



***ENHANCING THE BALLPARK EXPERIENCE:
NDSU SOFTBALL COMPLEX RENOVATION***

Enhancing the Ballpark Experience: NDSU Softball Complex Renovation

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

By

Haley Heintzman

In Partial Fulfilment of the Requirements
for the Degree of
Master of Architecture

Ganapathy Mahalingam
Primary Thesis Advisor

Ganapathy Mahalingam
Thesis Committee Chair

May 2019
Fargo, North Dakota

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THESIS PROPOSAL

ABSTRACT

There are countless factors that influence how people experience the environment around them. These influences include sensory dynamics, such as light, noise, temperature, and sound, as well as memorable events, and variations in energy levels. It is important for architects and designers to understand exactly how each of these factors can affect their design. They must know how to properly utilize them in their work to create better spaces and environments for their clients and building users.

This thesis uses case studies, historical research, and real-world experiences and observations to study the effects that various environmental elements have on the overall experience of a space. The end result will contain a set of general guidelines to consider when designing ballpark stadiums and why they are important. To show how this guide can improve overall experience in the ballpark, a proposed design solution will be derived through a renovation of the North Dakota State University Softball Complex in Fargo, North Dakota.



NARRATIVE



The sport of Women's Fastpitch Softball became increasingly popular in the 1930's and 1940's as a variation of America's favorite pastime: Baseball. In the last decade, popularity of Fastpitch Softball has grown exponentially and it will continue to grow for many years. Along with the increasing numbers of softball players, there has also been an increase in the number of fans wanting to watch these games.

The architectural design of ballparks has significantly changed over the years. This is often associated with the changes that the sport has gone through, as well as the changes and events in American History. Certain elements that have influenced change over the years in relation to the sport and the ballpark include: technology, transportation, performance methods and tactics, community involvement, and increase in popularity of the sport. On the other hand, many things have not changed since the creation of the game, such as basic rules and guidelines, field dimensions, general program elements, and layout of the stadium.

It is critical to look at the history of ballparks as well as the most recent designs. By doing this, we are able to figure out what the biggest problems are and what needs to be improved even in the most basic elements of design. This thesis will look at a set of various factors that influence how people mentally and physically experience the ballpark. It will then offer certain ways to create better designs for people with all types of needs and abilities. This set of results will be established by using combined research studies such as case studies, historical research, and real-world observations and experiences.

While one of the main goals is to produce better ballpark designs by considering user experience, it is also important to consider other factors such as energy efficiency and green design. It has been proven that areas with more green space tend to make people happier in general, which would create a better overall experience.

Another problem that will be addressed by this project is the lack of knowledge of the designers who are creating these new ballparks. Something that often happens in the profession of architecture is that people who do not have specific experience in designing specialty buildings are not able to produce the best designs for their clients. This is a problem that will affect the users of the facility on a daily basis and for many years to come. I know this fact from personal experience, as well as from talking to many other people who have faced this unfortunate problem.

Therefore, one major reason for creating this guide for designing ballparks will be to help educate designers and create less instances of this happening in the future. By educating designers, our facilities will be more enjoyable for everyone. The hope is to create a greater public interest in the sport of softball.

I want to create spaces that people have a desire to go and are able to go no matter what abilities they have, what age they are, or where they come from. Ballparks are places for having fun and creating memories, from the ones made on the field to the ones made in the stands.

What has driven my work to better understand this research and design topic is my deep passion for the sport of softball. I have played and coached and been a spectator of softball since middle school and hope to continue my involvement in various fashions for as long as possible. I have witnessed the sport from all sides. Working as a student manager for a collegiate softball team has enhanced my love for the sport tremendously. It has taught me so many valuable life lessons - many of which are relevant in the life of an architect as well.

PROJECT TYPOLOGY

The typology for this project is a mid-size ballpark stadium in Fargo, North Dakota, specifically designed for the North Dakota State University Women's Softball team. It will be a full renovation of the current facility, which happens to be relatively small. The new design will consist of a general stadium that surrounds a standard playing field, a building with offices, team rooms and locker rooms, as well as an indoor training facility with a full-sized infield. All of these elements will be connected into one full-service athletic facility for the NDSU Softball players, staff and fans.

The reason behind this typology comes from the desire to create a set of ballpark design guidelines. It will help examine the results of the main thesis question: What can the role of architecture do to improve experience in the ballpark stadium setting regarding all users? The reason that this will be a mid-sized project is so that it can be thoroughly detailed, whereas a larger stadium typology would not allow as much attention for all the necessary elements to be well thought out.

There are numerous ballparks with the same typology all around the country that are becoming more and more popular as everyone wants the newest and best facilities. It will be useful to study other recently finished projects to get an idea of what is out there for modern stadium design. we can also use this information to predict what the future of ballpark stadium design will hold.



MAJOR PROJECT ELEMENTS

The major program requirements will consider areas for the student athletes, the coaches, the facility staff, and the public. Some areas will be used by multiple user types, others will be restricted to just one type of user, such as a locker room only accessible for the student athletes.

This program will be similar to most other mid-sized ballparks around the country. There is a set of specific features that ballparks all need. The difference with this project will come with how each one is detailed.

PROGRAM SPACE	SQUARE FEET	PERCENTAGE
FIELD/PLAYING SURFACE	40,000	55.66%
DUGOUTS	480	0.66%
BULL PENS	1,600	2.22%
OUTDOOR CAGES	800	1.11%
INDOOR FACILITY	12,000	16.70%
TRAINING ROOM	300	0.42%
HOME LOCKER ROOM	400	0.55%
TEAM ROOM	500	0.69%
ACADEMIC ROOM	200	0.28%
OFFICES	500	0.69%
MEETING ROOM	300	0.42%
EQUIPMENT ROOM	400	0.55%
PUBLIC RESTROOMS	450	0.63%
PRIVATE RESTROOMS	300	0.42%
VISITOR LOCKER ROOM	200	0.28%
UMPIRE ROOM	200	0.28%
PRESS BOX	450	0.63%
GRANDSTANDS	4,000	5.56%
TICKETS/INFORMATION	50	0.07%
SECURITY	25	0.03%
CONCESSIONS	400	0.55%
CIRCULATION	8,000	11.13%
STORAGE	300	0.42%
TOTAL	71,855	100%

USER/CLIENT DESCRIPTION

Client: The client for this project will be North Dakota State University Athletics. It will be a privately owned and funded facility that will be used primarily by the NDSU Women's Softball Team.

The NDSU Athletic Department is constantly looking for opportunities to help their student athletes, as well as their staff and dedicated fans. This project would be a prime example of how they can directly help all of those people.



This project is designed first and foremost for the student athletes, with coaches, staff, and fans right behind them. It will be owned by North Dakota State University and used for work and play by student athletes and athletics staff members from NDSU as well as from opposing schools. It will also be used by fans and other community members as a source of entertainment. This facility will be used on a daily basis by NDSU Softball players and coaches and less often for other various staff members. There will be a large parking lot to the North of the complex for all users to park in during their time at the field. Special considerations will be made during design for people with disabilities, as well as people of all ages and cultures. Proper access and other special features will be well thought out with these people in mind. It is so important that EVERYONE is able to have a good time at the ballpark, without having issues that could be prevented with a little extra design consideration.

USER/CLIENT DESCRIPTION

There will be four general groups of users that are considered for this project: Student Athletes, Coaches, Staff, and Fans.

Student Athletes: The most important set of users that this project is specifically designed for is the student athletes. They are the whole reason behind the need for a facility like this. These hard-working athletes are also full-time students who deserve to work and play in nice environments. This project will specifically address the student athletes at NDSU who are on the Women's Fastpitch Softball team. Another group of student athletes that need to be considered are the ones of the opposing teams that travel to this facility to compete against NDSU. It is important to make them feel welcome when playing on the road.

Coaches: The role of the coach is to provide order, instruction, guidance, training, and support for the student athletes, on and off the field. They are in charge of making sure that the team is always doing what they need to, while giving their best efforts so they can perform at peak levels. Another task that needs to be considered when designing for the coaches is recruiting future student athletes, and what they need to help bring in the best talent to their program. Coaches need personal spaces in these facilities to get their work done as well. There is a lot of work that goes on behind the scenes that most people do not consider when they think about the job of a full-time coach.

Staff: Athletic events need to have staff to make sure everything is running properly. This group of users will need their own spaces to utilize on gamedays, as well as all the other days that they may be working. Some of these staff may be people who solely work with the NDSU Softball team, or with NDSU student athletes in general. We will also need to consider support staff, field maintenance staff, and media staff and their specific needs on gamedays.

Fans: Lastly, it is extremely important to consider the fans throughout the design process. The fans are so important to athletics. Fans have an important influence in the gameday environment. The main goal is to bring in as many fans as possible to watch and support the athletes. Marketing staff has a huge role in bringing fans in, but our goal is to let the facility and gameday experiences to do that as well.

SITE INFORMATION

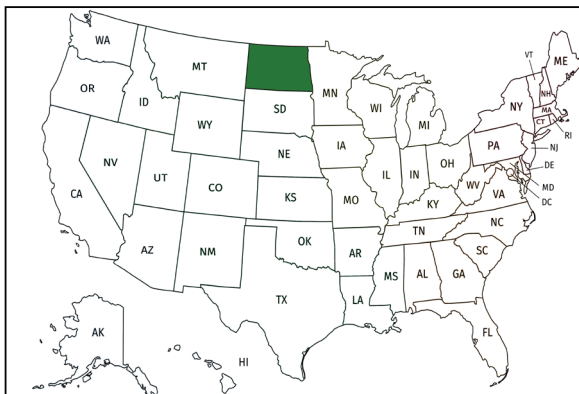
Located on the campus of North Dakota State University in Fargo, ND, Tharaldson Park at Ellig Sports Complex is the current home of the NDSU Bison Softball Team.

This is the designated site for the Softball Complex on the campus of NDSU and has been since 1997. It is in a great location that is approximately one third of a mile away from the Sanford Health Athletic Complex that all of the Bison athletes and staff use on a daily basis. Coaches offices for all ewbut two of NDSU's sports teams are located in the SHAC. It houses the arena that both Men's and Women's basketball as well as Wrestling use for their home games and matches. Other important elements that are part of the SHAC include the weight room, nutrition center, equipment room, and ticket office.

Softball complexes create a fairly large footprint. The most logical spot for the softball field is where it currently sits in relation to the other NDSU athletics facilities. It is in a great location right on the North end of campus with easy access to all major roads nearby.



SITE INFORMATION



Fargo, North Dakota
North Dakota State University
Campus
Tharaldson Park at Ellig Sports
Complex
1700 17th Ave. N.
Fargo, ND 58102

PROJECT EMPHASIS

The main emphasis of the project is improving experience in an environment by using architecture. It takes a lot of research and understanding of many different elements to know how architecture will actually be able to make a difference in the ways that people experience their surroundings. The reason for this is so that promote the sport of softball. It has been increasingly growing in the last decade and we as designers can use our talents to help situations like this. Better facilities tend to bring in better athletes which often results in better teams and more wins. More wins creates a greater societal interest as well as brings in revenue to help the team even more. Another aspect of this project that will have an emphasis is universal design - making sure that people of all abilities and ages are able to get around and use the facility. Energy efficiency and green design will also have a big emphasis - especially in this cold climate. Overall, we want to make these facilities better for all users, as well as working to bring in more and more users to enjoy some fun entertainment.



PROJECT GOALS

Academic

Throughout the past five years here at NDSU, I have learned so much more than I ever thought I would about architecture and about myself. I have had some great learning experiences, as well as some tough lessons learned. This thesis project is my last chance to be a student and I plan to make the most of it, enjoying every last moment. It is important to make this project the best one yet. To do that, I will need to put in a lot of time and effort, beyond what is expected.

One of my biggest goals for this semester is to really improve my computer skills, specifically in Revit, Photoshop, and rendering. If I am able to advance in these programs, I am confident that I will be able to create a beautiful end project.

Professional

At the end of the spring semester, I look forward to having a great job lined up and preparing for the next chapter in life after school. This project will be vital in helping me show potential employers what I can do. I must make sure that this project displays all of my skills and touches on several of my greater areas of interest. I will also need to start focusing on real world applications throughout this project as those will be a major change to face once stepping into the real world. I have a special interest in working with sports architecture and this will be the perfect project to get a head start on building my knowledge on that topic.

Personal

This thesis project has a huge personal effect on me for many different reasons. I am beyond grateful to have the opportunity to combine two of my greatest passions and let them flow together into one beautiful project. I look forward to creating a final thesis project that I am proud of. While I plan to have the best semester of college yet, I also know that I will need to focus on time management to make sure I am working just as hard as I am having fun. I plan on sticking to a very strict thesis progress schedule to ensure that adequate time is allowed for every aspect of this project in this short semester.

PLAN FOR PROCEEDING

Research Direction

The research completed for this project will consist of case studies, historical research, real-world experiences and observations. Having a widespread background in softball, I have a lot of the information already, however I will want to back that up with solid research as well. Personal knowledge will help in the my theoretical premise research, project typology, programmatic requirements, and site analysis research. I will need to rely on historical research and case studies for the historical context aspect of the project. Case studies will also help with theoretical premise research and project typology, so I can get a better sense of other projects similar to this one.

Documenting the Design Process

There will be many different methods to documenting the design process including the following:

- Research Documents and Reviews
- Digital Models
- Physical Models
- Personal Writings
- Sketches
- Maps
- Diagrams
- Computer analysis

All of these working design elements will be combined into a comprehensive book to be finalized at the end of the semester. this will go along with the physical presentation boards and models for my project.

Methodology

The research Methodology will be to create a guide for ballpark designers, displaying my research on how people experience the ballpark. To create this guide, I will use many different research methods and tactics to get all of the proper information.

Case studies

- quantitative and qualitative analysis

Graphic Analysis

Interviews

- with people involved in the design process from the athletics side
- with players and coaches who will be the main users of the design

Quantitative

- statistics that relate to the construction and use of the facility

Qualitative

- gathered from direct observation and use
- gathered through direct interviews

I will gather all of this information and compile it into a guide of general ballpark design tips for people who may not completely understand how these facilities are designed. The reason behind this is to prevent designers from coming up with designs that are not well-informed and are not going to be the most functional for all users. We want to work to create positive spaces that people can really enjoy.



