Sport in Society: Enhancing the Experience

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SPORT IN SOCIETY

“Enhancing the Experience”
Kennesaw State University
Department of Architecture
College of Architecture and Construction Management

Thesis Collaborative 2016 – 2017

Request for Approval of Project Book

Sean Fuller
Sport in Society: “Enhancing the Experience”

The focus of this thesis is to look at the impact sport has on society and the way the community’s experience can be enhanced through certain design qualities

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As an avid sports fan myself, sport has become a huge cultural event in today's society. It's evolved from a social interaction aspect to a physical experiential standpoint. When you arrive to a sport stadium, the first thing you notice is the amount of people and the size of the structure. How can that many people fit comfortably in one space? Does the experience become something more than just finding your way to your seat and watching the game?

By understanding the breakdown of stadiums and how they perceive experiential architecture, these massive structures can open up to the community and public engagement. This thesis focuses on redefining the typology of stadiums to not only provide a better experience on game days, but to provide a communal experience everyday.
Sport has become a major cultural event in today’s society. Bringing people in from all over the world, creating massive entertainment and spectacle structures have played a big role for tourists, locals, and avid fans. Especially in group sports, which are the bigger team sports, the main focus is to entertain the spectator and get them involved for the duration of the game. Part of this comes from how we start to experience these huge capacity buildings. Creating an experience for a small space is generally intimate and subtle, but how do we begin to create a different experience for a space to hold 40k to 100k people? For architects, this gives us a challenge on how to design for multiple uses and introduce not only a personal experience but also a communal experience.

The development from Ancient Greece to modern day stadiums has provided a variety of experiential spaces in and around the building. The moment from when someone arrives at the stadium until the time they leave, is the time in which people want to have an amazing experience. The fact that these iconic structures are becoming cookie cutter is not making an argument for an enhancing experience. For example, the way in which we experience a sport venue starts from when I get out of the car, so in Atlanta I like to park near Centennial Olympic Park. As soon as I get out of the car, I walk through the park to go to the CNN Center, and then I enter Philips Arena (older design), which isn’t even the main entrance. After the game is over I exit through an entire different door to go back to my car. The Arena in Brooklyn, New York (newer design) starts from the subway and you enter up into a cantilever-covered plaza with LED screens, which is very engaging. I enter and exit through

Propositional Essay
The same way from the time I got there until the time I left. One thing I notice once you are inside the venue is the relationship between the player and spectator and how that may start to affect the way in which fans have a more engaging experience.

By looking at precedents that are experiential and not so experiential, these projects will give me an idea of what exists and what doesn’t exist. Analyzing them will determine if certain spaces are successful or not. Not only will I look at stadiums, but other projects that are known for accommodating a large number of people like auditoriums and public buildings.

The first thing I have started to do is understand stadiums as a typology and break them down from a geometrical standpoint in plan, section, and axon. This helps to understand the stadium itself and how everything comes together. From that research I can start to see how certain geometries may affect the way in which we as fans have a more experiential relationship with the players and more importantly the architecture itself. The final solution is to design a sport venue that can accommodate a large number of people and yet have a more modern day experience for modern day fans. The main focus will be the community and continue to enhance the entertainment side of sport venues by exploring formal, spatial, tectonic, program, and performance qualities.

Coming up with a specific design criteria of what is needed to enhance the spectator’s experience will develop the programmatic framework. From these design criteria, the general site characteristics will be determined.
“Understanding Architecture is highly experiential. It is a complete sensory experience that requires use of much more than the eyes to understand and generate a response. This is why site visit architecture is the only reliable method to understand architecture rather than looking at a photograph of it. I have always tried to refrain from a strong opinion of a building until I have had a chance to see it in person. From experience I know that a photograph doesn’t tell the whole story. You likely know what I mean: similar to the way art can have a profound effect in person and almost none at all in a textbook. This is not to say architecture is always better in person sometimes it is just the opposite, however we cannot overlook the three-dimensional aspect of architecture as well as how the human body relates to these spaces.” (Eberhard)

