



ANTHROZOOLOGY CENTER

Healing Through Animal-Assisted Therapy

INTRODUCTION



Anthrozoology Center

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

By
Elaine Smith

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

North Dakota State University Libraries Addendum

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THE PROPOSAL

002



ANTHROZOOLOGY CENTER

A COGNITIVE AND PHYSICALLY-FOCUSED PROCESS OF HEALING THROUGH HUMAN-ANIMAL RELATIONSHIPS

Anthrozoology is defined as the interdisciplinary study of the interaction between humans and other animals. This thesis involves animal-human relationships and the ways that animals can improve the mental, physical, and the spiritual health of people. I will be specifically researching the positive effects of the connections equines and canines have on humans and implementing designs that respond to that. Equine-assisted therapy has been a method for helping individuals with disabilities and trauma for centuries. To respond to the need for this type of therapy, I will design a facility that gives space for the occupants to bond and interact with the horses as well as encourage joy and wellbeing. Answering questions like “How can hippotherapy (horse-assisted therapy) and architectural design assimilate in a way that is inviting to a broad spectrum of people?” “How can we use architecture and nature to encourage the wellbeing of equines as well as people?” Using innovation, I am looking to blend the separation between the animal, and human spaces in a way that is inviting, aesthetic, and comfortable. A strong emphasis on framing the ambient outdoor space will be incorporated into the overall design. Connecting to nature is complimentary to connection with animals, and naturally helps us heal. Along with equine therapy, I will be including canine assisted international space within the program.



MENTAL



PHYSICAL



SPIRITUAL



Figure 1 | Hippotherapy

Our society in recent years has seen an alarmingly dramatic increase in anxiety, depression, and other mental disorders. Many people can feel like they are alone when they are experiencing these internal struggles. That stigma is completely false and we need to nullify that stigma. There is a need to convey that those who are struggling are not alone in what they are going through. Societally, we need to portray that we do not need to feel ashamed about what we are wrestling with and to share what’s going on in our minds. In experiencing internal distress, we can sometimes find comfort in emotionally processing with someone we can trust, but when it’s too hard to put into words, sometimes an animal can be just the right aid. Animals inadvertently give us a comforting presence that humans cannot always offer us. Animals don’t require you to do anything right, there is no pressure to socially do the “right thing”, they only require you’re presence, mutual respect, and care. This relationship can be fostered within many animal species, but in particular, this facility will be focusing on equine and canine relationships.

How can hippotherapy (horse-assisted therapy) and architectural design assimilate in a way that is inviting to a broad spectrum of people? How can we use architecture and nature to encourage the wellbeing of equines as well as people? What makes an equine facility sustainable functionally and monetarily, and what doesn’t? In what ways can you design Anthrozoology Center that evokes positive emotion from both the animal and the client? What are ways that we can design safely and efficiently for the user in a beautifully aesthetic and simple way? How can we incorporate the ambient nature of the site i.e. daylighting, ventilation, green space (biophilia) into agricultural typology?

The action of riding a horse not only can invite emotional and mental development, but it can also foster physical development and confidence. (True Strides) In children and adults diagnosed with physical ailments and disabilities, the movement can activate motion that otherwise would not be as possible physically on their own. This creates confidence in those who are not able to be fully autonomous by themselves. Horses can act as an extension to our physical abilities and allow those with disabilities to experience movement in a way they haven’t been able to before. “The horse’s movement is multidimensional which in turn causes the rider’s hips to go back and forth, side to side, and up and down all at the same time. This makes for an excellent tool increasing core strength, balance, posture, shoulder girdle stability, and motor planning.” (True Strides.)

This project strives to emphasize the connection between human and animals and to sustain a safe space for these interactions to take place. The typology of the infrastructure will host a variety of mixed use purposes. The Anthrozoology Center will offer spaces designed for equine, canine, and human circulation that will serve purposes for one entity, or serve a purpose for two or more to be in.