PROJECT SCHEDULE

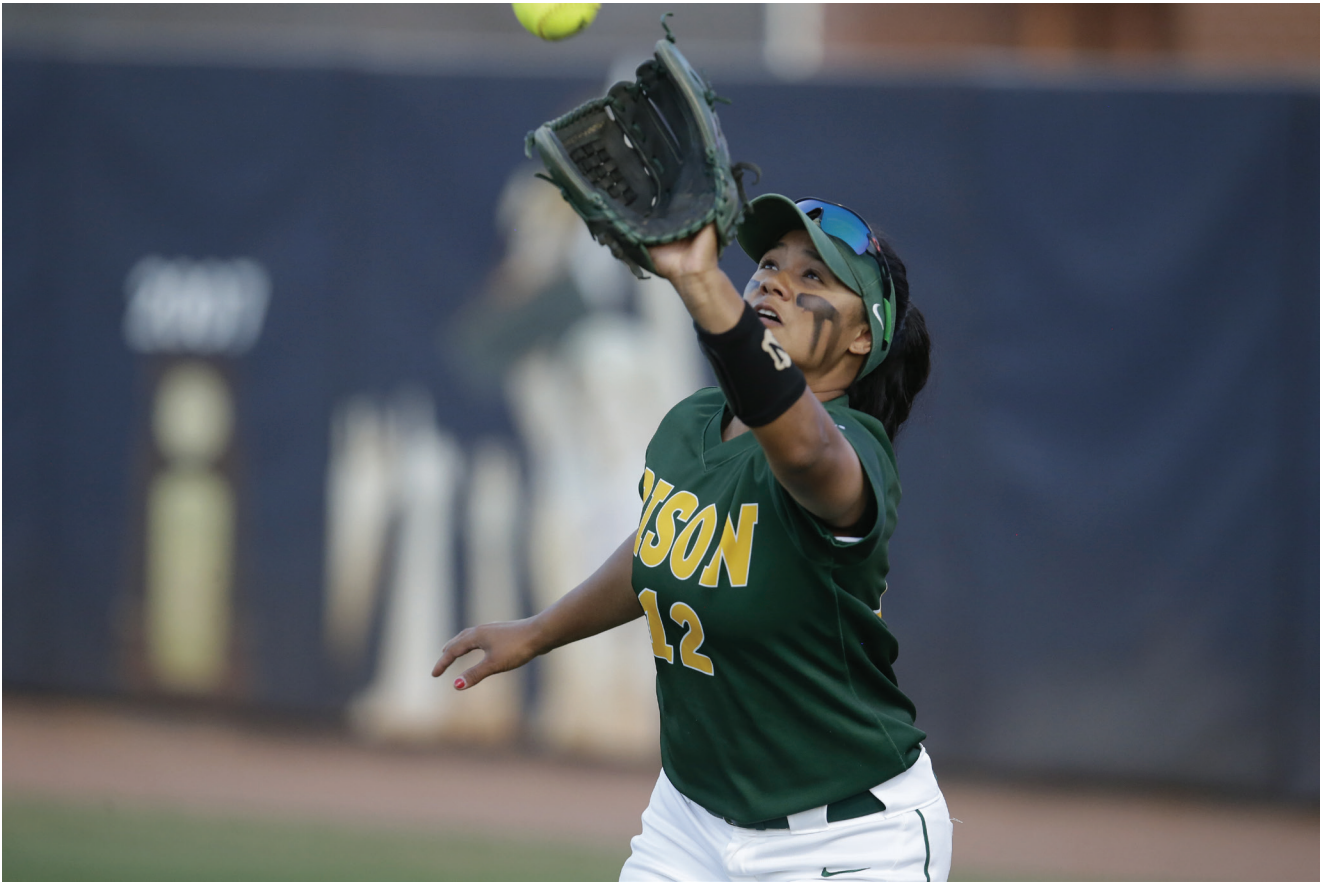
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	31	Jan 1	2	3	4	5
		Concept Analysis Context Analysis				
6	7	8	9	10	11	12
Concept Analysis Context Analysis						
		First Day of Classes	Site Development Social Mapping			
13	14	15	16	17	18	19
Site Development Spatial Diagramming						
			2D Planning Mass Modeling			
20	21	22	23	24	25	26
2D Planning Mass Modeling						
			2D Spatial Planning			
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	31	Feb 1	2
2D Spatial Planning				Schematic Plan Pt	Design Development	
3	4	5	6	7	8	9
Design Development						
10	11	12	13	14	15	16
Design Development						
17	18	19	20	21	22	23
Design Development						
	No School					
24	25	26	27	28	Mar 1	2
Design Development			M&T-Term Presentation Prep			

PROJECT SCHEDULE

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
24	25	26	27	28	Mar 1	2
Design Development			Mid-Term Presentation Prep			
3	4	5	6	7	8	9
Mid-Term Presentat	Mid-Term Reviews					Project Reviews
10	11	12	13	14	15	16
Project Reviews						
Service Break - No School						
17	18	19	20	21	22	23
Project Reviews						
24	25	26	27	28	29	30
Project Reviews						
Rendering and Board Layout						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31	Apr 1	2	3	4	5	6
Rendering and Board Layout						
Build Final Model						
7	8	9	10	11	12	13
Rendering and Board Layout						
Build Final Model						
14	15	16	17	18	19	20
Rendering and Board Layout					No School	Print and Set up Bo
Build Final Model						
21	22	23	24	25	26	27
Print and Set up Bo	No School	Go Home Physical I				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	29	30	May 1	2	3	4
Final Thesis Review						
5	6	7	8	9	10	11
Thesis Digital Copy					400p Final Thesis E	10% Commencement

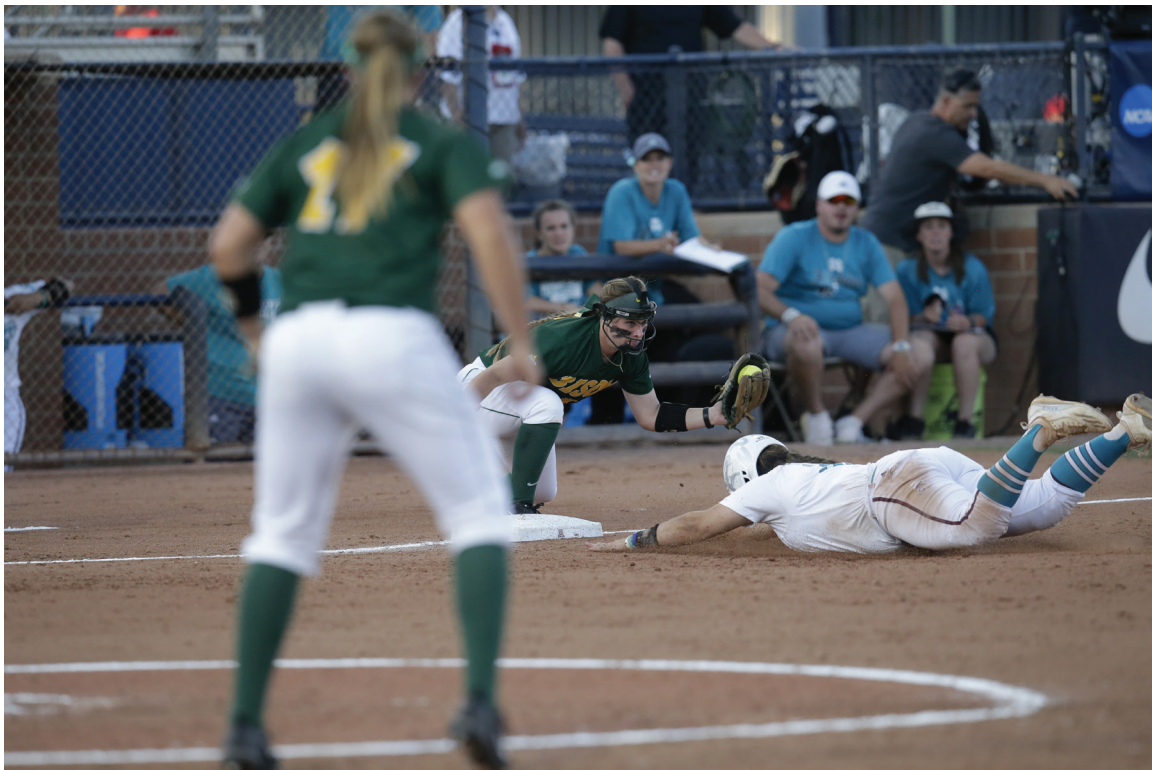


THESIS RESEARCH



RESEARCH

What role does architecture do to improve experience in the ballpark stadium setting regarding all users? Ballparks have been one of the biggest entertainment hotspots for almost 200 years. They have gone through many changes over the years, however, are they where they should be in terms of modern architecture? Do they fulfil the needs and desires of all the people who attend or use ballparks? Recently, more and more people have been avoiding going to major sporting events due to too much stress put on them throughout the process. They are not receiving the experience that they want to, or at least should, receive. This research journal will talk about different ways that designers can address common problems in the ballparks and improve design to create better experiences for all different types of users. Possible solutions to these ballpark problems will be found through case studies, historical research, interviews, and real-world observations.



While we will never be sure when the sport of baseball was originally created, there are legends of variations of baseball dating back to the 1700's and others to ancient Egyptian times. We do know, however, that in September of 1845 a small group of men from New York City, led by Alexander Joy Cartwright, came together to create a set of rules which became the foundation of the first regulated league. (Staff, 2013). This was the first step in creating what would quickly become the first professional sport, as well as one of the most popular sports in the world (Shoup, 2017). As a source of entertainment for people of all ages, it has been coined "America's favorite pastime." The sport has grown tremendously over the years and has become one of the biggest sources of revenue in the sports entertainment industries, with the Major League Baseball hitting \$10 million in revenue in 2017 (Brown, 2017). Fastpitch Softball, a variation of baseball, has also become quite popular since 1889 and especially in the last decade. Softball and baseball combined is considered the most popular team sport in the United States with at least 25 million registered players (Report, 2018). With these increases in player numbers, there is also an increase in the fan base. With more players and fans showing interest in sports like softball, proper accommodations need to be made. Architects play an important part in using design to help promote the future of the sport. Most people do not realize how great the effect of environment is on experience and emotion. Experience is based on sensory influences, environment qualities, and gaining and reacting to new information. Experience also differs between person to person. Whether it is light, noise, temperature, sound, memorable events, or even energy levels, people can react in many ways to one specific type of stimulation. Keeping these factors in mind, it is important as a designer to try and get an idea of how most people will react to something. Then they will be able to use that instance to inform design. Architects have the great opportunity to be able to design experiences, however if they want to do it properly, they must do their research first. Once they do the research, they must understand how to properly utilize the research results in their design to create more enjoyable, yet efficient, spaces. The motivation behind this project comes from a desire to improve experiences for all people who have a connection to the ballpark. Whether it is for a family who goes out together to enjoy games, or a young team of girls who want to grow up and play college softball, to each and every one of the student athletes who did grow up to play college softball. It is just as much for the coaches and other staff out there who go to work every day to provide for the student athletes, as well as the fans. They all deserve to have a project like this.

RESEARCH

For architects and designers to design experiences, they need to do research to understand exactly how their design decisions are going to affect people. They can ask questions such as: Does this element belong here? What will happen if I combine these two features? Does this create positive or negative feelings? Etc. There are so many questions to ask, which is one of the greatest things about being a designer. Using creativity is so important to keep architecture interesting, but functionality is just as important.

This study uses combined research methods including case studies, historic research, personal interviews and real-world observations to gather information that will inform the creation of a general ballpark design guide for architects. These methods were chosen based on access to valuable resources as well as types of information needed to complete a well-executed research study.

The case studies will bring in information on ballpark design that is currently out there. They will also be used to find successful design in other building typologies that can be translated into the ballpark typology. These include researching public reviews on ballpark stadiums to see how they influenced their experiences. The historical research will dig into the history of ballparks and what has been successful and not-so-successful throughout the years. This will show which design solutions have been proven to last and get the job done, and whether they need to be changed or should be left alone. Other findings from the case studies will include explicit information that does not change from one ballpark to another, such as scales and dimensions.

Basic interviews will be conducted for this project to get views and opinions from people who this design will have a direct effect on. This includes the Deputy Athletic Director at North Dakota State University, who is in charge of all capital projects within the athletic department. Other interviews will be conducted with current softball student athletes who have the best experience on what influences their experience at the ballpark – both positively and negatively. Current coaches will also be interviewed to get an idea of what they believe is important in overall design, as well as to find out what affects them on a daily basis in these ballpark environments.

Personal real-world observations will also be taken into consideration, from someone who has experienced all sides of the ballpark, from playing to coaching to managing as well as being a dedicated fan. These observations will be analyzed while being careful to avoid any biased views and information.

Through all of these research methods, an extensive list of factors which influence experience will be assembled. Each one will be separately research to see how it affects experience, as well as how architects can design for that specific factor. The target audience for this study includes any architect who may contribute to a ballpark design project, the staff members of athletic teams which play in a ballpark, athletic representatives (clients) who are responsible for communicating

with the architects, and other students who also have an interest in sports design and want to learn more.

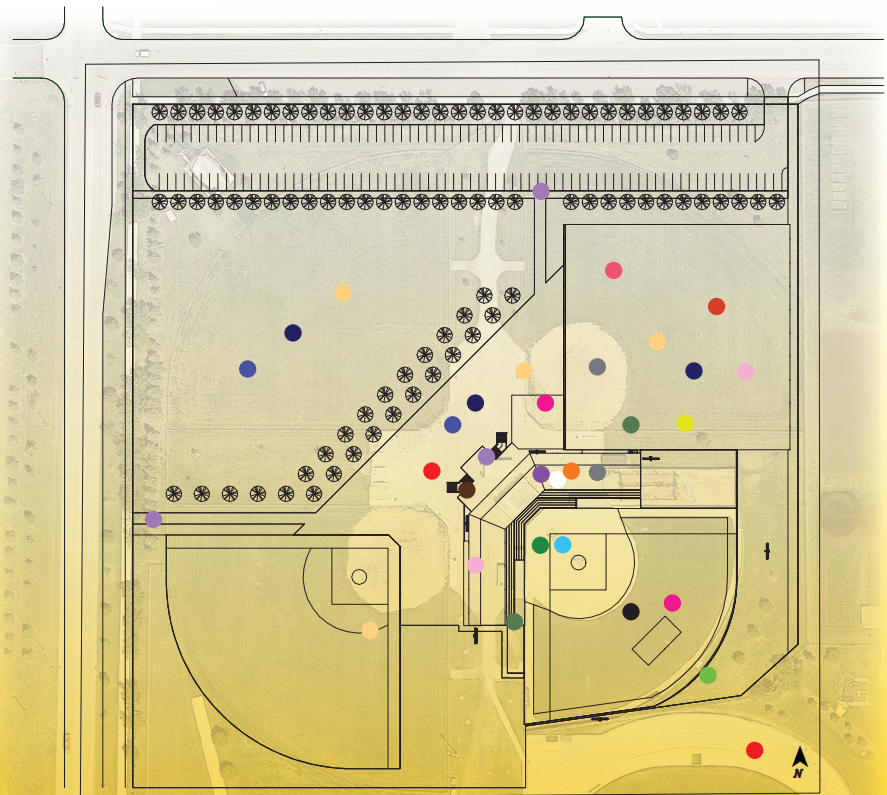
Results

The following is a list of the specific elements that are being taken into consideration in the development of ballpark stadium design, in no specific order. These were chosen based on the amount of relevancy that they had to experience, based on real-world observations.