“Architecture matters most when the ideas incorporated in building design are serious reflections of concepts. Marrying this knowledge could lead to numerous real-world applications: the nervous system and brain form the communications network for undertaking work. By understanding the biological bases for workplace stress, we understand the potential for induced illness within the cognitive environment as well as how to induce wellness. By understanding how lighting, acoustics, thermal conditions, and windows affect the cognitive activity of people in a certain space, we will have evidence for enriching ones experiential qualities. By understanding how human brains lead some people to find their way more easily than others, we may be able to provide more easily used navigation in complex buildings.” (Eberhard)

“How the body relates to a space can be studied independently of what is going on in the mind, but how the mind engages space has to include the body and the brain of the individual. At the level of basic consciousness, we are ‘unconsciously’ registering the environmental variables’ effects on our nervous system through heat, light, noise, smells, tactile sensations, and our perception of movement and spatial orientation. All of these sensations are silently registering in our minds along with other signals that we are not aware of. At the level of extended consciousness, we are simultaneously experiencing space as assembled by our sensory system and combining this experience with memories of places similar to the one we are in. Our minds are sorting through all of this to let us know if we are dealing with ‘reality.’” (Archergupie)
1.4

Experiencing Architecture

Steen Eiler Rasmussen

Literature Study

Basic Observations
"The size of a stadium at a macro level"

Solids and Cavities in Architecture
"In the urban context stadiums become a solid"

Contrasting Effects of Solids and Cavities
"Open spaces act as those cavities for people to congregate"

Architecture Experienced as Color Planes
"Usually represented through team colors"

Scale and Proportion
"Huge structure for a huge number of people"

Rhythm in Architecture
"The organization of order across facades"

Textual Effects
"Experiencing digital imaging through technology"

Daylight in Architecture
"Creating shade and shadow through devices"

Color in Architecture
"Experiencing through materiality"

Hearing Architecture
"The stadium atmosphere is key for fans"
Timeline

80 A.D.
ROMAN COLOSSEUM
IT WAS USED FOR GLADIATORIAL CONTESTS AND PUBLIC SPECTACLES SUCH AS MOCK SEA BATTLES

329 B.C.
VERONA ARENA
THE ROUND FAÇADE OF THE BUILDING WAS ORIGINALLY COMPOSED OF WHITE AND PINK LIMESTONE. IN ANCIENT TIMES, NEARLY 30,000 PEOPLE WAS THE HOUSING CAPACITY OF THE ARENA.

776 B.C.
CIRCUS MAXIMUS
IS AN ANCIENT ROMAN CHARIOT RACING STADIUM AND MASS ENTERTAINMENT VENUE LOCATED IN ROME, ITALY. NOW IT IS A PUBLIC PARK

30 A.D.
STADIUM IN OLYMPIA
THE STADIUM HAS A HOLY PLACE FOR THE ANCIENT GREEKS, AS THIS IS WHERE SPORTING ACTIVITIES DEDICATED TO ZEUS WERE HELD. SEATING ALONG SLOPES
1.5

Timeline

- 1910: Old Trafford Stadium
- 1922: Rose Bowl
- 1923: Yankee Stadium
- 1927: Michigan Stadium
- 1989: Rogers Centre
- 2018+: Rams Future Stadium

- First stadium to introduce seating in the corners
- Roman concepts with concrete structure; advancement in materials
- Most current stadium with the highest capacity
- First retractable roof in stadium history
- Advancements in form and technology for future stadiums
The narratives of understanding each sport became useful in finding inspiration and to go further into detail. From documenting the different body movements to diagramming the rules and regulations, I learned not only about the sport, but it helped to find comparisons and contrasts as well to move forward.
1.6.1