Agricultural

In order to maintain a facility that can successfully host equine and canine practices, an agriculture typology will be incorporated into the overall design. The space will meet the criteria for the care and maintenance for the horses and dogs, as well as design elements that are informed by the instinctive needs and behaviors of the animals. Investigation into how infrastructure for the habitation of horses and dogs will be incorporated into the overall research of project.

Institutional

Besides applying animals to a means of cotherapy, physicians are the individuals that guide the patients to wellness. Upon visited the existing Bison Strides program being practiced at the NDSU Equine Center, I observed a hippotherapy session. As I observed the end of the session, the occupational therapist worked with the kids and their parent's in a separate session that involved more cognitive development. The expanded Anthrozoology Center will meet the needs for a separate space for these types of therapy session in an institutional typology. There space will be inviting and comfortable for the patients and encourage patients to improve.

Arena

The program of the Center will also include a large space for the horses and dogs to interact with the patients as well as give the family members and friends an enclosed space to be able to be spectate and observe. The objective is to make the space open enough for the animals to be mobile but also intimate enough for the patients to feel comfortable.

Outdoor

Blurring the line between the indoor and outdoor is a substantial objective of the facility. Space for the animals to be in the natural environment and for the patients to experience the outdoors in a healing way.

CASE STUDY 1:

Temple Grandin Equine Center
Fort Collins, Co



Figure 2 | Grandin Center Horse Barn

The Temple Grandin Equine Center is designed to integrate research and education in equine assisted activities and therapies (EAAT) with hands-on experience. EAAT encompasses a range of treatments that include activities with horses to promote physical, occupational, and emotional growth in persons with special needs, ranging from cerebral palsy to traumatic brain injuries. 3rd party providers bring in certified EAAT therapists to work with clients, using CSU horses. These providers in turn have established internships and practicums for CSU undergraduate and graduate students. CSU students are also volunteers with the program.

The building is envisioned as a steel frame, pre-manufactured metal building with a standing seam roof. The building will have an agricultural vocabulary, with ribbed metal siding and clerestory windows for daylighting the arena space. Classroom, office and conference space is single story, arranged to the south of the riding arenas.

A new 27,000-41,500 gsf facility has been proposed that will include two riding arenas, an outdoor sensory bridle path, classroom, office and therapy space along with public areas for clients and their families. There will be an adjacent barn for therapy horses as well as outdoor runs.

This Center will create a world class home for equine-assisted activities and therapies; a place where individuals with physical, emotional and developmental challenges can heal, where the therapists can treat, where students can learn and where scientists can research. The program is a collaboration between three colleges: Agricultural Sciences, Veterinary and Biomedical Sciences and Health and Human Sciences. Specifically, CSU's Equine Sciences Program works with programs in Occupational Therapy, Psychology, Social Work, Health and Exercise science, Adult Learner and Veterans Services and Veterinary Medicine. It will also provide the education and research to support EAAT services to be offered at the National Western Center. (Temple Grandin Equine Center Program Plan, 2016)



Figure 3 | Grandin Center Arena



Figure 4 | Grandin Center Site Plan

Research, education and hands-on experience in equine-assisted activities and therapies requires a facility that can provide:

- Self-motivating activities and therapies for persons with special needs
- Respite areas for families and caregivers
- Hands-on EAAT training
- Professional certification for students
- EAAT research opportunities for Graduate Students
- Continuing education for EAAT professionals
- Host venue for seminars, clinics and conferences
- Horse care, conditioning and training

CASE STUDY 2:

