlosser
2005 Thesis

North Dakota State University

Design Conclusions (Model)



Aberdeen Convention Center

Design

Design Conclusions

To summarize the design process, I wish to explain how the progression from concept sketches to finished drawings occurred. The sketches were general at first with very limited direction, the process began to take shape after a common goal (focal point) was addressed. After this focal point, the wave concept, was established, the flow of the design became more apparent. Form began to reflect the contextual implications. The building began to respond to the elements such as the evident climactic conditions of a Northern Great Plains site. As the form and function began to synthesize, the dominant concept became more and more vivid.

The flow of the roof line, the sweeping entry, the flow of traffic inside and outside the building, and the immersion of the building into the surrounding context were all products of an openness to criticism and praise in the design process that went a long way towards being able to creating a successful building. The vision and attention to client needs were vital in the progression from start to finish. The involvement or exterior references and their willingness to cooperate with the process proved to be not only successful but also vital to the accomplishments of the design. In designing an innovative, sustainable building, the full support and involvement of clients, planning regulators, fire code marshals, and end users must be attained and never overlooked or discarded when finalizing the design.

Overall the process from beginning to end proved to be a journey full of research and discovery which ultimately enhanced my vision both on a mental and technical level which brought my skills as not only a designer but a critical thinker to the next level.



Appendix

- References
- Case Studies Diagram
- Statement of Intent
- Thesis Proposal



Aberdeen Convention Center

Program

Reference List

Aberdeen Area Chamber of Commerce. Gail Ogdahl, *President* 516 S Main St. Aberdeen, SD 57401. Phone: 605-225-2860. Fax: 605-225-2437

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Case Studies Diagram

The following diagram illustrates the significance of certain factors in relation from the case studies to the proposed project.

	Area	Usage	Style	Cost	Environmental Impact					Location	Owner	Spatial Breakdown				
					1	2	3	4	5			1	2	3	4	5
Arschlin Convention Center	3	4	1	2	5	5	-	5	2	5	no	4	1	3	3	5
Dallas Convention Center	2	3	4	3	4	4	-	-	1	4	city	4	2	6	4	6
David Lawrence Convention Center	3	4	4	3	6	6	6	6	6	6	city	6	4	2	4	6
Hong Kong Convention Center	1	3	1	1	-	6	-	-	4	5	city	4	1	3	2	5
Kansas City Convention Center	3	4	2	2	6	4	3	4	4	4	city	2	6	6	3	2
Melbourne Exhibition Centre	4	3	3	4	4	5	-	-	-	5	country/ city	3	4	4	-	4
Minneapolis Convention Center	2	5	3	3	-	4	-	-	3	4	city	5	6	4	3	3
Orange County Convention Center	2	3	2	1	2	5	-	2	2	5	county	1	2	-	-	4
Overland Park Convention Center	3	4	3	3	-	6	-	-	6	6	city	3	6	6	6	4
Salk Palace Convention Center	3	4	2	2	3	4	5	3	4	4	city	3	2	2	-	5

Environmental Impacts:

- 1) Energy Efficiency
- 2) Site Selection/Management
- 3) Water Usage/Management
- 4) Natural Resources Usage/Management
- 5) Pollution/Urban Heat Island/Parking/Paving

Spatial Breakdown:

- 1) Prefunction/Circulation
- 2) Exhibit/Arena
- 3) Meeting/Office
- 4) Restaurant/Food Service
- 5) Lobby/Other

Aberdeen Convention Center

Statement of Intent

Ryan Schlosser

14 September 2004

Aberdeen Convention Center Statement of Intent

The Aberdeen Convention and Visitors Bureau (Aberdeen, SD) is seeing a considerable advance in economic activity within the city, bringing in new area businesses and a healthy, positive economic growth. The bureau has multiple upcoming events on the book and the potential for larger events and conventions that wish to use the city as a venue. The issue the bureau is facing is how to distribute these events among two existing convention centers that are rapidly becoming obsolete because of a lack of space within them. The Best Western Ramkota Hotel and Convention Center houses the largest convention facility in Aberdeen but is frequently filled and has a maximum capacity of a mere 1,000 people within the convention establishment. There are a number of possible solutions to this problem including renovating and expanding existing facilities, opening up new options (Northern College sports facilities) for larger groups, or building a new convention center that could be used throughout the year as not only a convention center but also as a concert venue, retail center and for office space.

I propose solving the problem by designing a new mixed use facility. The site sits along Moccasin Creek at the corner of 6th Avenue and Riverside Dr. The design of the intended convention center would solve the problem of the over-use of small, existing facilities as well as bring an option for a focal point and symbol of the city's expanding economy. Can the design of a facility such as this symbolize and inspire economic prosperity within the heart of a city? Can exploring alternate options give the city a sense of acceptance towards a project of this magnitude? The underlying premise of this design is that economic necessity can inform the design of solutions for commerce. This principle will guide the foundation and eventual answers to these given issues.