-Aesthetics

- Aesthetics
- Memorable Events
- Stress
- Excitement
- Focus
- Distraction
- Inspiration
- Supportive Equipment
- Supportive Facilities
- Relaxation
- Motivation
- Coping
- Access
- Thermal Comfort
- Visual Comfort
- Acoustic Comfort
- Physical Comfort
- Free Movement
- Food/Drink
- Field Conditions

- AESTHETICS**
OVERALL BUILDING LOOK, SURROUNDING SCENERY, VIEWS, BUILDING DETAILS
- MEMORABLE EVENTS**
CLOSE GAMES, UNIQUE SPACES, ART, BRANDING, DETAILING WHAT WILL BRING PEOPLE BACK TO THE SPACE
- STRESS**
MINIMIZING STRESS FOR ALL USERS - ON FIELD, IN PUBLIC AREAS, ACCESS TO THE FACILITY AND THROUGHOUT IT
- EXCITEMENT**
ENHANCING EXCITING MOMENTS THROUGHOUT FACILITY ON GAMEDAYS, AS WELL AS YEAR ROUND FOR THOSE USERS, WINS, SPECIAL EVENTS
- FOCUS**
ALLOWING APPROPRIATE AMOUNTS OF FOCUS FOR PLAYERS ON FIELD OR AT PRACTICE, COACHES/STAFF WHILE WORKING, FANS WATCHING GAMES
- DISTRACTION**
ADDRESSES GOOD AND BAD DISTRACTIONS FOR ALL USERS. HOW TO MINIMIZE BAD DISTRACTIONS AND INFLUENCE GOOD DISTRACTIONS
- INSPIRATION**
ABILITY TO INSPIRE ALL USERS, PLAYERS, COACHES, AND STAFF DAILY, INSPIRE FANS ON GAMEDAYS AND AT SPECIAL EVENTS
- SUPPORTIVE EQUIPMENT**
INCLUDES PROPER EQUIPMENT TO ASSIST ATHLETES ON IMPROVING THEIR PERFORMANCE. ALSO FOR STAFF ASSISTING IN GAMEDAY PRODUCTION
- SUPPORTIVE FACILITIES**
HAVING THE PROPER FACILITY NEEDS FOR ALL TYPES OF EVENTS THAT WILL BE HELD THERE - WITH MAXIMUM EFFICIENCY
- RELAXATION**
ABILITY FOR ALL USERS TO FIND RELAXATION DURING THEIR TIME AT THE FACILITY, FANS IN PUBLIC AREAS, PLAYERS IN LOCKER ROOMS AND ON FIELD
- MOTIVATION**
PRODUCES MOTIVATION FOR ALL USERS - IMPORTANT IN PRIVATE TEAM AREAS, IN PRACTICE FACILITY, AND ON FIELD
- COPING**
ALLOWS PROPER SPACES FOR USERS TO COPE WHEN DEALING WITH DIFFICULT SITUATIONS, SUCH AS LOSING GAMES, NOT PLAYING WELL, DAILY ISSUES
- ACCESS**
WELL-PLANNED ACCESS ROUTES FOR ALL TYPES OF USERS, FROM GETTING TO THE SITE, TO MOVING THROUGHOUT THE CONCOURSE AND TO SEATS IN STANDS
- THERMAL COMFORT**
ADDRESSES CLIMATE CONDITIONS FOR NORTH DAKOTA, PROPER BARRIERS AND PROTECTION TO KEEP USERS COMFORTABLE, INDOOR FACILITY
- VISUAL COMFORT**
PROPER LIGHTING AND SITE LINES DURING GAMES, PRACTICES, EVENTS AND AROUND THE WHOLE FACILITY
- ACOUSTICS**
ADDRESSES PROPER ACOUSTIC LEVELS THROUGHOUT THE FACILITY, GAME DAY SPEAKERS, PROPER ACOUSTICS IN PRACTICE FACILITY
- FREE MOVEMENT**
ALLOWS FOR FREE MOVEMENT FOR ALL USERS AT FACILITY, WHILE ALSO CONSIDERING SECURITY AND PUBLIC VS. PRIVATE AREAS
- PHYSICAL COMFORT**
CREATES OVERALL PHYSICAL COMFORT WHILE SPENDING TIME IN THE FACILITY FOR ALL USERS - WILL BRING PEOPLE BACK IF GOOD
- FOOD & DRINK**
HAVING PROPER SPACES AND FACILITIES TO PROVIDE CONCESSIONS ON GAMEDAYS AND FOR EVENTS, FUELING THE ATHLETES DAILY
- FIELD CONDITIONS**
PROPER FIELD CONDITIONS ARE NECESSARY TO KEEP FAIRNESS OF GAME PLAY, ABILITY TO PLAY IN DIFFERENT WEATHER CONDITIONS



RESEARCH

- Memorable Events
- Stress
- Excitement
- Focus
- Distraction
- Inspiration
- Supportive Equipment
- Supportive Facilities
- Relaxation
- Motivation
- Coping
- Access
- Thermal Comfort
- Visual Comfort
- Acoustic Comfort
- Physical Comfort
- Free Movement
- Food/Drink
- Field Conditions

Each one has been separately researched to understand just how important that factor is to overall experience, as well as how architects can design with that specific feature in mind.

1 Aesthetics

1.1 While some people may not believe that aesthetics are important in design, they really do make a difference in some projects. Aesthetics help to improve experience by making views more enjoyable, which in result, makes people feel better! There are often arguments over what looks good and what doesn't. Most architects do not intentionally create buildings that are not aesthetically pleasing to most. By creating beautiful designs, it makes it a lot easier to create interest in the facility, which will bring in more fan's, as well as recruits.

1.2 Aesthetics has an important role in the recruiting of student athletes. When young prospects come onto campus, it is so important to make a great and lasting impact on them. This will help them make their decision on where they want to go to school a bit easier. If they come on their visit and see a beautiful campus with great facilities, the more likely it is that they will want to commit to that school, so they can experience those facilities. Having better overall athletic facilities is one factor that makes it easier for coaches to get the more talented athletes, which often leads to better overall team performance, as well as more publicity for that team.

2 Memorable events – what makes an event memorable? How to we design for it.

2.1 Scientists know that there are many factors which play a role in determining what people remember. Among them, how much attention the person is paying, how novel and interesting the experience is, and the kinds of emotions that are evoked (Koch, 2010). The greater the attention paid to the image, event, or experience, the more the information is elaborated in short-term memory (Calvert, 2015).

3 Excitement – what affect does excitement have on experience? What makes something exciting? Compared to memorable? How do we design for it.

4 Focus – what creates focus, how do we focus, how do we design for it.

5 Distraction

5.1 There are two types of distraction in the ballpark setting. Healthy and unhealthy distractions. This element pertains to players and fans on gameday. Players can feel different types of distraction during games, so it is important to plan ahead for this in design. By enhancing the healthy distractions and eliminating the unhealthy distractions, designers can create better and more productive environments for the student athletes.

6 Inspiration - What is inspiration? And what inspires people? Why do we need inspiration? In

6.1 Athletes - Each athlete is different the next. What will inspire or motivate one athlete, may have no effect on another, or it might even have a negative effect.

6.1.1 Through research, it is found that everyone is inspired by different things.

6.2 What inspires fans?

6.2.1 All of the athletes that go through the NDSU softball program, or any athletic program for that matter, know how important it is to be a good role model for their younger fans.

6.3 Coaches?

6.4 How to design this

6.4.1 There are many different ways that us designers can use architecture to help facilitate inspiration in the ballpark.

6.4.1.1 Student athletes are all inspired by different things. This includes

7 Supportive Equipment and Facilities

7.1 To design for supportive equipment, it will be necessary to research what equipment is needed to make everything run smoother for all users and then use the program and plans to allow proper space and features to allow for this equipment.

7.2 Mentally, having the proper equipment will make it easier for players and coaches to focus on the game and their main goal – winning. If you don't have supportive equipment, it is just one more thing that you have to worry about that can make operations more stressful. This goes for staff as well. Media personnel need proper equipment available and proper design to allow for proper equipment, to make their job easier and less stressful.

7.3 Designing for supportive facilities is similar to supportive equipment, however it addresses the public more, who don't typically need/use as much "equipment" during their time at the ballpark. This includes having an organized facility layout for all users, access to all appropriate areas for people of all abilities, and just having the

RESEARCH

proper program elements that all users will need during their time at the ballpark.

7.4 It is important to have supportive facilities for all people because mentally, it will make their experience simpler and effortless, which will make their time at the ballpark more enjoyable and encourage them to come back again.

8 Relaxation

8.1 One element that is often overlooked when thinking about stadium design is relaxation. Most people do not typically think of high energy athletic events as places to relax. For some, however, athletic facilities can be the one place that people go to specifically to relax.

8.1.1 What makes a space relaxing? And how to create spaces that are relaxing for people with different preferences and styles? Design elements that should be considered when designing relaxing spaces are often closely related to the five senses.

8.2 Student Athletes - Being a student athlete is a lot more work than most people understand. Between daily three-hour practices, in addition to other various workouts up to 4 times a week, student athletes need various places to relax, or catch a break, during the times when they aren't at home. They need to be able to relax when they are on the field, in the locker room preparing to play, while they are recovering in the training room from a hard practice or an injury, and when they are spending their time doing homework and studying for all their classes. When athletes are on the field, during games and practices, it is important for them to be able to stay as relaxed as possible so that they can focus on what they need to be doing - playing the game or practicing their skills. If the athletes are worked up, tense, stressed, or uncomfortable, they will not be able to make the necessary connections between their bodies and brain and their performance will suffer as a result. In addition to relaxing on the field, the student athletes also must be able to relax when they are off the field as well. This includes the locker room or team room while they are working on homework, studying, or just building relationships with their teammates. There is a lot of pressure that is put on student athletes to keep up with their school work and get good grades to represent themselves and their team – which for some is not usually an easy task.

8.3 Coaches - Believe it or not, but there is a great amount of work that goes into being a full time collegiate coach. They are constantly working overtime throughout many busy times of the year – all to benefit their student athletes because that is what they love to do. Coaches complete various tasks that many people do not consider such as year-round recruiting, planning daily practices, constantly analyzing and critiquing each individual athlete to make them better, making important decisions that are going to affect numerous people, all while trying to find a balance between work and personal life. Most coaches spend a lot of time away from home and

their families which really can take its toll on them. This is just one of the reasons that coaches also need to be able to find relaxation in their everyday working environments to balance out all of the stresses that they have. Like with many other types of jobs, coaches spend a lot of time in their offices. These are spaces that most of their off-the-field work is done and should be done without extra environmental stresses. Their offices need to be big enough to hold staff meetings, meetings with their student athletes, and host recruits and their families, while also making a good impression that will make them want to attend the school and play there.

8.4 Staff – staff members who work during gamedays as well as all other days of the year need to have places that they can relax if they need to, just like all other users. Some staff work really long days it will only improve their work experiences by having places where they can take a break if needed.

8.5 Fans – the number one consideration for keeping fans relaxed during gamedays, it to make sure that they can have a great experience and will keep on coming back. Some considerations for maximum relaxation for a public sporting event include: comfortable seating, ample walking room and leg room, having concessions on site, as well as restrooms, and information areas. Relaxation also includes thermal, visual, acoustic and physical comfort.

9 Motivation

9.1 Designing to motivate is similar to designing to inspire. This is especially important for the athletes – on gameday and every other practice day. It will include features that mentally inspire all users and help influence positive behavior and a good work ethic. Certain elements of motivation may include powerful images, meaningful quotes, aesthetic spaces, proper equipment and facilities, and having an overall beautiful facility.

9.2 This aspect is very important to consider, especially for athletes. Having a motivating facility, will encourage them to be a better person, athlete, teammate and role model to future athletes. This will be a huge impact in making a better all-around experience for the athletes and coaches. It will also affect the fans who are paying money to attend events at the ballpark. Motivation is a positive emotion that is meant to increase happiness and experience.

10 Thermal Comfort

10.1 You can design for thermal comfort by doing numerous site-specific studies to help design for the best thermal comfort. Wind barriers, field orientation, rain/

RESEARCH

sun canopies, indoor facilities, fans, and other features will all be considered in thermal comfort design. Having the design based outdoors in ND will create its own set of thermal comfort guidelines that will need to be carefully considered.

10.2 It is important to have proper thermal comfort in public recreational facilities such as this one. If people aren't comfortable, they are not going to enjoy their experience or want to come back. If thermal conditions are really bad, they are not going to come to the facility in the first place. Being outside in North Dakota in the spring and winter, it can be very thermally uncomfortable. Therefore, it will be necessary to include proper design to improve user experience.

11 Visual Comfort

11.1 Having proper visual comfort will improve experience overall.

12 Acoustic Comfort

12.1 Having proper acoustic comfort will improve experience overall.

13 Physical Comfort

13.1 Overall physical comfort is a combination of all of the above elements – visual, acoustic, thermal, access, and free movement.

13.2 Having proper physical comfort will make people enjoy their time there and want to come back again, which is the goal.

14 Free Movement

14.1 One really important element to focus on when designing public entertainment spaces such as ballparks like this is making sure that the facility is accessible and follows all of the required ADA rules and regulations. If facilities do not have these necessary features, fans who may need them, along with their families will not make the extra effort needed to get out to these events.

14.2 Having free movement will improve physical comfort and allow users to move as they need to do while still enjoying the facility and experience. It will make things easier for all users as long as it is designed properly.

15 Food and Drink

15.1 The average time that fans spend at a softball game is 2-6 hours,

TYPOLOGICAL RESEARCH

The typological research for this project consists of a few different existing ballparks and stadiums. Many of these are recently remodeled, which makes it more relatable for learning about modern stadium design. These specific case studies were chosen based on their location, size, features and public opinion. When trying to come up with the best possible design for the public, it is important to heavily research public reviews and opinions on current facilities to find out what is good and bad about them. Other things that will be studied will include scale, materials, structure, orientation, and overall facility analysis.

These stadiums will also be used to examine the theoretical premise by thorough analysis of plans and sections to make conclusions about flow and layout of facilities. These plans will be used to conduct simulation studies to determine more conclusions about circulation and flow.