Equestrian Centre / Carlos Castanheira + Clara Bastai
Leça Da Palmeira, Portugal



Figure 5 | Site Plan



Figure 6 | Exterior of Facility

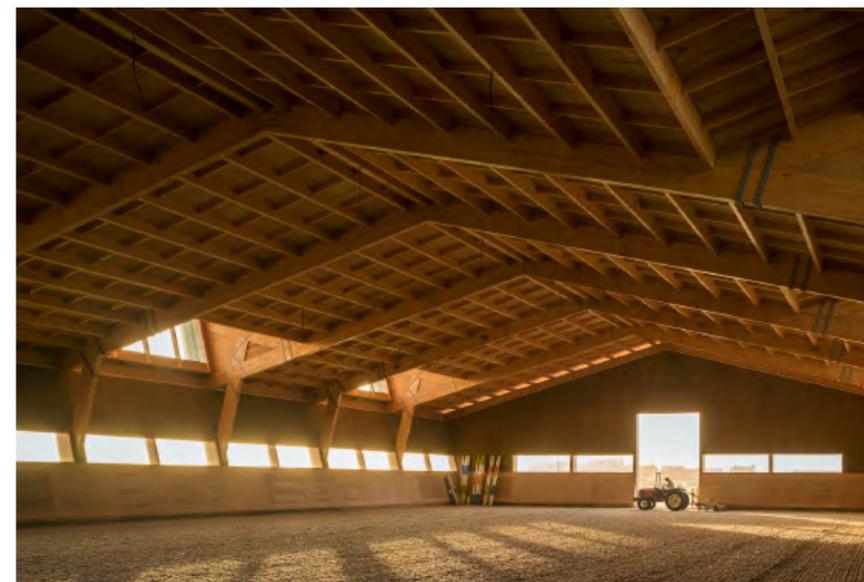


Figure 7 | Indoor Arena

This beautiful Barn designed for the horses and the people that love them is located in Portugal. One requirement that the architects had to incorporate in this project was the integration of timber construction in the structure, partitions, walls and ceilings. The Center includes two enclosed arenas, a cellar, and a social building. This precedent is a stunning example of how agricultural architecture can be architecturally stunning and prove to still inhabit form along with function.

CASE STUDY 3:

Hennepin Healthcare Clinic and Specialty Center
Minneapolis, MN



Figure 8 | Waiting Area



Figure 9 | PT Room



Figure 10 | Atrium

This case study informs how interior spaces can be designed for children in an OT and PT setting. The use of warm tones from wood materials combined with cool colors like blues and green create a calming effect for the clients. Spaces designated for children to participate in OT and PT physical activities are also an informant of the design. There is an intentional use of natural lighting and intelligence in artificial lighting elements in the project as well.

Private Animal Spaces

- Stables
- Runnouts
- Horse Walkers
- Sports Medicine
- Veterinary Hospital
- Drop off/Pickup Breezeway
- Pharmacy
- Storage

- Sensory Trail
- Indoor Arena
- Outdoor Arena
- Canine Therapy Rooms

- Greenspace
- OT and PT Offices
- Therapy Rooms
- Sensory Rooms
- Observation/ arena veiwing
- Classrooms
- Housing for Staff and Clients
- Reception/ Commonsapce

Human Spaces

The facility will be designed for those who will benefit from animal assisted therapy. To help individuals who struggle or suffer from mental health, physical disabilities, and mental and physical trauma. Specific programs for inmates and parolees to care and interact with the animals are also included in the operation. Another clientele is the possibility of having space for boarding as well.

Some of the programs to be included in the complex comprise of:

- Adapted Therapeutic Horsemanship
- Equine Assisted Learning
- Physical and Occupational Therapy (hippotherapy)
- Military and Veterans Horsemanship Program
- Canine assisted Therapy
- PT Sessions
- Prisoner Rehabilitation



Figure 11 | Hippotherapy



Figure 12 | Adapted Therapeutic Horsemanship



Figure 13 | Military and Veterans



Figure 14 | Equine Assited Learning

For this project I will be working with Erika Berg, Amber Bach, Katie Halveka, Quiara Smith, and Valerie Stevenson, among others; all who are involved in some way with animal assisted therapy. They will be helping to develop a program and deliverables required for an expanded facility for existing hippotherapy and dog therapy programs in the Fargo area. In this scenario, they will be acting as my clientele and guiding me on the needs of the users that will be inhabiting the facility.