**SPORT NARRATIVE**

**Volleyball**
- Majority of players have tall and long physique
- Played on court or sand but difficult to play anywhere else
- Originated in Massachusetts
- Indoor on hard court
- Outdoor on sand
- Less rough than basketball
- No contact sport
- Same premise as tennis with hitting ball over net
- USA than Canada
- Same number of sets

**Tennis**
- Most talent will come from international oriented players
- Great for people with long endurance
- Men play best of 5 sets, women play best of 3 sets
- Mainly played on courts and no where else (difficult)
- First played with hand and not racquet
- Originated in France
- Very formal with no cheering during play going on
- Indoor/Outdoor
BASKETBALL
- "Basket Ball"
- Originated in Massachusetts
- Designed to condition young athletes during cold months
- Only 33 original rules
- Majority of players are tall in physique
- Less injury prone than football
- Places to play involve playgrounds, driveways, and shooting into trash bins
- Formal as far as matching uniforms are required
- Coaches wear suits
- Evolved from white dominant to African American dominant
- Played with hands

HOCKEY
- Mainly an international sport
- Pre-Christian Times (field hockey)
- Very physical and brutal sport
- Played on ice or slick surfaces
- Canada and Russia have been known to produce most talent
- Originated in cold places
- Very spectator oriented
- Played outdoor and indoor
- Outdoor in mainly roller hockey
- Indoor is mainly ice hockey
- Inspiration to film, television, and music
1.6.3

**Football**
- Very rough and brutal game
- "Gladiator" like
- Played initially in midwestern industrial towns primarily
- Teams outside of America mainly formed from former marines due to strength
- No women's sport
- Played with hands and feet
- Very padded up for protection
- First footballs made of animal bladders
- Leather was then added to help it keep shape
- Arena, CFL, Rugby
- Played at all levels, on the street, mud, grass

**Soccer**
- First played with human heads
- No difference between men's and women's soccer
- Played with feet
- Meant for people with great endurance
- Played outdoor and indoor
- Indoor involves smaller goals and playing surface
- Women's may have come before men's
- First World War helped grow popularity
- Mainly an international sport
- Play also in small spaces, juggle, tricks
Track and Field
- Oldest among all sporting competitions
- Human Prehistory
- Natural and Universal forms of human physical expression
- Ancient Greece
- Men's equipment is heavier and taller than women's
- Run on streets, sidewalks, exercise equipment, and open fields
- Early on only males pursued track and field
- Talent comes from African countries
- American and European oriented during field events
- Less formal (informal)

Baseball
- Originated similarities in French games
- Deeply engraved in culture and mystery of Cuba
- Reshaped in China
- Most popular in Japan, South Korea, Taiwan, Mexico, Panama, Canada, Nicaragua, Venezuela
- Ticket prices 50 cents in 1876, directed toward middle class, white-collar audience
- Button up uniforms (formal)
- Softball uses bigger ball with skinnier bat, throw underhand
- Inspired many works of art and entertainment
- Played in backyard or large open field
One of the first steps I wanted to take was understanding stadiums as a typology. I took 8 different stadiums and classified them from smallest to largest and analyzed the geometries in plan, section, and axon. I focused on elements such as dimensions relative to the spectator/player, and the different levels in which a stadium consists of.
2.1.1 Understanding typology

**Geometry**

- Distance from spectator to playing surface = 20'
- Distance from inside of stands to outside = 150'

**Plan**

- Ideal seating spot is right in the middle

**Layout**

- Distance from spectator to playing surface = 28'
- Distance from inside of stands to outside = 175'