JANE SANDERS STADIUM

UNIVERSITY OF OREGON

EUGENE, OR

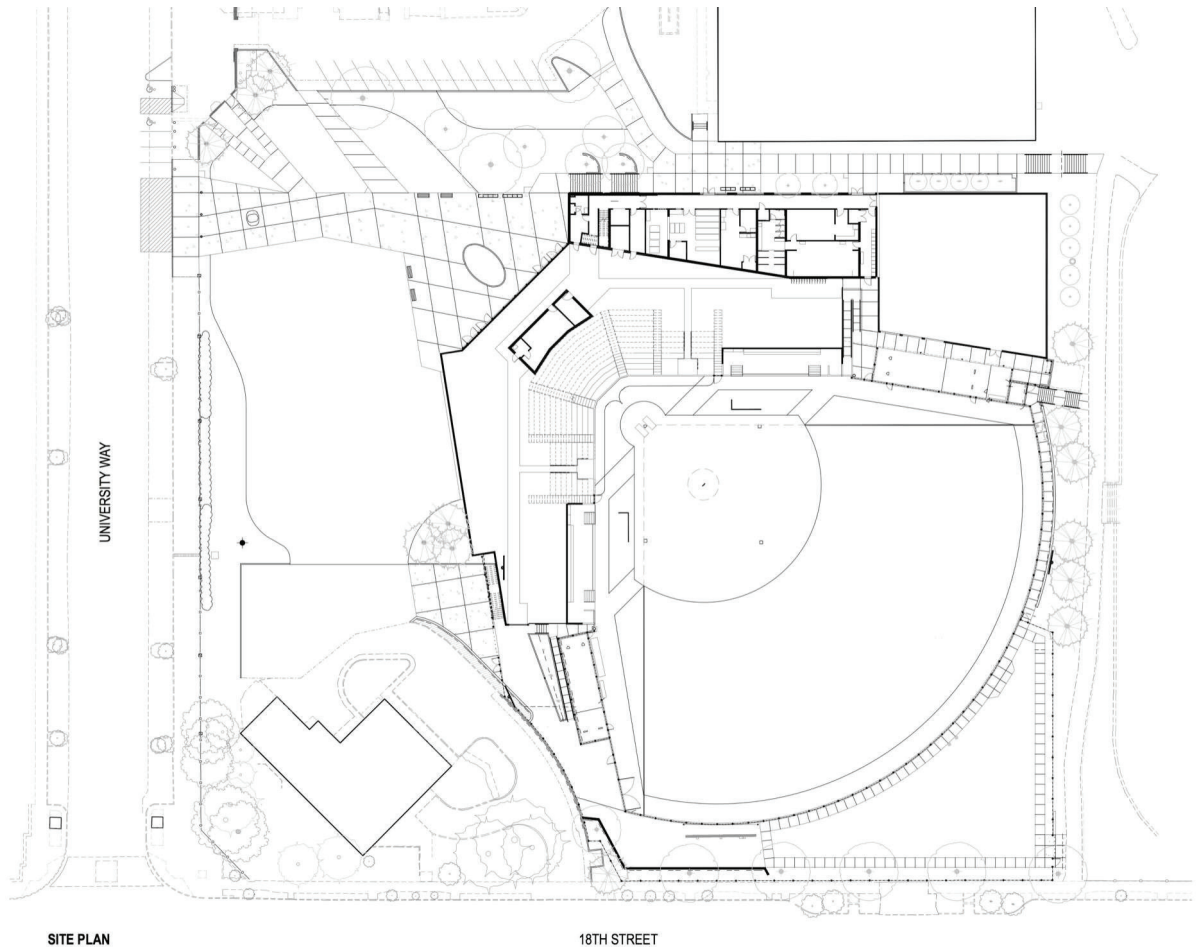
COLLEGIATE SOFTBALL STADIUM

SRG PARTNERSHIP

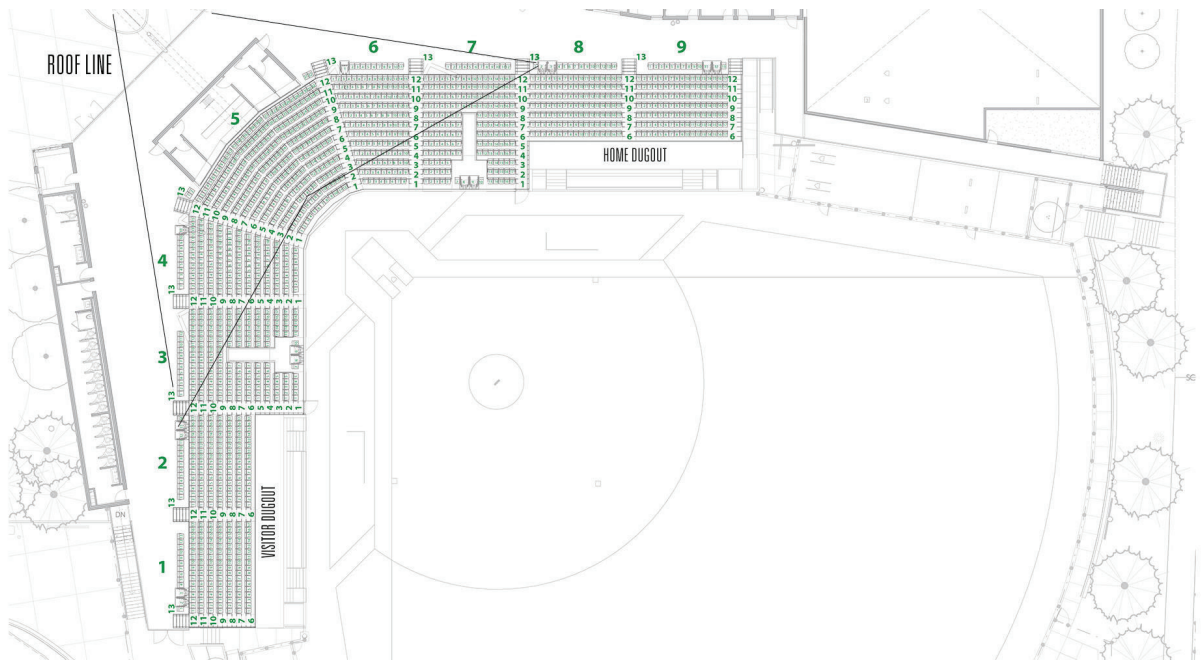
COMPLETED IN 2016

SEATS 2,500

\$17.2 MILLION



Jane Sanders Stadium is one of the best examples of beautiful stadium design. There are so many neat features in the complex that makes it one of the most desired softball stadiums to visit and is also ranked in NCAA's "college softball: 7 stadiums that you need to visit."







JIM CASE STADIUM

JACKSONVILLE STATE UNIVERSITY

JACKSON, MS

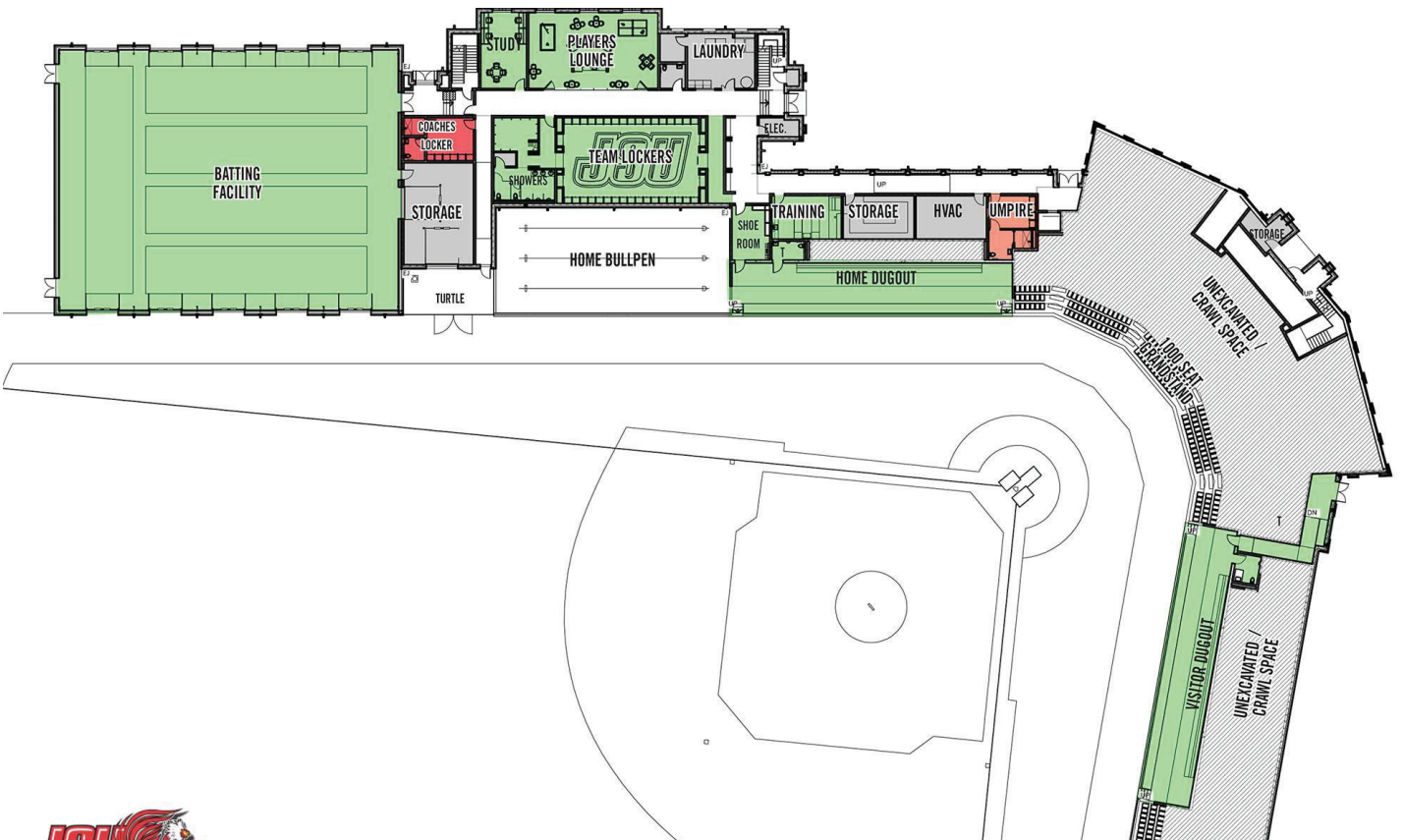
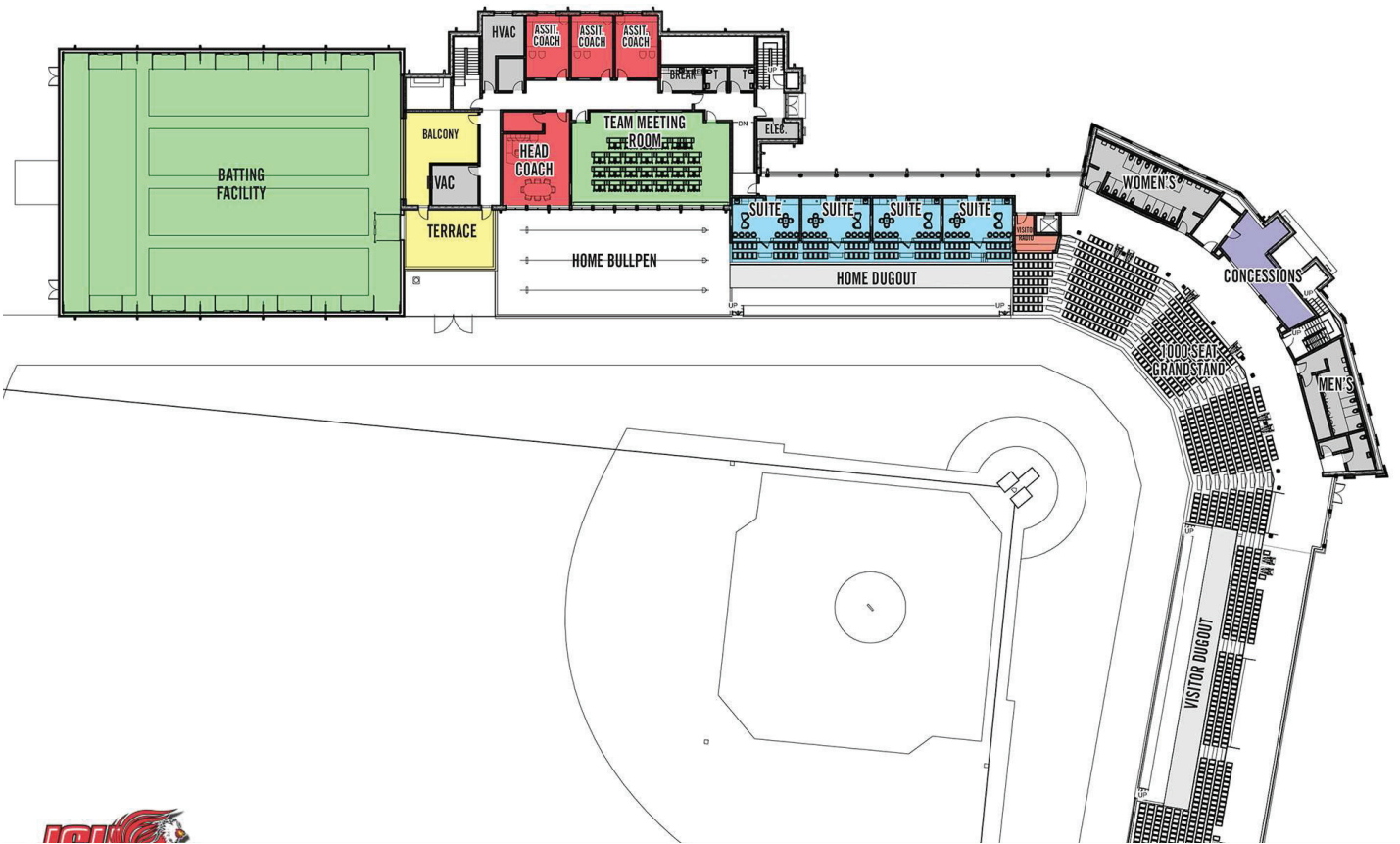
COLLEGIATE BASEBALL STADIUM