Aberdeen Convention Center

Introduction

The City of Aberdeen Convention and Visitor's Bureau has seen a steady positive progression in the city's economic sector bringing rise to new area businesses, new trends within the city, and an economic base that is supporting a livelier and more adventurous community within which draws a demand for attractions and large gatherings. As the city expands, so do the facilities that support the area. Existing establishments that traditionally held events and conventions have become obsolete and are waning with the passing years as the city pronounces itself before them.

Many suggestions have been made as to how the problem should be absolved, yet one idea has stood alone as the long term solution to this developing problem: the design of a facility that would become not only a convention center, venue for concerts and attractions, and a retail and office space provider but also a symbol of economic prosperity on the Great Plains of South Dakota.

The User/Client Description

The Aberdeen Convention Center, an idea supported in the minds of a city based branch of the Chamber of Commerce, will be orchestrated, funded and overseen by the City of Aberdeen with the Aberdeen Convention and Visitor's Bureau being the primary client.

The Aberdeen Convention and Visitor's Bureau has little financial base itself, the city of Aberdeen is the driving force behind the budget and fiscal responsibilities brought to the table by the bureau. Although there is funding that is specifically allotted to the bureau to improve and promote the city's visitor flow, it has no budget for a large scale project, such as a convention center, without the aid of the municipality itself.

A project of this magnitude in a city the size of Aberdeen would mean that the city would have to support the funding of this outside the regular annual budget for the city government. So now, essentially, the client has expanded to the entire city of Aberdeen with the city government organizing the distribution of funds.

The facility's users would range from Aberdeen citizens themselves to traveling tourists, to working business men and women from all over the globe. The building would need to be flexible to accommodate a vast range in different functions and personalities. From Rock and Roll concerts to Future Farmers of America conventions, the user groups will have to effectively adapt the building to their specific needs.

A civic center style establishment with no food service beyond stadium-type vending would staff an average of one hundred thirty to one hundred fifty individuals in a 10,000 – 12,000 seat arena during an event. The project I am proposing would staff anywhere from twenty-five individuals during normal daily routines and up to one hundred staff members during a larger event. This includes vendors, food service members, security, office workers, custodians, etc. The overall number of users could reach as many as 7,600 including spectators and staff together.

Major Spaces and Functions

The facility will encapsulate a variety of spaces, most notably a large main arena that will seat up to 7,500 spectators. This area will be the largest space and focal point for the remainder of the facility. Surrounding the main arena will be breakout spaces that will consist of smaller meeting rooms that can be opened up to become larger banquet or conference areas. The flexibility of the surrounding breakout spaces will provide an opportunity for smaller organizations and functions to occur within the realm of a large super structure.

To define the building typology even further would suggest a degree of mixed use. As to compliment the large main spaces, smaller retail spaces and open office space would be instituted to make the economics of the establishment more feasible.

Supporting areas, such as vendor stations, staff offices and restrooms, and a restaurant with catering abilities would round out the remainder of the spaces making the facility more complete and flexible.

List of Major Project Elements

- Main Arena
- Breakout meeting rooms
- Exhibit space
- Rentable office space
- Rentable Retail space
- Vendor stations
- Restaurant
- Staff office space
- Media and A/V booths
- Classroom/Workshop areas
- Lobby
- Restrooms
- Parking

Site Information

The site exists on the south east section of town off the edge of Moccasin Creek. The area historically has been more of a commercialized zone yet the land on which the site sits is zoned (R3) residential, yet may soon be re-zoned or allotted the flexibility to develop non-residential establishments within the area.

The area of town is more high-end living with a connection to the expanding part of town. The creek serves as a natural barrier between existing residential and the counter flow of commercialism. The site exists on the more commercial side of the river yet is still sandwiched in between being zoned residential or commercial.

The large 871,000 square feet (twenty acres) site lies between First Avenue SE and Third Avenue SE and from the east side of Park Avenue all the way to Moccasin Creek. Landforms and landmarks that surround the area consist of Moccasin Creek to the east, River's Edge Park to the south, and Chicago Milwaukee St. Paul Pacific (CMSPP) railroad two blocks to the north.

The soil type on the existing site is Aberdeen-Nahon silty clay loams. These soils are suited to building site development, but the high shrink-swell potential is a limitation. Backfilling with sandy material, installing foundation drains, and diverting runoff away from the building helps to prevent the structural damage that may be caused by the shrink-swell. The restricted permeability of the soil is also a limitation. The underlying material allows for very slow absorption but if the absorption field is expansive, it can become manageable. One more limitation is the failure of pipelines and steel due to the corrosivity and the salinity. Adding lime or other ways of raising the pH level of the soil will aid in the extended life of the structure.

The water table is stable at four to six feet with drainage access to the nearby creek. Flooding is a non-issue for the site and all sewage and hydrological utilities are installed under street.

Project Emphasis

Convention Center Design

To assemble spaces in a manner that satisfies not only large audiences but also small organizations and clubs while still being able to cater to the public as a central-city focal point.