**Structure**

- Ideal seating spot is behind the endline

---

**Understanding Typology**
2.1.2 Understanding typology

**Geometry**
- Distance from spectator to playing surface = 1'
- Distance from inside of stands to outside = 220'

**Plan**
- Ideal seating spot is lower bowl

**Layout**
- Ideal seating spot is upper bowl

**Structure**
2.1.3 Understanding typology

**Geometry**
- Distance from spectator to playing surface = 36'
- Distance from inside of stands to outside = 250'

**Plan**
- Ideal seating spot is 50 yard line

**Layout**

**Structure**

**Understanding Typology**
The first group of precedents that I looked at were the stadiums that we have here in Atlanta. I could base my analysis off of my own experience and attending multiple games. I developed an experiential collage with particular elements that stood out to me the most.
2.2.1

Turner Field

KEY MOMENTS  SYMMETRY  MAJORITY SEATING  CIRCULATION
The second group of precedents I have are projects that don’t involve the stadia typology. These specific projects were studied for the idea of being able to hold a large capacity of people, which is similar to stadiums. These spaces are also drawn off my personal experience.
2.3.2

Walt Disney Concert Hall

KEY MOMENTS

SYMMETRY

MAJORITY SEATING

CIRCULATION
After classifying stadiums as “BIG SPACE”, I chose three projects that I could analyze based off of Zumthor’s reading on how to create a great atmosphere in space. Based off of personal experience again, I analyzed “Big Space” to understand the different elements of the reading.
2.4.1 Guggenheim Museum

**Materiality**

The focal points of material become present in the glass above and the simplicity of white walls spiraling upward.

**Presence**

Due to it being a museum, limited sun light is allowed into the space so the above skylights become the major source of light.

**Light**

The way you move in the space is pretty apparent as you circulate up through the spiral and back down.

**Movement**

The interior and exterior relationships are limited and closed off so you don't have many views outside.

**Int/Ext Relation**

---

**Form**

The inner form is what stands out as it seems to be done with inverted cone structures to create the form.

**Scale**

When standing in the space you have close relations to other people so it doesn't feel as big.

**Repetition**

The only sense of repetition is the spiral in the vertical circulation.

**Sound**

The display areas are very quiet but most of the sound was being reflected from the lobby area.

---

Figure 10
2.4.2

Marriott Marquis

Figure 11

Materiality Presence

- The material along every balcony allows for the interior space to read as a form.

Light

- Light is projected from the top down into the space and diffused among the atrium.

Movement

- Moving up and down through the grand space makes it more enjoyable rather than just moving in and around the atrium.

Int/Ext Relation

- The hotel rooms block access and views to look out from the inside of the atrium.

Form

- The exterior form is very linear while the interior.

Scale

- The relation in the horizontal direction is a lot different than that in the vertical.

Repetition

- The balconies become evident in the space, and repetition is gone through materiality.

Sound

- The lower you are in the atrium, the louder it is and the louder the echo is in the space.
**MATERIALITY**

**PRESENT**

The materiality is shown through the ribbed structure and allows for it to stand out.

---

**LIGHT**

Since the structure is ribbed, a lot of natural light enters the space and continues down into the shops.

---

**MOVEMENT**

Unlike the Retail, you can only move around the space and not enjoy it vertically.

---

**INT/EXT RELATION**

The structure is very translucent so you have all sorts of views in and out the space.

---

**FORM**

The form is what brings you into the space and makes you want to go inside.

---

**SCALE**

The scale of the ribs make the space feel larger and progression of space from small to big.

---

**REPETITION**

The structure becomes the element of repetition but not all are exactly same.

---

**SOUND**

The walking space becomes the loudest part of the interior where the shops are located.
I looked at different ways and methods to create space and documented those to match the stadium scale. I focused on specific qualities and analyzed which ones had the most potential on how to create space. I then picked 4 to carry further and develop into the design.
2.5.1

"Big Space" at scale

Ribbed

Structure + Skin

Repetitions

Sense of enclosure | Materiality presence | Natural light | Repetition | Progression (Multiple Heights)