DAVIS ARCHITECTS

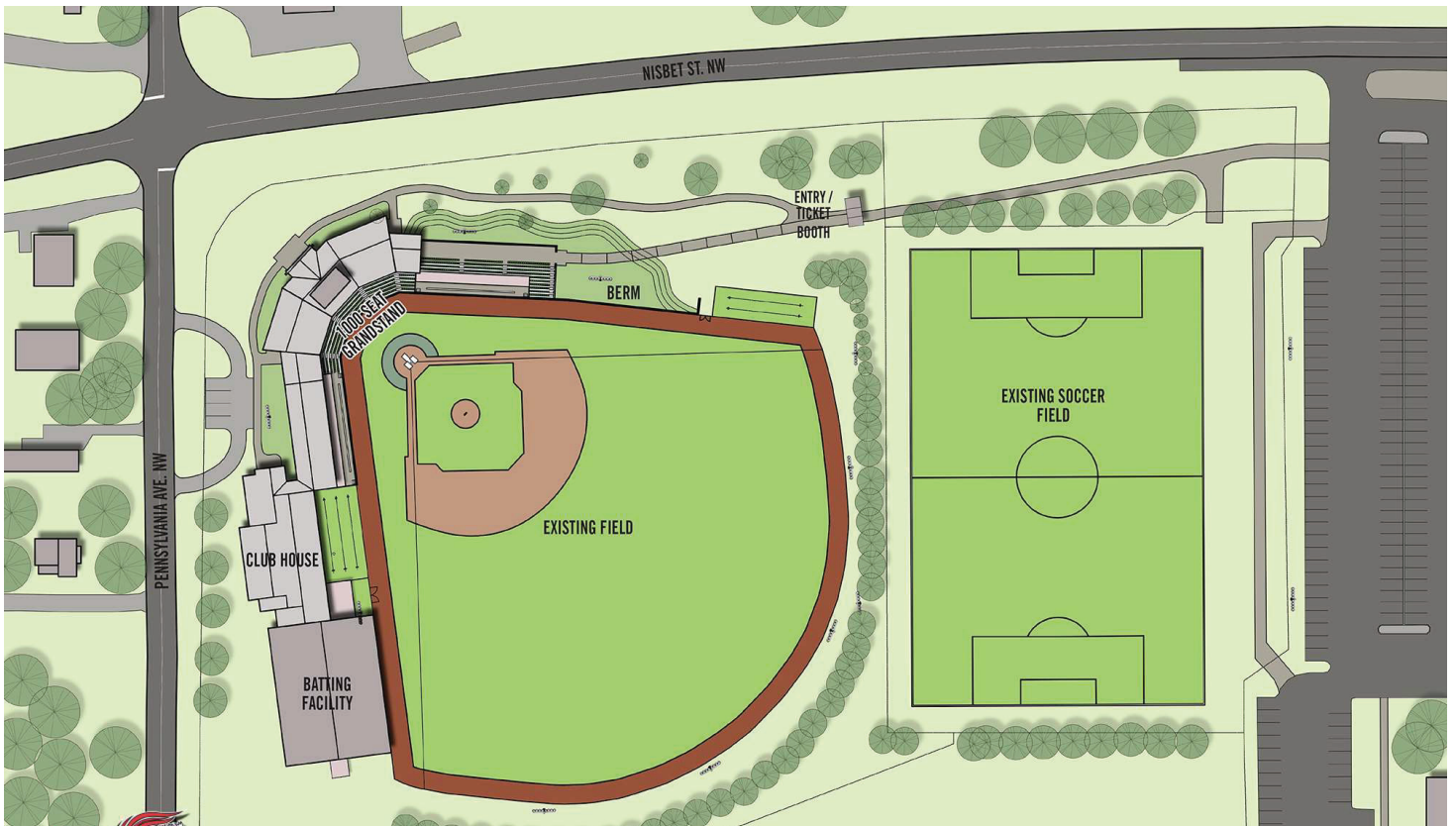
COMPLETED IN 2018

SEATS 1,000

\$7.5 MILLION









KATIE SEASHOLE PRESSLY STADIUM

UNIVERSITY OF FLORIDA

GAINESVILLE, FL

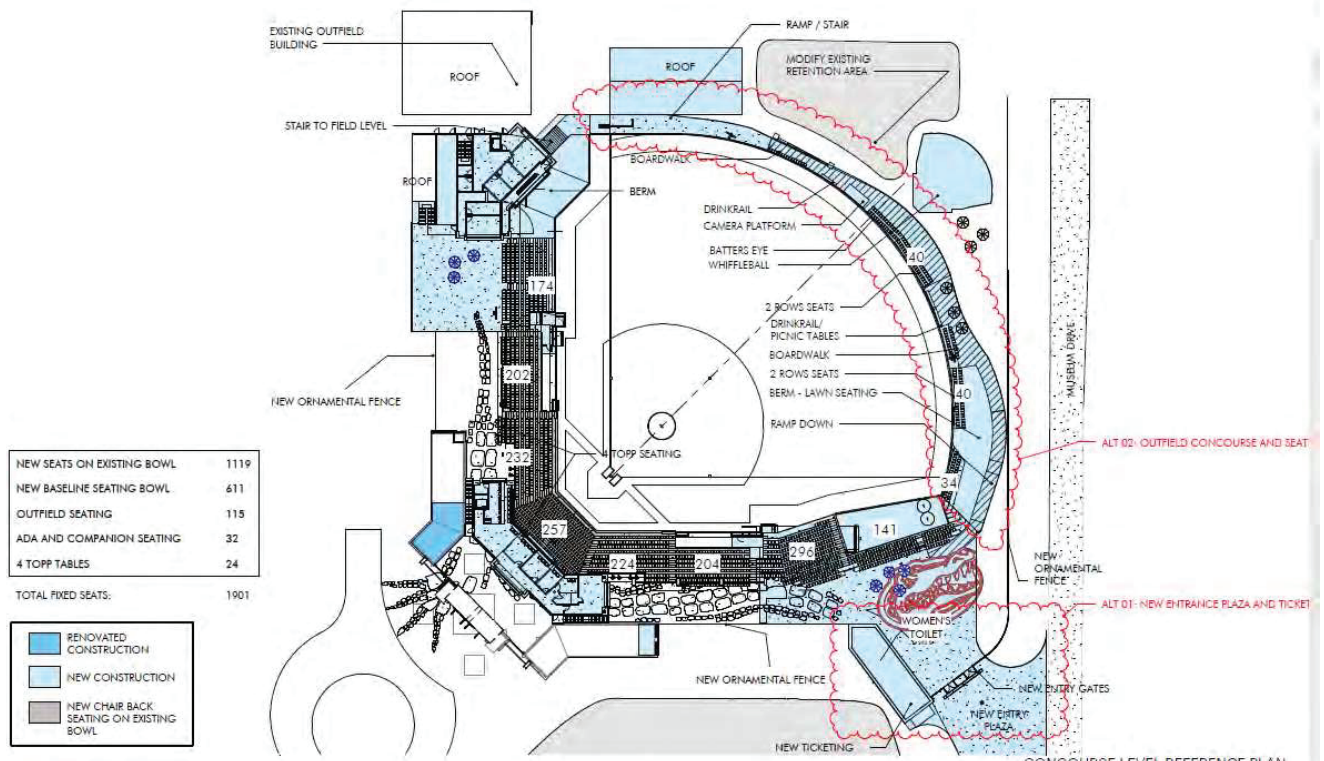
COLLEGIATE SOFTBALL STADIUM

WALKER ARCHITECTS | POPULOUS

TO BE COMPLETED IN 2019

SEATS 2,800

\$13.6 MILLION



KATIE SEASHOLE PRESSLY SOFTBALL STADIUM EXPANSION
 University of Florida Athletic Association
 17041

CONCOURSE LEVEL REFERENCE PLAN
CONCEPT
 SCALE: 1" = 50'





PROJECT JUSTIFICATION

Why is the project that you have defined important to you as a person (your personal reasons)?

- This project is especially important to me because I have a great passion for the sport of soft-ball (and baseball) and want to contribute to creating better facilities for athletes and their fans.

Why is it important for you to do this project at this stage of your academic development?

- I think that this will be a great project to help complete my academic portfolio. I think it is also important to do one last "fun" project that I can enjoy for my last year of school before going out in to the real world – with real budgets.

Why is it important to do this project at the stage of your professional development?

- I believe that this project fits under one of the building typologies that I am most interested in pursuing after graduation. I think that the more experience that I get on designing public facilities and sports stadiums right now will only help me when I am working to get a job for after the end of this year. I would love to move on and continue to work on projects like this, as it is something I definitely have a passion for and would be interested in for a long time.

How is the project going to add to your knowledge base?

- This project is only going to add to my knowledge base for the future. I have already learned so much about this project typology and also research-based design, which I think only produces better designs. I am constantly learning new things throughout this process, which only helps my knowledge base.

How is the project going to add to your set of skills?

- This project has greatly improved my research skills, along with project and time management. I am learning new things about the field of architecture as well as life in general every day, all of which help my personal skills.

Why is doing the project important for the profession at this time?

- This project is important to the profession because architects and other designers need to know how to create good athletic facilities. There are so many examples of failed athletic stadiums that have wasted so much money and resources over the years, that it is time that we start creating better stadiums for the future. I also know of athletic facilities that are not designed properly for their users, and that needs to come to an end.

Why is the project important as an academic exercise at this time?

- I think this project brings together so much of what I have learned over the last 4 years at NDSU and combines it into one large project that shows off what I can do as a designer. I have a special connection with this project and I believe that will help me really show what I can do with passion.

How can you justify the project economically?

- This project is nowhere near unreasonable economically. Universities are constantly raising money to build new facilities for their athletes, some of which are insanely huge. I fully believe that within a set amount of years, NDSU would be able

PROJECT JUSTIFICATION

raise funds and attain the amount that would be needed to do a project like this. It would be a great initial investment but would prove worthy and bring in a lot of money in due time.

How can you justify expending the funds to implement the project?

- Like I said before, it will be somewhat based on a return on investment, but I don't see there being a huge struggle to find the funds to use for this project. Fans are passionate about their sports and will spend a lot of money to have a good time. They will also be more willing to put forth money if they know that it is going to benefit them as well as the athletes and will do just that.

Where might the funds come from for your project and are the sources justified?

- This project will most likely be privately funded by donors who want to help the school/team/organization. This will likely come along with a special recognition once the com-plex is built. The sources will most likely be people who have a lot of money and are looking to donate or invest and will be able to do just that.

Is your project justified based on a return on investment? Are these returns monetary, or are they intangible?

- Yes, to some extent, this project will be based on a return on investment. This reason that a team or organization would just to upgrade their facility in the same manner as this project, is because they want to make the team better, increase publicity, and bring in more money. There are other reasons as well, that I am not completely familiar with, that are typically main reasons for why athletic facilities get bigger and better.

What would be the post-occupancy impacts of your project? Would these impacts justify your project?

- I believe that the post-occupancy impacts are going to be great. That is one of the main rea-sons that I chose to do this type of project and why it is part of my thesis question. This com-plex is going to be designed to be built to last for a long time. It is going to be used and occu-pied by many people over the course of its lifetime. I believe that it will make a major social impact in a very positive way.

What would be the environmental impacts of your project? Would these impacts justify your project?

- Environmentally speaking, I would like to make the design as environmentally friendly as pos-sible, as it seems like we all are aiming to do these days. I do not have a super large focus on it such as creating net-zero, but it will definitely be considered and focused on when moving into the design phase. Part of my design will be designed differently from other typical midwestern buildings, so I will have to carefully thing about how to make sure it is as efficient as possible. I think that if I do put a greater focus on the energy/environmental impacts for this, that it would definitely justify my project and become a good research for other people looking to build similar facilities.

Is the technology to be used in your project justified considering all its aspects?

- I believe that all of the technology used in this project is justified. I think technology can be very helpful to do certain types of research and will make a

PROJECT JUSTIFICATION

difference in the results that I get, compared to if I did not use specific technologies.

Why is the project important to be implemented in its social context?

- I think that socially, athletic entertainment is a huge thing and having better facilities for fans (and athletes) will only help increase that interest and make people happier.

Why is the project important to be implemented in its cultural context?

- I would say that this is similar to the last question, in that sports are a part of our American cul-ture, and with ballparks being the home of "America's greatest pastime," it is important to de-sign these properly for the fans and athletes so they can all have a great experience and it can be something that makes life a little better.

How is the project justified in its chosen site location?

- As far as my site location goes, there were many options to choose from. I decided on doing something of a small-medium scale so that I could really focus on detail. I chose the location that is closest to me as I can really get to learn the site more and have a better connection to the site which will hopefully help create a better site-specific design in the end. I also believe that northern climates like this one have a unique challenge to them and I wanted to take that on.

Would your project contribute to the advancement of the profession?

- I think that my project is a relatively new idea and system, so yes, it would definitely help ad-vance the profession in some way. I want to focus on anticipating what the future holds and help design appropriately for that as well.

Is working on your project an imperative, or is it just an option?

- I would say that is somewhere in between. The research part of this project is going to be a sort of guide for other designers that will be very important to consider, however, the whole project idea is not a life or death design that will seriously affect a large population in a positive or negative way.

Can your project be left for someone else in the profession to solve? If so, why should you solve it?

- I believe that other people in the profession could solve the problem, but it would definitely take a special person with a certain background or experience in this area to be able to solve this specific problem - college softball facilities. Not many architects have the background that I do and have experienced most of the things I have related to this, so they would not likely be able to find the BEST solutions for the client. I believe that a lot of projects are done where the people designing it don't always know the best solutions for the clients, and I want to help im-prove the for the future. I believe that I could come up with some really neat things for pro-jects of this typology that should definitely be used in the future by other architects.

SOCIAL CONTEXT

The popularity of Fastpitch softball has been increasing greatly over the last decade. All over the country, college softball fields are being built and updated each year.

Even in Fargo, ND the popularity of the sport has increased recently and it looks to continue to grow for some time. The best way to help that growth is to create a positive and exciting environment for student athletes to play and for fans to be exposed to the sport.

Americans spend such a large amount of money on sports entertainment each year, that it is important that we keep those athletic facilities nice and maintained. People are willing to spend the money, so why not use it to bring in more revenue for the school and community.



PERFORMANCE CRITERIA

1. Space Allocation
 - a. Performance measure
 - i. For space allocation, the aspects to be measured will include area in square feet, volume in cubic feet, as well as quantity and relationships of various elements as well. Another big thing that I will try to measure that is related to space is efficiency of the space.
 - b. Performance measure source
 - i. These will be measured using digital modeling, while certain set measurements will come from standard rules and guidelines, as well as certain elements that pertain to the specific site.
 - c. Performance Analysis
 - i. To analyze performance, I will for sure be using digital modeling, as well as simulations using the program, Anylogic. It will also be helpful to use drawings and diagrams as well. I do believe that the greatest source of analysis information will come from the simulations.
 - d. Performance Judgement
 - i. I will take the analysis results and judge them by comparing them to other similar facilities' results, as well as getting opinions from various people on how they believe the success of the overall design measures up.
2. Energy consumption
 - a. Performance measure
 - i. For energy consumption, I will be able to measure energy it takes to build the design, total energy consumed in a designated time period, and also be able to break down the total amount into smaller areas of more specific energy uses.
 - b. Performance measure source
 - i. I will measure these things by using energy modeling software that will analyze my building and do calculations to see how energy efficient it really is. I will do this process multiple times if necessary to make sure that it comes out decent.
 - c. Performance Analysis
 - i. A lot of the analysis will be done through the software, but I will then be able to look at the given results and do further analysis and comparison based on that.
 - d. Performance Judgement
 - i. To do a performance analysis, I will take the results and compare them to certain set standards which were produced by people who have a lot of experience in that area and know what is better or worse. I will also hopefully will be able to use the results to help figure out cost and that is something that should be considered.
3. Environmental performance
 - a. Performance measure
 - i. For my project, I will measure environmental performance by measuring things such as quality and quantity of light, acoustics/noise, temperatures, aesthetics, and organization and efficiency of the design.
 - b. Performance measure source
 - i. The source will come from digital models and renderings, as well as other supplemental information that has a direct relation. I will also use some simulations to work analyze some of these elements, such as acoustics, thermal performance, and efficiency.

PERFORMANCE CRITERIA

- c. Performance Analysis
 - i. To analyze these measurements, I will use the above listed methods and then put them up against researched and predetermined set of measurements, to see how they compare.
- d. Performance Judgement
 - i. Once I see how they can compare, I will be able to then decide if I need to make changes to make the design better, and plan for what changes I will need to make to do that.
- 4. Behavioral performance
 - a. Performance measure
 - i. To evaluate behavioral performance, I will look at things such as usage patterns, such as times, dates and number of potential users for the future.
 - b. Performance measure source
 - i. To measure these things, I will use calendars and schedules and history of behaviors to come up with an anticipated performance evaluation.
 - c. Performance Analysis
 - i. Then I will be make new schedules and predictions for future use and compare it to the history of this site and also to similar designs.
 - d. Performance Judgement
 - i. Being able to come up with behavioral schedules will give a lot of information on future usage patterns, as well as assisting in cost/revenue information.
- 5. Psychological impact
 - a. Performance measure
 - i. One of the biggest goals of my project is to make a difference in psychological impact of my design on its users. For this, I will analyze elements of aesthetics, emotions, sensory experiences, and mental states.
 - b. Performance measure source
 - i. Some of these can be hard to measure, however, I think that it will have to be measured through reactions of potential users, through the media of working and final drawings, models and renderings.
 - c. Performance Analysis
 - i. To analyze this, I will record and take note of reactions and comments from potential users, receiving feedback on the quality of my design related to the psychological impact.
 - d. Performance Judgement
 - i. I will be able to take these reactions and judge based on whether they were positive and negative, and use those results to determine the strong and weak points of the design so I can either fix them or let them be as they are.
- 6. Environmental impact
 - a. Performance measure
 - i. For this, I will study what all goes into building and maintaining this design that will have an effect on the environment.
 - b. Performance measure source
 - i. I will measure this by using simulations and calculations to total up all of the effects. I will also use research to figure out how to keep the negative environmental impacts down in the first place.