Those who will be able to benefit from animal assisted therapy include:

- Children or adults who have experienced trauma and lost relational trust
- PTSD victims
- Veterans
- Kids and Adults on autistic spectrum
- Those with physical disabilities
- Foster Children
- Those on parole- rehabilitation
- NDSU Horsemanship Class participant
- Horse Owners boarding at the facility

Along with human habitation, clientele will also include animals within the complex. Adaption for human-animal interaction in spaces will be considered when designing for both users. Design must include humane strategies that encourage conventional care of animals that remain temporarily or permanently on site. Some considerations for the interior and exterior design of the Hippotherapy Complex include and are not limited to awareness of the floor finish and material, stall size and space, circulation and ease of movement, safety requirements from the *Guide for the Care and Use of Agricultural Animals in Research and Teaching*, and door openings and sizes. Although animals do not have the same considerations that we have when we design for humans, it is still important that these hooved users are generally happy and healthy by simulating an environment that best mimics their natural habitat.



Figure 15 | Dr. Erika Berg

Dr. Erika Berg (PhD) is an Assistant Professor in the Equine Sciences Program with an interest in equine assisted activities and therapies. She graduated from the University of Missouri with a Doctor of Philosophy degree in Animal Science. Dr. Berg's responsibilities include teaching equine classes and directing the Bison Strides program.

Amber Bach-Gorman is an Assistant Director and the coordinator of clinical services at NDSU. She earned a Bachelor's Degree from the University of North Dakota in Psychology, her Master's Degree in College/Agency Counseling from the State University of New York - Plattsburgh, and her Doctorate in Counselor Education at NDSU. In addition to being a nationally certified counselor she is also an Equine Assisted Growth and Learning Mental Health (EAGALA) specialist, in addition to a Pet Partner Therapy team. Prior to working for NDSU, she worked as a Mental Health Counselor for a university in upstate New York.