Diffuse light | Skeleton form | Materiality presence | One space in scale

Static on exterior | Dynamic on interior | Directional Wayfinding
2.5.2

"Big Space"
At scale
2.5.3

**Linear + Fluid**

- Biomechanics
- Change in Levels
- Change in Scales
- Spatial Relationships

**Fluidity**

- One Big Space
- One Scale
- Penetrating Light
- Movement

**Layering**

- Dynamic Space
- Created Movement
- Surprise Moments
- Twist/Turn Relationship
- Compression and Release
I took four of the experiential spaces and developed those with the typology. The first step I took was to overlay the typology analysis onto the diagram of space. By doing this in plan and section it gave me multiple possibilities to move forward.
3.1.1

Typology + Experience

ONE LEVEL

TWO LEVELS

THREE LEVELS

ORIENTATION IN PLAN

ENTIRETY
3.1.1

Typology + Experience

ONE LEVEL

TWO LEVELS

THREE LEVELS

ORIENTATION IN PLAN

ENTIRETY
3.1.1 Typology + Experience

One Level

Two Levels

Three Levels

Orientation in Plan

Entirety
I started to do study models that reflected my play on typology and experience. Program also started to be introduced and how spaces would really function in these types of experiential spaces. I focused on working from the inside to outside, so going from the playing surface all the way to entry.
3.2.1 Study Models
3.2.1 Study Models
I continued developing the form of my design while keeping program and space layout in mind. The main element is the communal bridge that allows for the public to interact with the stadium even when games or events are not happening. Again, working inside to out, the main programmatic elements were seating, concourse, amenities, entry, and public space.
Form Development
3.3.3

**Form Development**

**Option 1**
- Taking sections out to substitute with other programmatic spaces and playing with spacing between each section of seating.

**Option 2**
- Playing with different levels so each section of seating is at a different height to create spaces underneath certain points.

**Option 3**
- Allowing the sections of seating to become more irregular instead of the typical stadium seating around the field.
3.3.3

Applying to Parti Model to understand the different iterations

Different spacing between sections of seating to create public space.

Each section of seating is at a different level to create public space above and below.

Irregular shaped voids subtracted from sections of seating to create public space.
These vignettes are to show the types of spaces that I was going for and how they differ from your typical stadium program. I concentrated on five main spaces: the circulation (concourse), the concessions and amenities, seating, entrance and lobby, and lastly the communal or public space.
A typical understanding of circulation with amenities on one side and your seating on the other side with a basic structure.

The new circulation paths would create a better experience with movement and form and allow for technology to assist for wayfinding.
3.4.2

The normal amenities with no organization of lines and basic indentation in the wall of space with boring signs saying what is being sold.

The amenities would consist of better line formations with lights to make it visible which lines are open.
3.4.3

The regular symmetrical stadium bowl layout with seating all around it by copying the same module around the playing surface.

The stadium bowl will be atypical and get away from the usual modular and symmetrical shapes, and also contain communal/public spaces around it.
The entry is very crowded and confusing with no way of direction so you either go left or right and hope to find your seat.

The entrance and lobby needs to be less congested and allow people to move freely throughout the form and structure itself.
The typical communal and public space is on the exterior and only occupiable on non game days.

The new public spaces allow you to move in and out of the stadium and still experience the inside.
With the focus on experience, I produced the necessary components to communicate the main idea of this thesis. The design allows for a stadium that could be interacted with everyday and wouldn’t just sit in the urban fabric as a vacant building on non event days.
4.1 Exploded Axon
The idea of these next two diagrams is to understand what would be the programmatic spaces used during game days and where the community could access the stadium on non game days.
5.1 Spatial Layout
Because my focus was concentrating on the stadium from the inside perspective of experience, I later applied it to a site here in Atlanta. Since I am introducing the idea of community, a location along the beltline seemed the most suitable. I applied the design to the site and explored how it would fit within the context.
I chose the east side of the beltline because I felt like it was the most active. With Ponce City Market, a site location like this would give a new stadium great opportunities for the community to move in and around it on a daily basis.
5.2