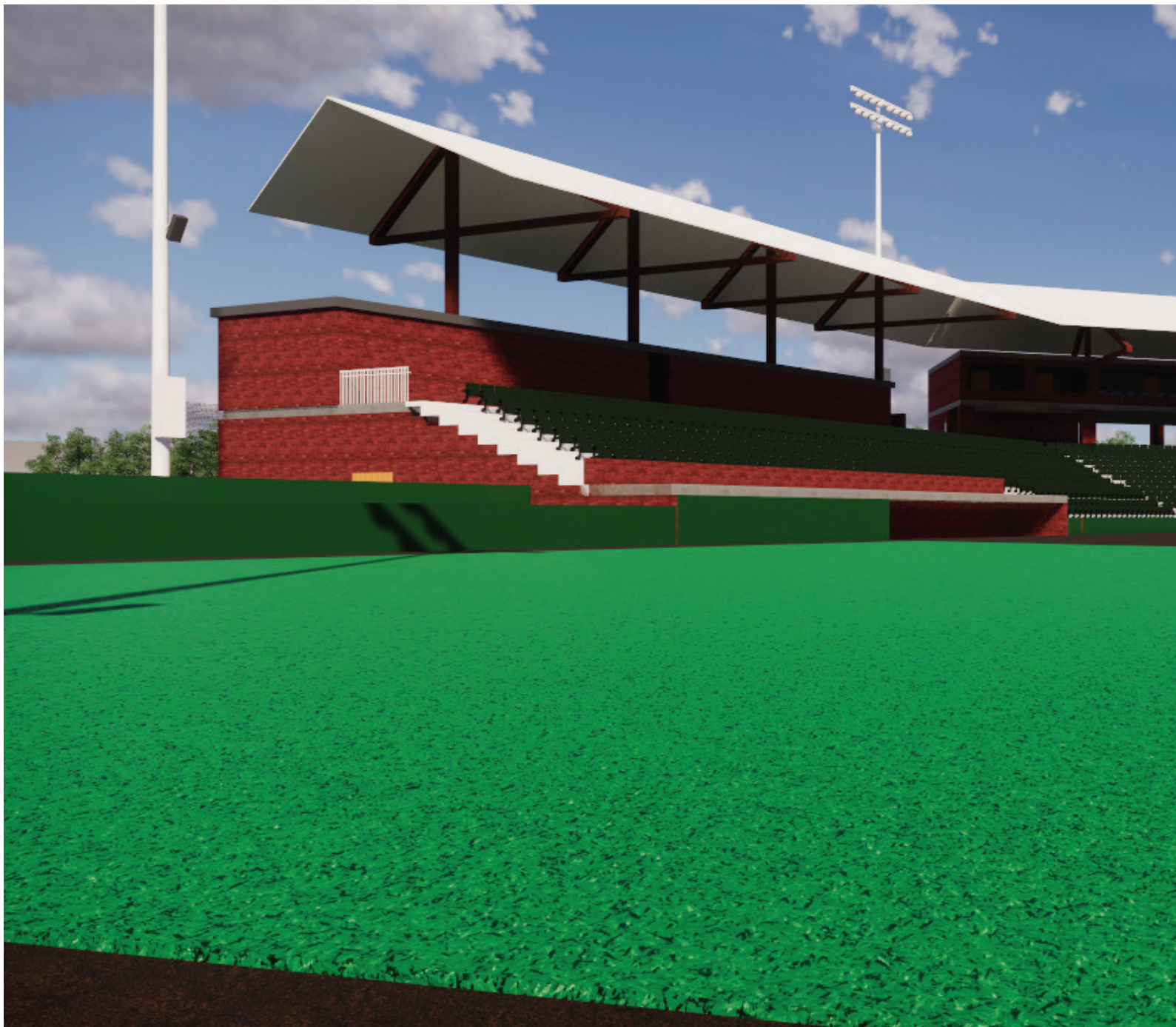
PERFORMANCE CRITERIA

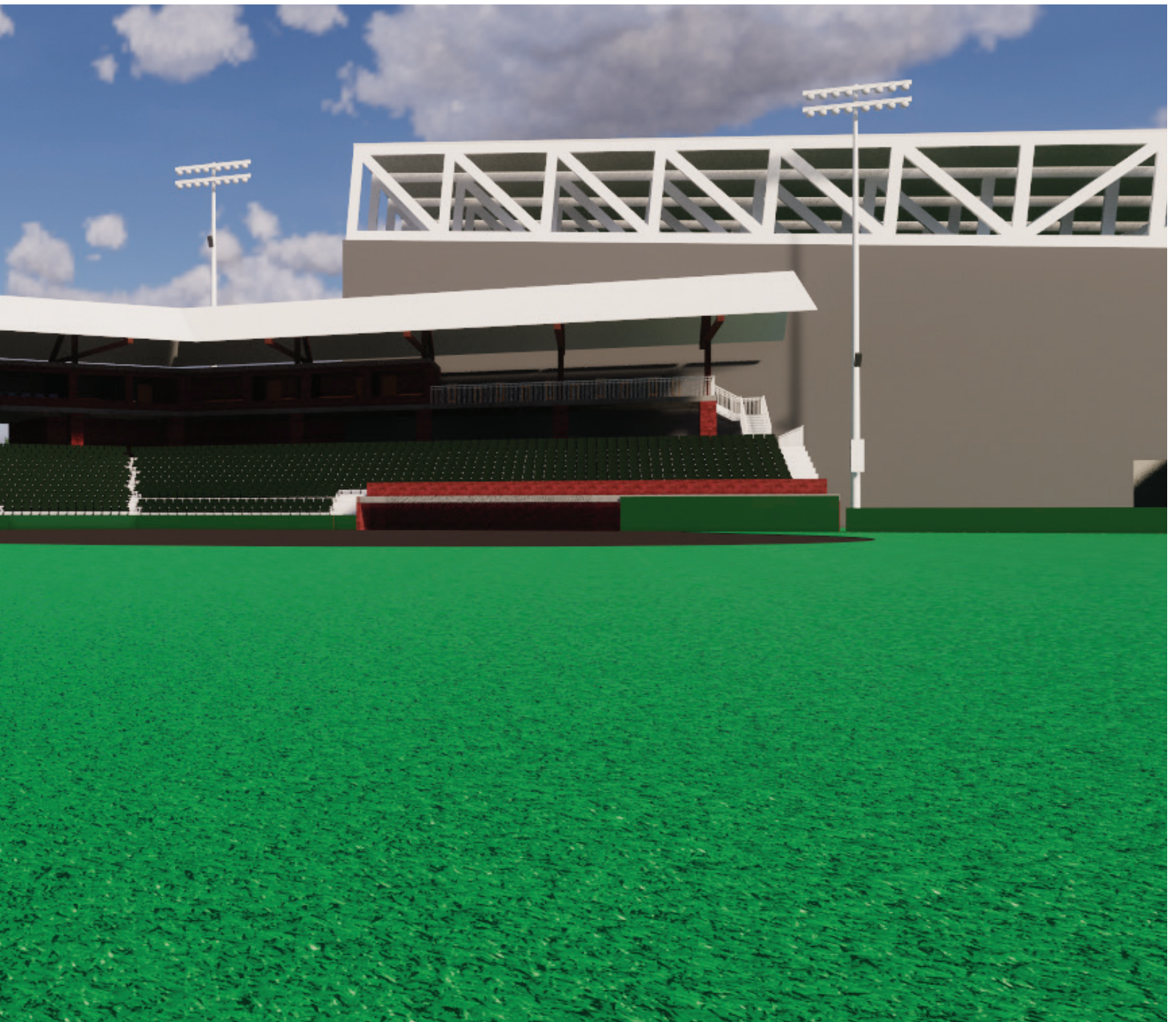
- c. Performance Analysis
 - i. The simulations will analyze this information using digital models, lists of materials and other resources used will be analyzed and compared.
- d. Performance Judgement
 - i. I will compare the results to thoroughly researched information on what are good and bad amounts, as well as quality, of environmental impact.
- 7. Code compliance
 - a. Performance measure
 - i. I will have to use building codes for North Dakota to use for this part of the performance criteria
 - b. Performance measure source
 - i. I will find these through research online via state code information
- c. Performance Analysis
 - i. I will analyze all of the pertinent codes and see how my design matches up to them.
- d. Performance Judgement
 - i. Once I compare these, I will be able to successfully determine whether or not my design is code compliant or not.
- 8. Cost
 - a. Performance measure
 - i. I will analyze costs in different areas such as: predicted total cost, amount needed to raise before construction, amount of certain materials related to others, operating costs, and anticipated revenue for the future of this project.
 - b. Performance measure source
 - i. I will have to measure these by doing cost estimates based on digital modeling, material choices, future usage patterns, and other sources.
 - c. Performance Analysis
 - i. Once I do this research, I will analyze using spreadsheets and calculations.
 - d. Performance Judgement
 - i. I can compare these numbers to other projects and balance out the expenses vs. incomes and see where it ends up and if it will be worthwhile.

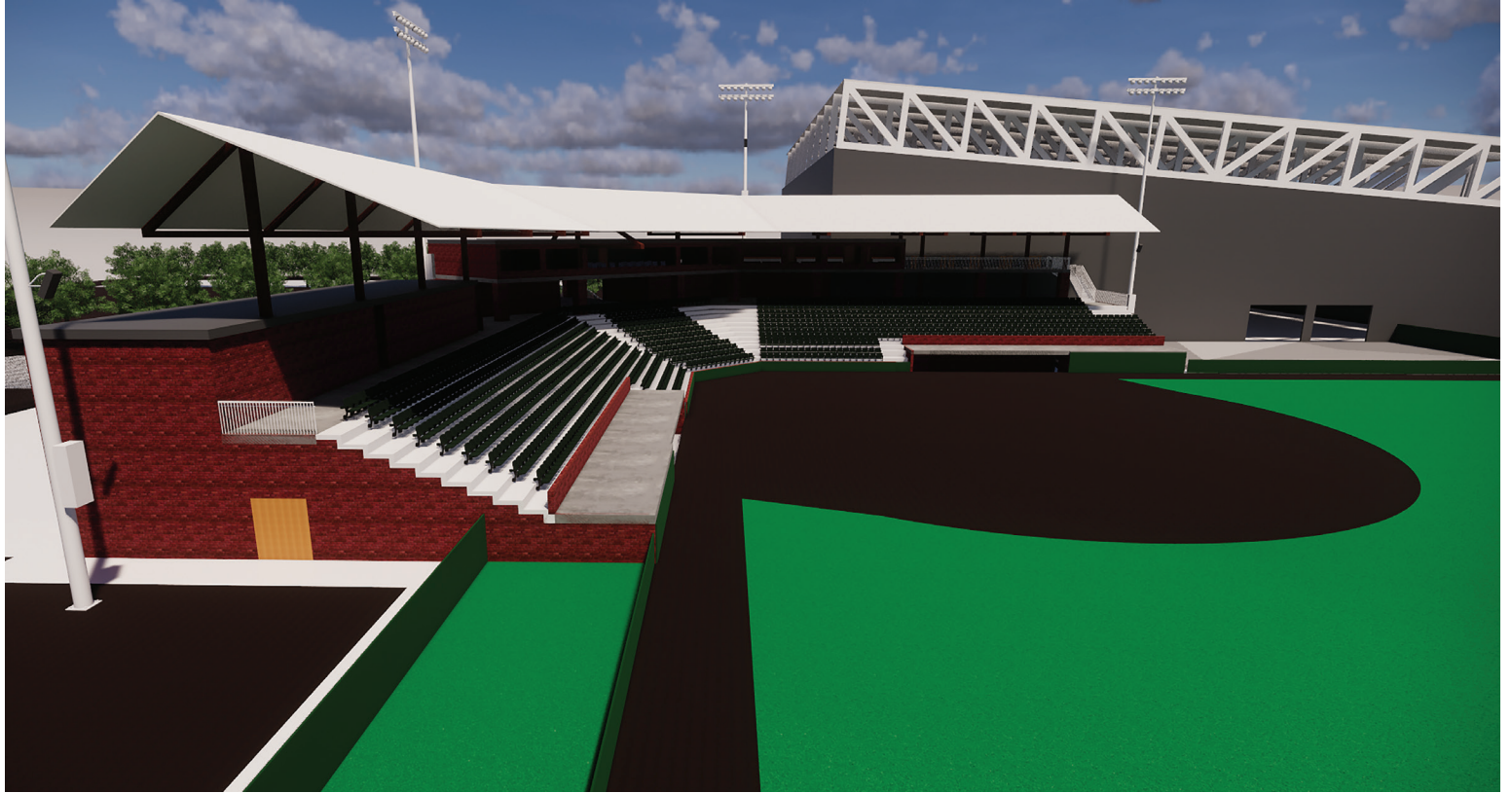
Throughout all of the performance categories, many of them have the same or similar types of research methods. This will help so I can condense the findings and better relate them to each other to help the whole design. My main focus has to do with improving experience, so that will be one of the most important areas to test, however in the end, each of these performance categories go into helping improve overall experience. I am not sure exactly how I will take on the task of measuring personal opinions yet, or what all goes into that, but I will make sure to figure it out soon. I really think that it will be exciting to see how my design performs in all of these areas.



DESIGN SOLUTION







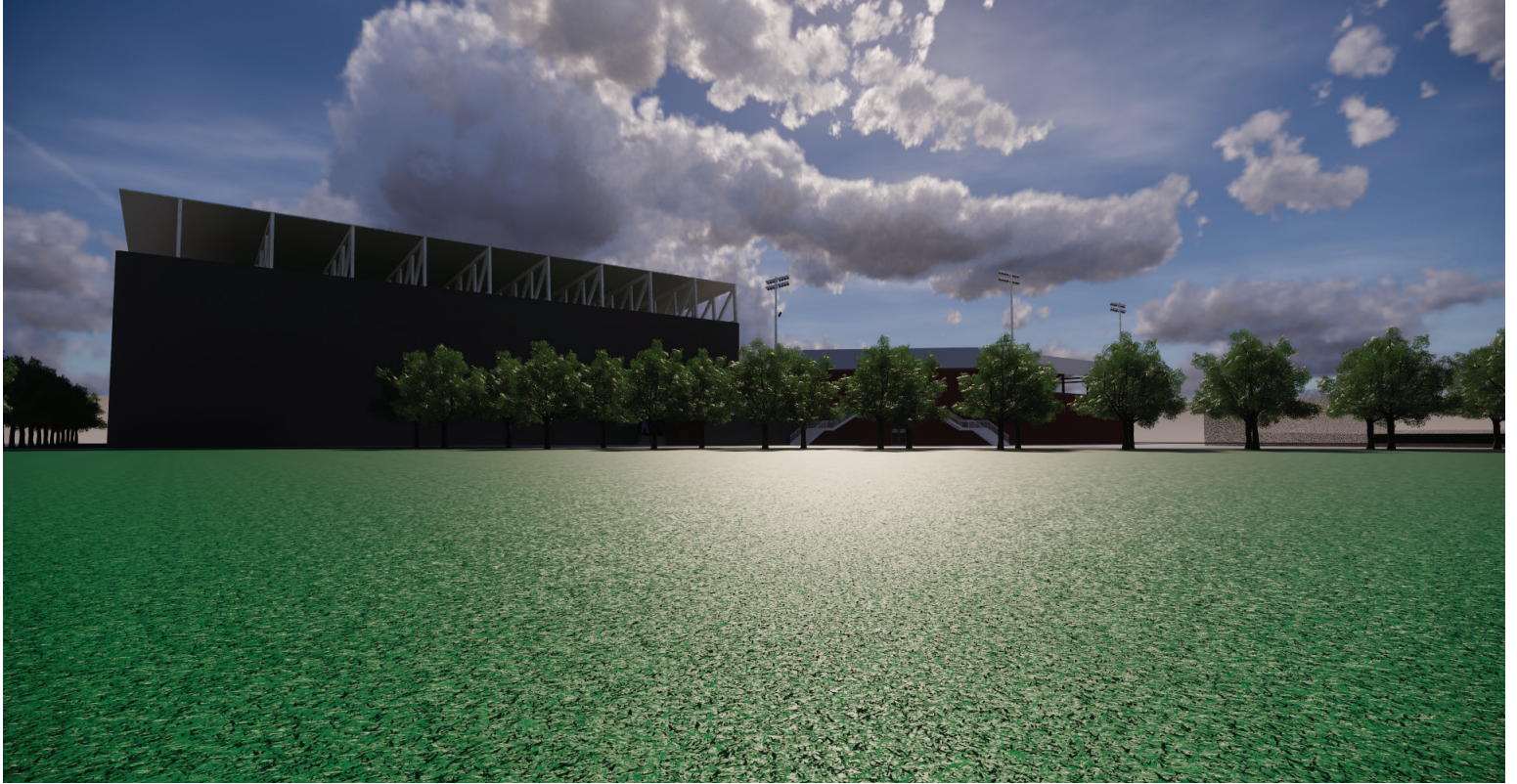
PERSPECTIVE FROM DOWN THE RIGHT FIELD LINE