Figure 16 | Amber Bach-Gorman

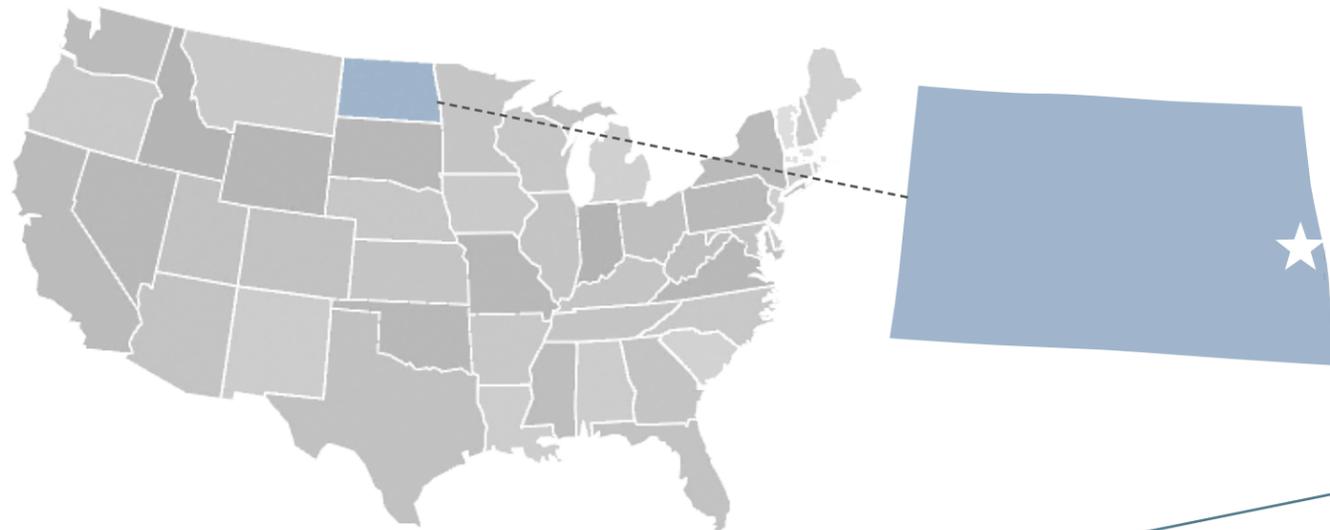


Figure 17 | Veiw of Site Looking South



NDSU EQUINE CENTER & HORSE PARK

5140 19th Avenue North
Fargo, ND 58102



Figure 18 | Veiw of Site Looking South



Figure 19 | Veiw of Site looking East

The NDSU Equine Center is situated on 14 acres of land within the North Dakota Horse Park and was constructed in 2003 to serve as the epicenter of the NDSU Equine Science Program. The 600' x 120' climate controlled barn contains an indoor arena, spectator seating, and stall accommodations for over 300 horses. The facility is also used for horse shows, events and to house race horses for the during the racing season (North Dakota State University.) Additionally, the barn is used for several academic programs offered by NDSU. The Equine Science program conducts much of it's teaching and outreach in the Center. This facility was designed with the intention that it would inhabit horses for only short term and was mostly made for the summer racing season. Not much of the design was intended for long term uses such as boarding, showing, and horse assisted therapy.

The process for site selection of the Anthropology Center was more of a simple one. The NDSU Equine Center was the most obvious and logical site that worked with the already current use. After connecting with the Bison Strides program director and projected project client Erika Berg, Erika expressed the benefits of the Equine Center as site for the Anthrozoology Center Addition. The Bison Strides program is already held on this site, but there is much room for expansion and improvement in the current building stock and environment. After connecting with Erika, it was concluded that expansion for the Anthrozoology Center would work best to stay in an already established area with the Bison Strides Program.

Some of the benefits of the site include:

1. Proximity to NDSU for student Bison Strides volunteers
2. Already connected to an established Equine Center
3. One of the only horse barns in the Northern Fargo area
4. Open plor for expansion and outdoor programming



Figure 20 | Satellite Photo of Horse Park



Figure 21 | Surrounding Farmland



Figure 22 | Surrounding Industrial Typology

HUMAN HANDPRINT:

The human handprint is a model adopted from the architecture firm Overland partners based in San Antonio, TX. As stated on their website: The fundamental premise for all Overland projects is that there is always hidden potential beyond what is immediately apparent. We call this The Embedded Potential™. It allows us the opportunity to positively impact not only our projects, but the world around us in meaningful ways. Drawing from this premise, we developed The Human Hand print to guide and measure the positive impact of our projects. Calibrated to each project and organized by five impact categories, we measure both quantitative and qualitative aspects of human experience and environment.

ASPIRATION:



Aspiration helps us identify the “why” of a project. We develop the goals of the project, creating a project mission statement and guiding principles—an objective filter of fundamental agreements that shape future decisions. (Overland Partners)

With my role as designer of this project, I aspire to connect the Fargo/Moorhead community on a large scale. Initially, I hope to invite individuals that will benefit from this therapy typology offered by the facility, but I hope to invite people from all cultures, backgrounds, and lifestyles as an educational environment and engage with people they may not otherwise engage with. I aspire for the animals to assist in breaking barriers between people and open opportunities for them to improve themselves and improve their

INSPIRATION:



Inspiration pushes the boundaries of the design by holistically integrating elements that elevate the human experience such as aesthetics, integration of art and nature, craft, and opportunities for education. (Overland Partners)

Inspiration to create an Anthrozoology Center drives in my love for animals and the impact that they have had on my own well-being. I want to encourage this kind of experience with animals for people and emphasize just how much they contribute to our health. I am inspired by the intrinsic relationship that this relationship has shown throughout the history of humanity and I hope to be inspired by these aspects in nature throughout my design process.