Site Application
5.2 Site Application

- Major Traffic Ways
- Residential Areas (Community)
- Existing Parks (Green Space)
I explored different ways in which the form and program could be arranged after applying it to the site. I focused on the communal access as well as developing the spaces that would exist around the stadium (plaza space). Although I altered the design to fit the site, I still kept the experiential spaces applied to the stadium itself.
How is the design different than the typical stadium design? What makes it unique? It may have been beneficial to the design to reference more back to these studies and drawings to help understand how we can get more into the atypical stadium design vs typical stadium design.
Sections of Space

5.3

TWO LEVELS

THREE LEVELS

THREE LEVELS

THREE LEVELS

TYPICAL STADIUM SECTION

ASYMMETRICAL
DIFFERENT LEVELS OF SEATING
PARKING GROUNDS AND FACILITY

ASYMMETRICAL
CLOSED OFF TO PUBLIC
PARKING ABOVE STADIUM
STADIUM FLOOR LEVELS

VEE SYMMETRICAL

TYPICAL STADIUM SECTION
Reflections:

Because I worked from the inside to outside, I never picked a site in the beginning and focused on the experience of the actual space. If I was to go back, I think I would have focused more on a site. Although I applied the design to a site in the end, I may have been able to develop the final design more to its surroundings and had reasoning behind a few more design decisions.

Since I am a huge sports fan, I had a passion and really enjoyed working on a project like this. One thing I love to do is travel to different stadiums and events and to introduce a public or communal space would allow that without having to purchase a ticket to get in and experience it.
Bibliography


The web page explains how we perceive space through our mind and body. It describes how we understand a lot more through personal experience rather than photographs. The article concludes with where the future will go in the sense of experiencing space.


This web page describes experience through our five senses. Our main sense becomes sight and our understanding of space through our first impressions. We can than generate a response based off of the other senses and how our eyes create a certain dynamic for the way of perception.


When talking about general experience of architecture, this piece of writing was helpful on understanding different elements of space. Color, shade, shadow, and texture, can all affect the way in which one perceives a space.


This print gave a very technical understanding of stadiums. It contains information on dimensions for field sizes, layout, and detail drawings of different components.


This book was a resource for good projects that dealt with experience, but were not part of the stadium typology. The photographs of each project were very good in understanding how someone would move through the space to create a certain experience.

Fig. 1) "EXPERIENCING THE OUTDOORS INSIDE" http://www.hanleywood.com/article/experiencing-the-outdoors-inside-the-new-minnesota-vikings-stadium

(Fig. 2) "Circus Maximus" http://photos.wikipedias.org/p/00/00/44/45/18_big.jpg

(Fig. 3) "STADIUM IN OLYMPIA" http://www.privatetoursathens.com/datafiles/image/olympia_stadium.jpg

(Fig. 4) "Verona Arena" http://www.zastavki.com/pictures/originals/2014/World___Italy_Arena_in_Verona___Italy_062226_.jpg

(Fig. 5) "Roman Colosseum" http://images.mapsofworld.com/travel-blog/facts-about-the-Colosseum-in-Rome.jpg

(Fig. 6) "Old Trafford Stadium" http:// PJ-MEDIA-CACHE-AKO.PINIMG.COM/ORIGINALS/C6/9A/D9/C69A9D90B282020970B3948F7059A.jpg

(Fig. 7) "Rose Bowl" https://www.bartonmalow.com/sites/default/files/591_17477.jpg

(Fig. 8) "Michigan Stadium" https://upload.wikimedia.org/wikipedia/commons/thumb/3/3f/Ls_Yankee_Stadium.jpg/300px-Ls_Yankee_Stadium.jpg

(Fig. 9) "Rogers Centre" http://seatingchartview.com/wp-content/uploads/2015/01/Rogers-Centre.jpg

(Fig. 10) Guggenheim Museum

(Fig. 11) Marriott Marquis Hotel

(Fig. 12) Oculus