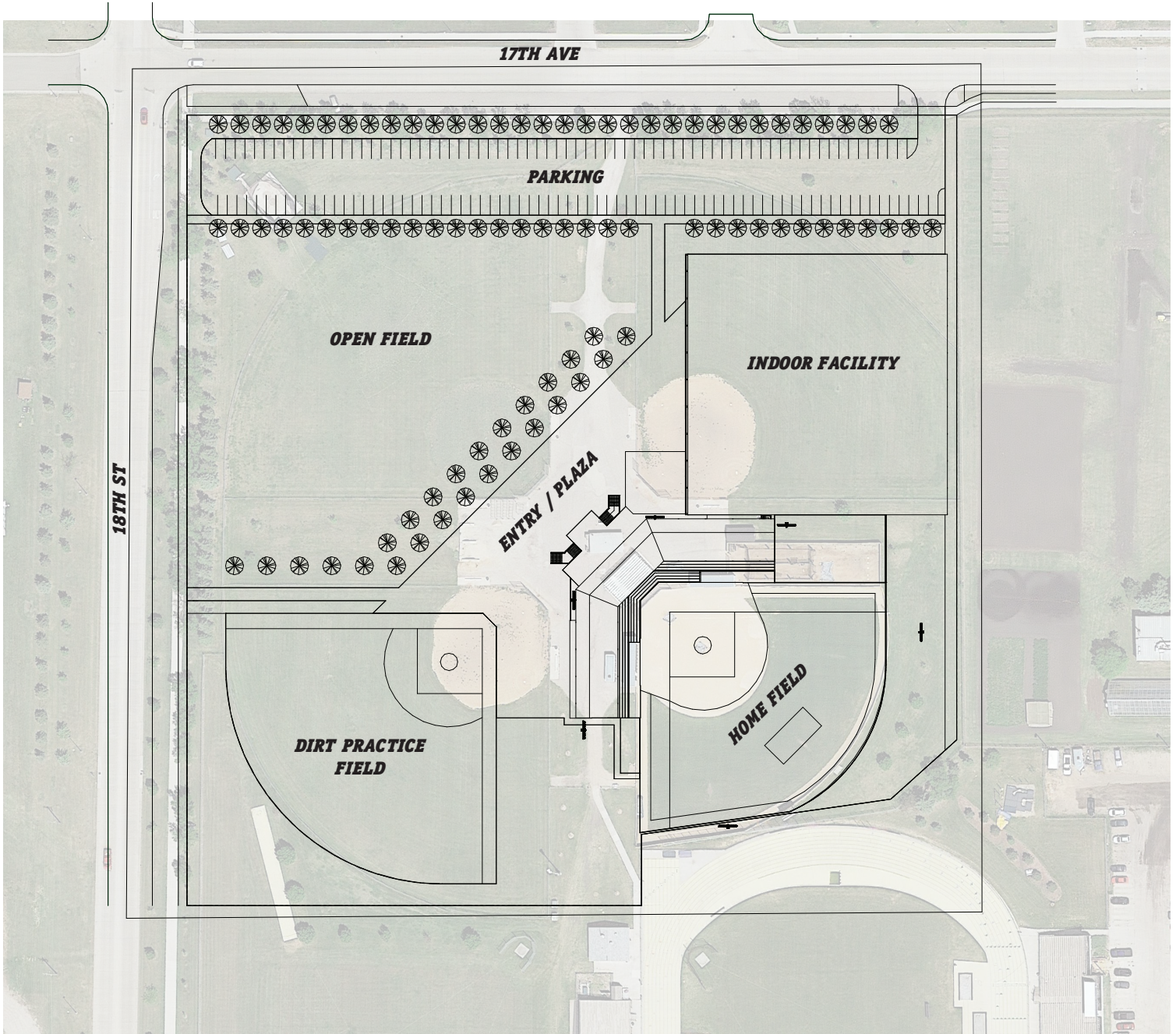
PERSPECTIVE FROM INSIDE THE INDOOR PRACTICE FACILITY

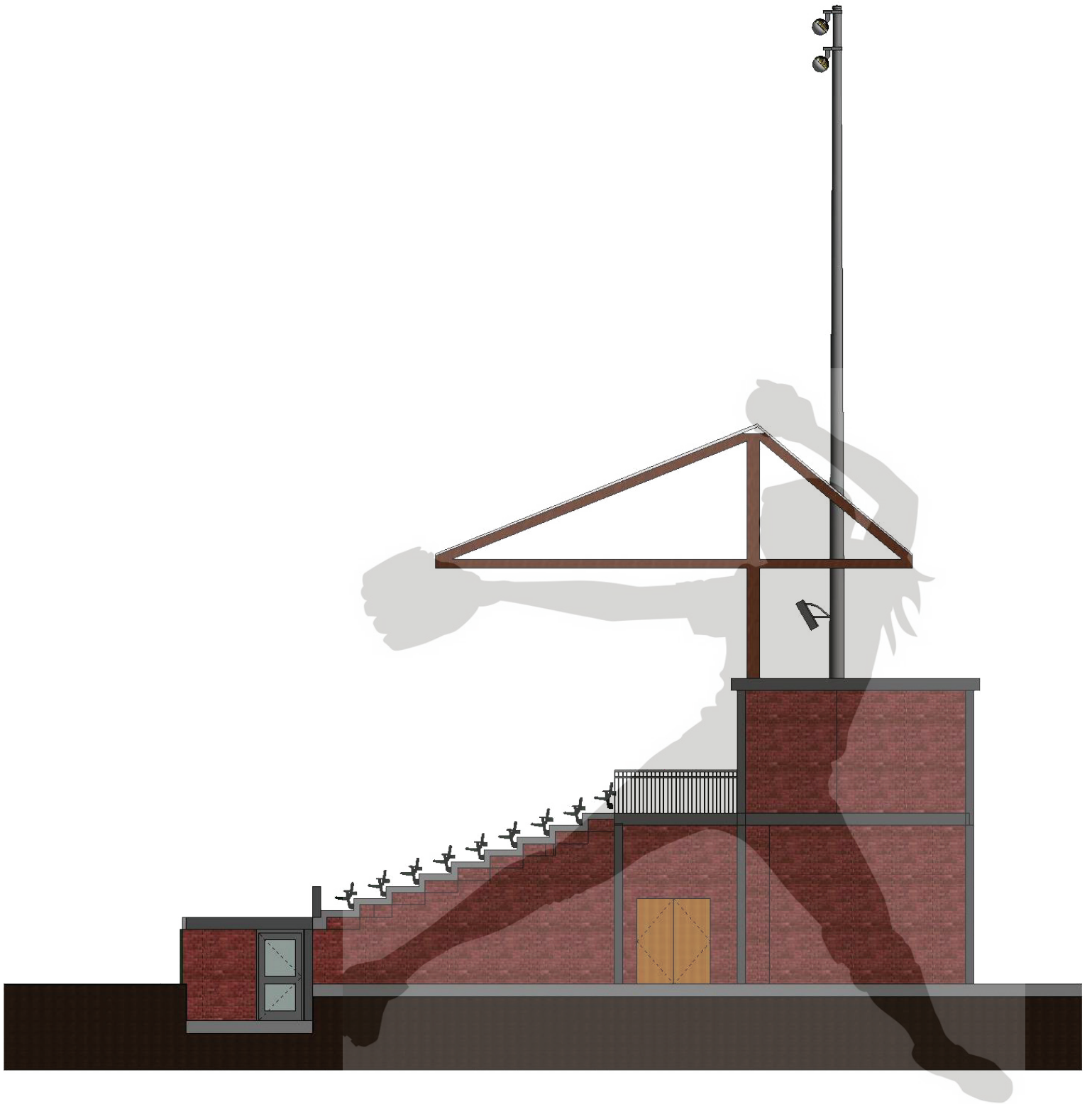


PERSPECTIVE FROM PUBLIC ENTRY

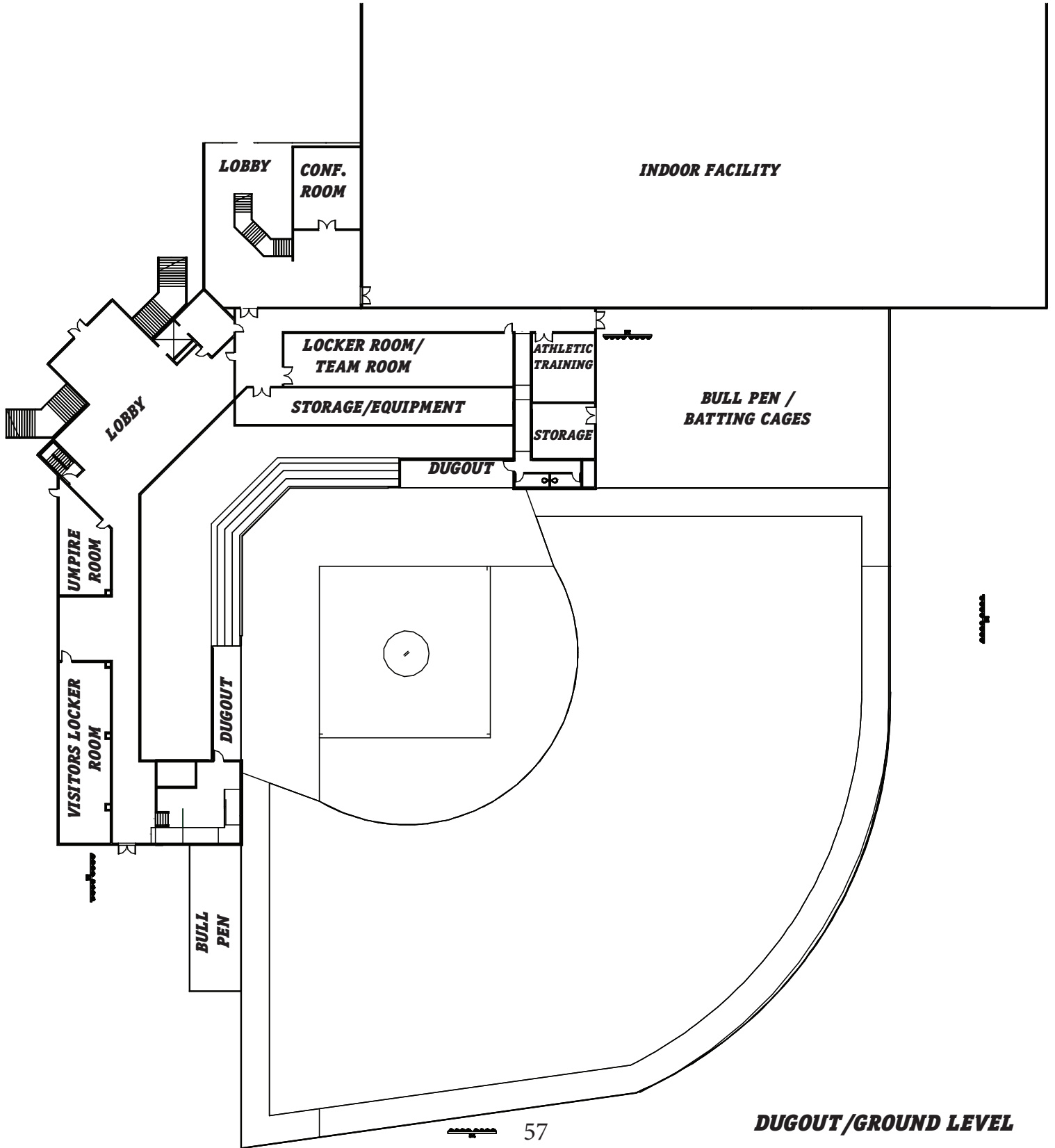


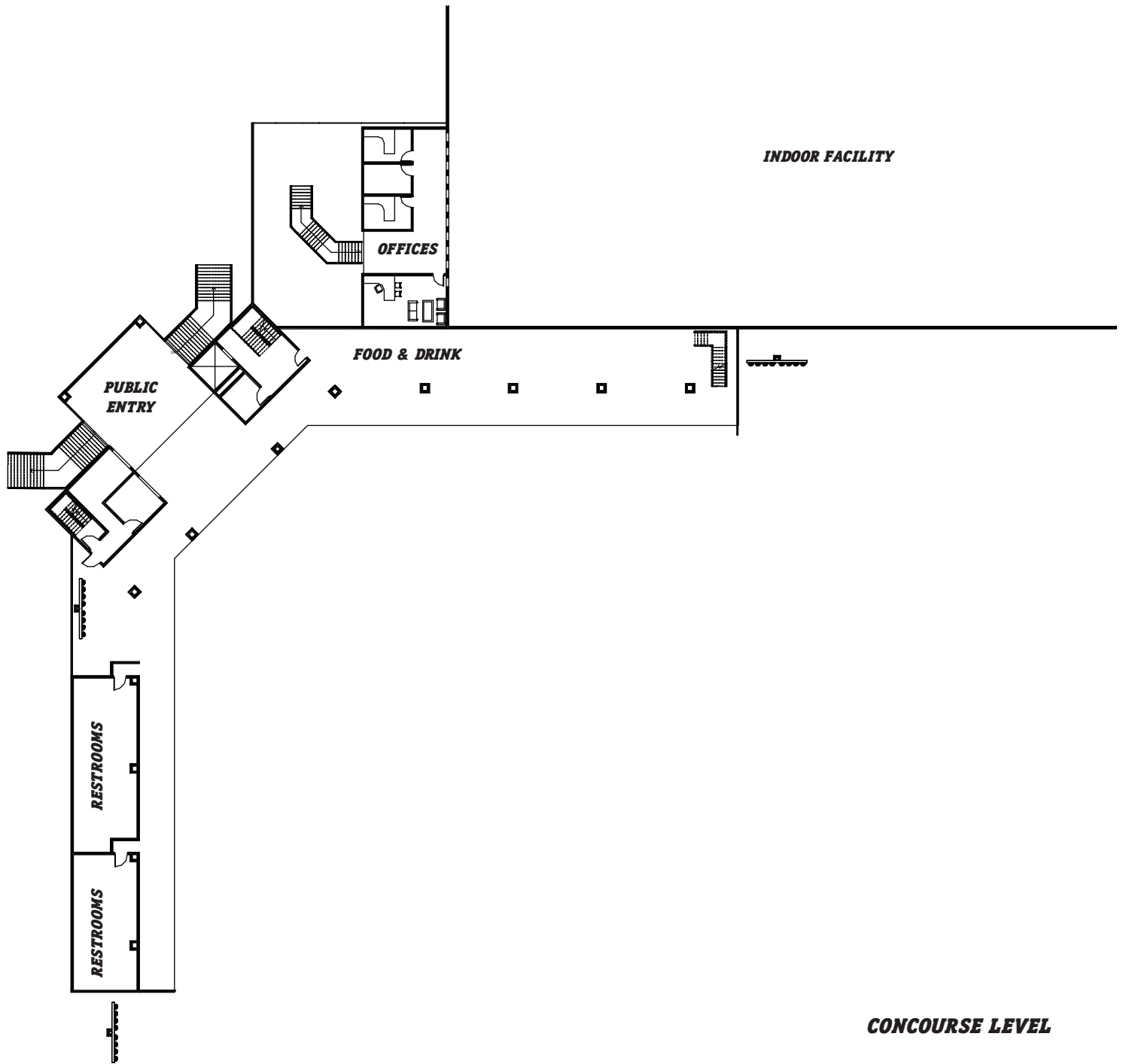
PERSPECTIVE FROM OPEN FIELD LOOKING TOWARD COMPLEX

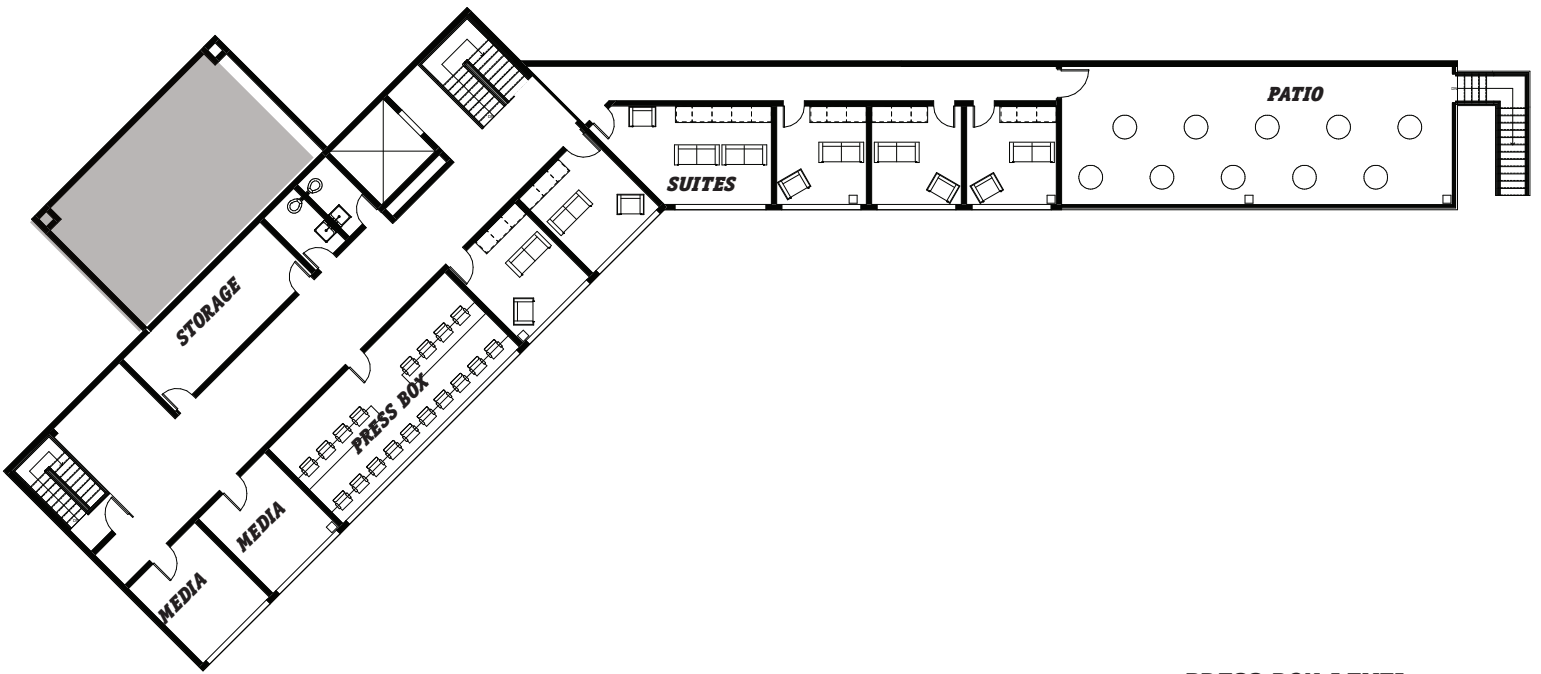




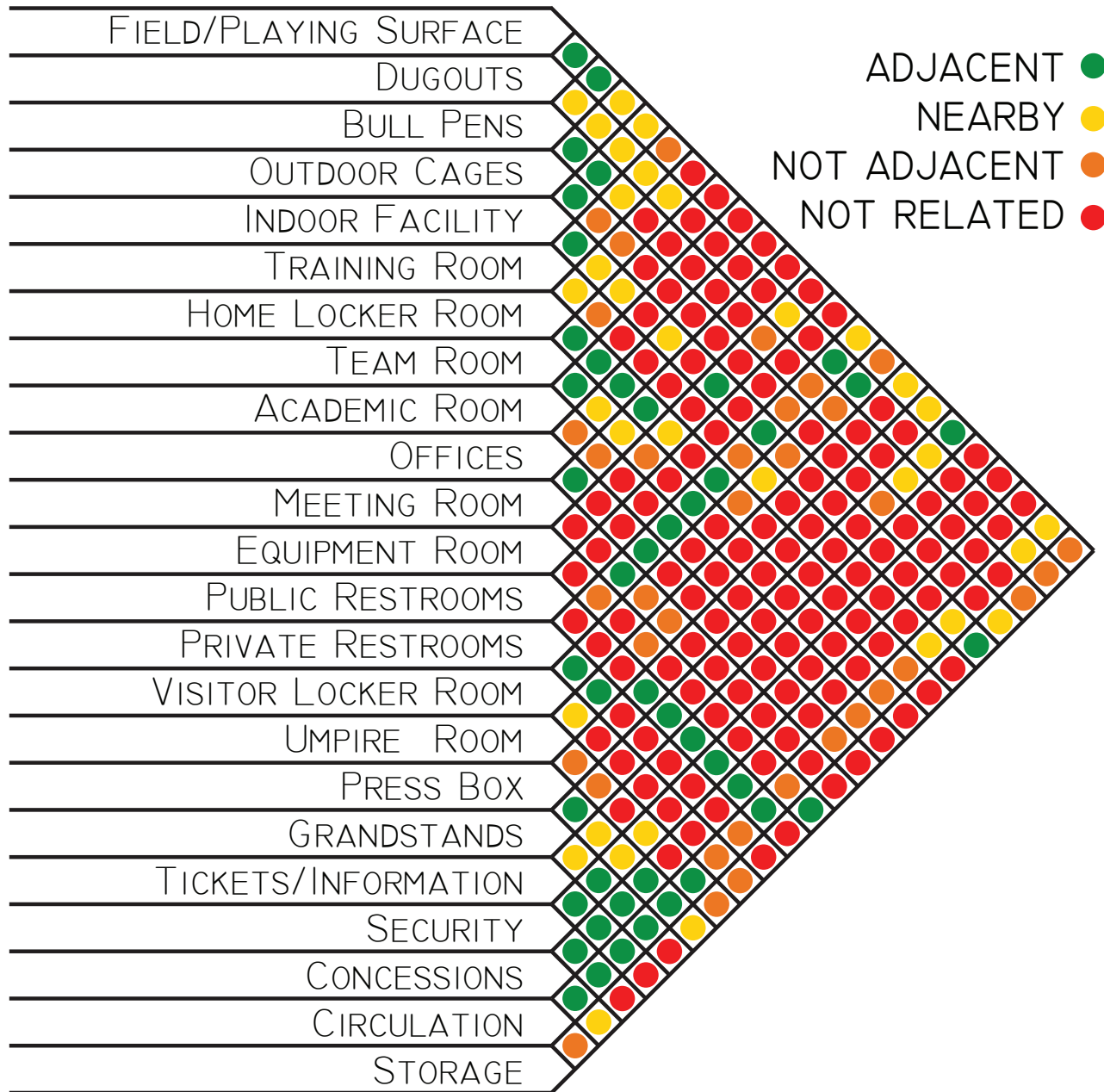
CANOPY DESIGN INSPIRATION COMES FROM FORM OF A PITCHER

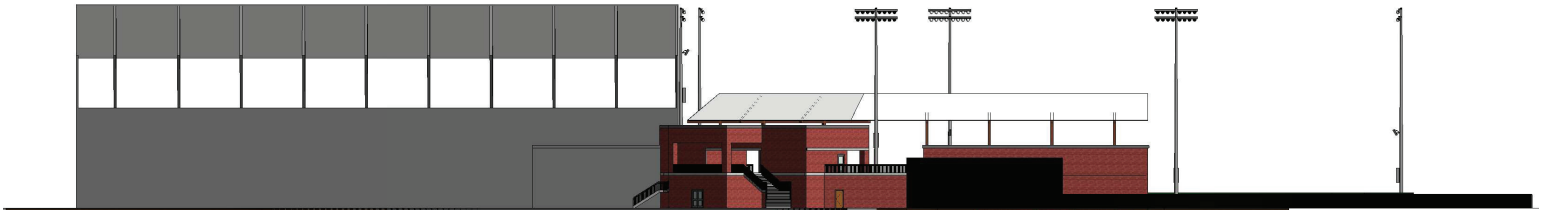






PRESS BOX LEVEL

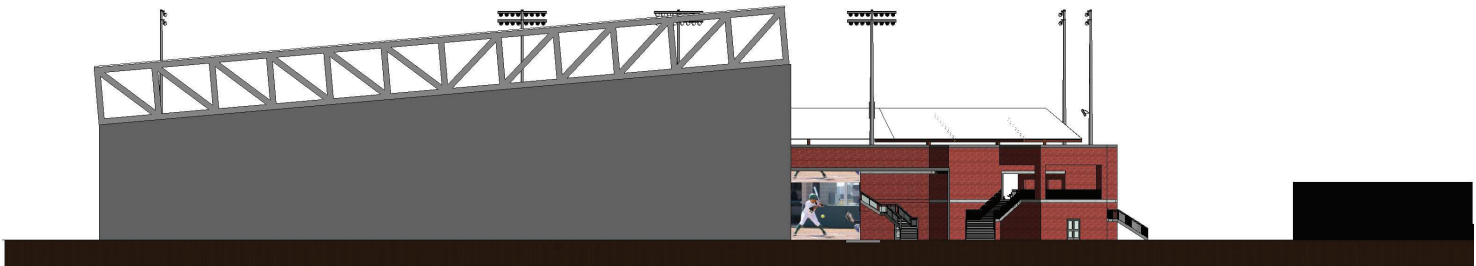




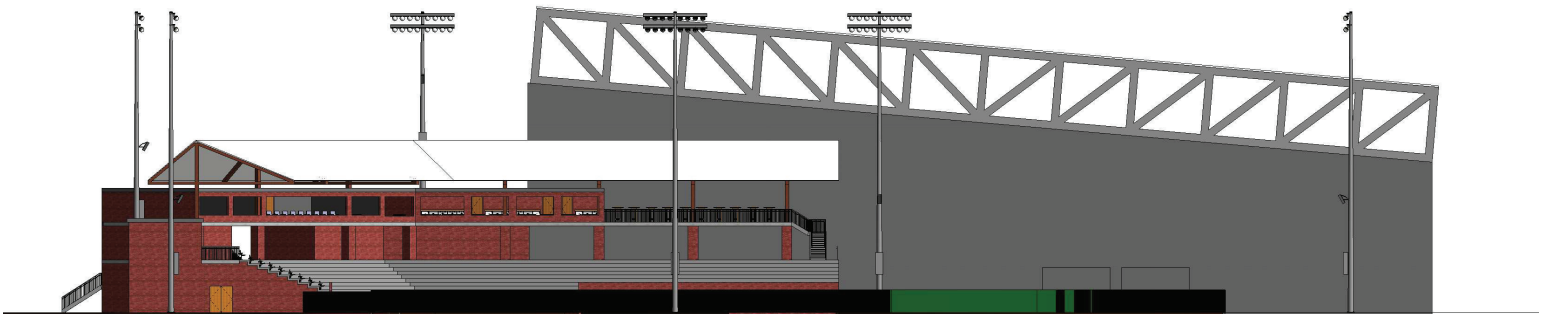
WEST ELEVATION



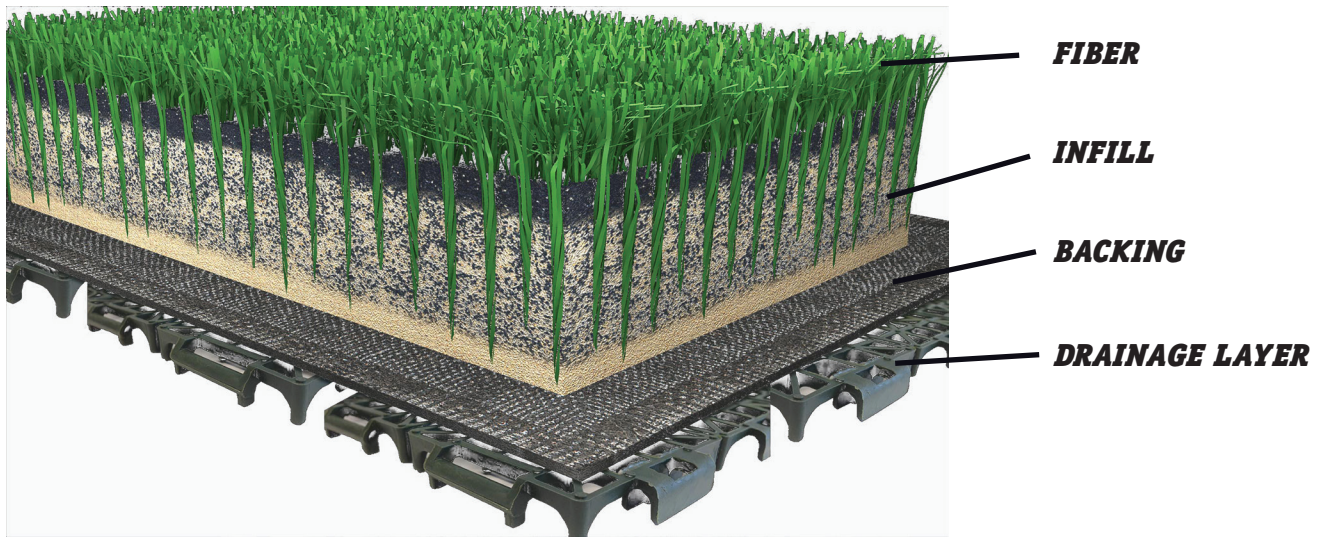
EAST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION





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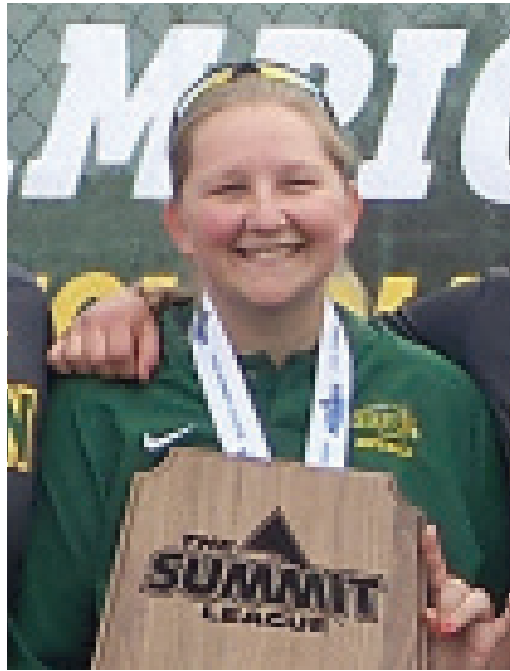
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PREVIOUS STUDIO EXPERIENCE

2 ND YEAR	3 RD YEAR	4 TH YEAR	5 TH YEAR
FALL 2015	FALL 2016	FALL 2017	FALL 2018