Flexible mixed-use

By adapting the convention center to an environment within which a large scale convention center may not survive on its own, spaces not generally associated with convention center design may aid in the acceptance and overall success of the building within the setting.

Super-structure capabilities

Super structure is an inevitable focus for the design of large span spaces and multi-storied open-floor designs. By focusing on the structure one can better understand the rest of the building, from the skin to the surrounding materials and eventually to the overall function of the establishment.

Informing design as an intangible focal point

The design of a building can have multiple forms. One such form in this case is aimed toward the symbolization of an intangible notion (economic prosperity) within the physical display of design. The overall establishment will stand as an icon for the hard work of the citizens in promoting the livelihood of the city.

Plan for Proceeding

Research Direction:

The areas of research I must accomplish before I can begin to solve the design problem consist of many in-depth subjects as well as broad item points of research. When dealing with the site, I must research points such as building permits, zoning laws, and alternative solutions to soil limitations. When discussing the issue of financial situations, I must organize and research information on how a city would develop and pass tax legislation in order to fund such an undertaking (provided that would be the case). Other, broader categories, suggest that I will need to research super-structure more in depth, study successful convention designs in the past and search for specific code or context constraints that may directly influence the point of departure for this thesis project.

Design Methodology:

Through the use of case studies, personal experience, interviews and other forms of research, I will gain the appropriate knowledge to design a facility that will illustrate what the design of a public facility can represent and iconify. Through the exploration of building materials, day lighting, mechanical equipment, mixed-use positive and negative influx on such a facility, etc., I will instill, within me, a knowledge and drive to perform the task of designing the facility at hand.

Documentation of the Design Process:

Documentation of the design process will be recorded in a binder organized by topic and chronologically organized with the topic from preliminary reviews to final organization. Documentation of design will be kept in order and dated. Any previously bound (sketchbook, notebook, etc.) documents within the design process will be held separate but still dated and ordered.

Schedule:

R	07 Oct	Thesis Proposal due: to AR/LA 561 Instructor
R	14 Oct	Student and Faculty return preference slips
R	21 Oct	Primary and Secondary Critics announced
R	28 Oct	Last Day of AR/LA 561 Class
R	11 Nov	Veteran's Day Holiday
M-F	15-19 Nov	Final Week of 571 Studio Design Presentations
W	24 Nov	Draft Thesis Program due to Primary Critic
R-F	25-26 Nov	Thanksgiving Holiday
R	09 Dec	Final Thesis Program Due to Primary Critic
F	10 Dec	Last day of classes
M-F	13-17 Dec	Finals Week
T	11 Jan	Classes Begin
M	17 Jan	MLK, Jr. Holiday
Thru	31 Jan	Schematic drawings and weekly reviews
M	21 Feb	President Day Holiday
Thru	28 Feb	Design Development begins with weekly reviews including site modeling.
M-F	07-11 Mar	Mid-Semester Thesis Reviews
M-F	14-18 Mar	Spring Break
M	21 Mar	Begin Composing Final Presentation
F-M	25-28 Mar	Continue with design development Easter Holiday

M	25 Apr	Thesis projects due at 4:30 in the Memorial Union Ballroom
T-W	26-27 Apr	Thesis exhibit in the MU Ballroom
R-R	28 Apr-05 May	Final Thesis Reviews
F	29 Apr	Draft of thesis document due
F	06 May	Last day of classes
M-F	09-13 May	Finals Week
R	12 May	Final Thesis Document Due at 4:30pm in the Department office
F	13 May	Commencement at 4:00pm Fargodome

Previous Studio Experience:

2nd Year

Fall: **Vince Hatlen**

Spatial organization
Aquarium Museum

Spring: **Phillipe d'Anjou**

School of Architecture
in Copenhagen, Denmark
Ground Zero Memorial Tribute
Machine for Living (House)
Canadian Bridge Problem

3rd Year

Fall: **Carol Prafke**

Ronald McDonald House
Implement Dealership

Spring: **Steve Martins**

Wellness Center and Spa
Center for Great Plains Studies
(Masonry Competition)

4th Year

Fall: **Mark Barnhouse**
Cindy Urness
Brian Dougan

Downtown Fargo Urban
Design Problem

Spring: **Darryl Booker**

Medium Density Housing
San Francisco High Rise
(FLADD Competition)
Kite Project

5th Year

Fall: **Vince Hatlen**

NDSU On-Campus
Conference Center and Hotel

Reference List

Aberdeen Area Chamber of Commerce. Gail Ogdahl, *President* 516 S
Main St. Aberdeen, SD 57401. Phone: 605-225-2860.
Fax: 605-225-2437

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. Pg. 106- 118

Signing Off Thesis 2005

For the Partial Fulfillment of the B.A. Architecture Design Thesis 2005:

Ryan J. Schlosser



Aberdeen Convention Center

“The mother art is architecture: Without an architecture of our own we have no soul of our own civilization and without a sense of place art is often reduced to a cry of voices in empty rooms....”

-Frank Lloyd Wright

Design