DARRYL BOOKER	MIKE CHRISTENSON	BAKR ALY AHMED	GANAPATHY MAHALINGAM
TEA HOUSE FARGO, ND	WOOD STRUCTURE DESIGN BOAT HOUSE WINONA, MN MASONRY STRUCTURE DESIGN PARK BREWERY REMODEL WINONA, MN	INTEGRATED DESIGN STUDIO HIGH RISE SAN FRANCISCO, CA VISION COMPETITION EPHEMERAL TO SOLID	GRADUATE RESEARCH STUDIO THESIS RESEARCH PROJECT FARGO, ND
SPRING 2016	SPRING 2017	SPRING 2018	SPRING 2019
RON RAMSAY	REGIN SCHWAEN	DAVID CRUTCHFIELD	GANAPATHY MAHALINGAM
MONTESORI SCHOOL FARGO, ND PRITZKER ARCHITECT BIRD HOUSE ARCHITECT: ZAHA HADID TINY DWELLING MARFA, TX	CONCRETE STRUCTURE DESIGN FARGO, ND STEEL STRUCTURE DESIGN FARGO, ND	URBAN DESIGN STUDIO Go2030 -> Go2050 FARGO, ND MARVIN WINDOWS COMPETITION CRUTCHFIELD RESIDENCE FARGO, ND	GRADUATE THESIS DESIGN STUDIO FARGO, ND

PERSONAL IDENTIFICATION



Permanent Address:
8000 Sagittarius Circle S. Fargo, ND 58104

Telephone Number: 701-412-5229

Permanent Email Address: hjbean@far.midco.net

Hometown: Fargo, ND