RELATIONAL:



Relationships allow us to align the natural environment with people and connect them to place, culture, and each other. We gather an understanding of context and engage with stakeholders, end users, and the broader community as appropriate. (Overland Partners)

Through my research and design, I hope to share the importance of human-animal relationships and how they can improve the well-being of a society that is inclined to participate in these interactions. Not only that, but to connect different people groups together in a common space where animals are encouraged to intervene in these interactions.

STEWARDSHIP:



Stewardship serves as a guidepost for our care of environmental, operational and financial resources. We set sustainability goals, clarify budget, schedule, and other key business factors. In doing so, we honor all available resources. (Overland Partners)

Within the Fargo/Moorhead community I hope the steward a love for equine and canine relationships with people. This facility should encourage people to become involved with animals and inherit the benefits that animals give to us. This facility will be able to educate a population of what a healthy human-animal relationship looks like, and how to interact appropriately as well as animal husbandry skills. Overall, teaching those involved to be good stewards for the care of animals and how to best care for their environment while changing the ambient nature as little as possible are main contributing factor in this project.

WELL-BEING:



Well-Being is used to identify strategies that support both physical and mental health such as comfort, ensuring access to quality water and air, promoting physical activity, and creating spaces for both productivity and rest. (Overland Partners)

Programming for the facility will include design strategies that have been studied and proved to help improve and human's as well as an animal's well being. Investigation into spaces that accommodate equines and canines, Bio-phelic design, trauma informed design, are just some of the ideas that will be implemented into the overall facility.

Completing a comprehensive well designed thesis project: In my last year as an architecture student in the NDSU program, my goal is to graduate with a thesis project that I feel has shaped me as a designer and as an individual. Completing a thesis is not an easy walk in the park, and my hope is to manage this task is a healthy way that shows that I am passionate about what I am doing and that I hope to made a different in society with the work I am putting forward. I do not want my work to be a box to check off the list, but rather an opportunity to shed light on a matter that speaks to me and get others to be passionate and aware about the subject that I am studying. I aspire to hold myself to a standard of work that will come naturally through a practice and subject that I feel passionate about.

How to design a well maintained human-animals space: Throughout my undergrad I have not yet had the opportunity to design a space that includes the interaction between humans and animals. I hope to learn this specific structure of design and be an expert in this type of programming. The goal is to be able to design a well functioning space, while also integrating architectural aesthetic in a way that is usually not conventional for agricultural type programming.

Infrastructure and landscape that instigates, mental, spiritual, and physical healing in all participants: A goal that ties into my thesis proposal is the research of spaces that inform the well-being of people. Through the use of nature and other subjective aspects that influence how people feel.

Green Design that respects, responds, and preserves the vernacular landscape: Through my design I aspire to steward the natural environment well and take into account how the facility will effect the micro and macro-climate of the area. I hope to incorporate design solutions that change the landscape as little as possible.

Indoor/outdoor Blend: Create an interaction between the controlled indoor environment and the outdoor environment that is homogeneous and natural.

Framing the landscape through design methods: Emphasize the natural landscape that the project site has to offer. Incorporate Biophilia into the overall project.

Ease of use-focused attention on making facility ADA and comfortable for all individuals to use: Always aware of accessibility design and making is as user friendly as possible. Taking special attention to the organization of space, and having an empathetic mindset to understand how to create ease of use for all individuals.

Learn how to work with specific project users and clientele: Be able to work with real people that have a passion for the subject that I am studying. Asking them the right questions and staying connected with them throughout the design process.

A) Design Methodology

I plan to approach the design method by taking each aspect of the protect in order of priority. I will start by evaluating the site and how the project can interact with it, and then take into account the program and how each space should be interacting with one another. From there I can move on into massing and form. What remains are the more schematic areas of design and the more detailed arena of BIM.

B) Documenting Design Process

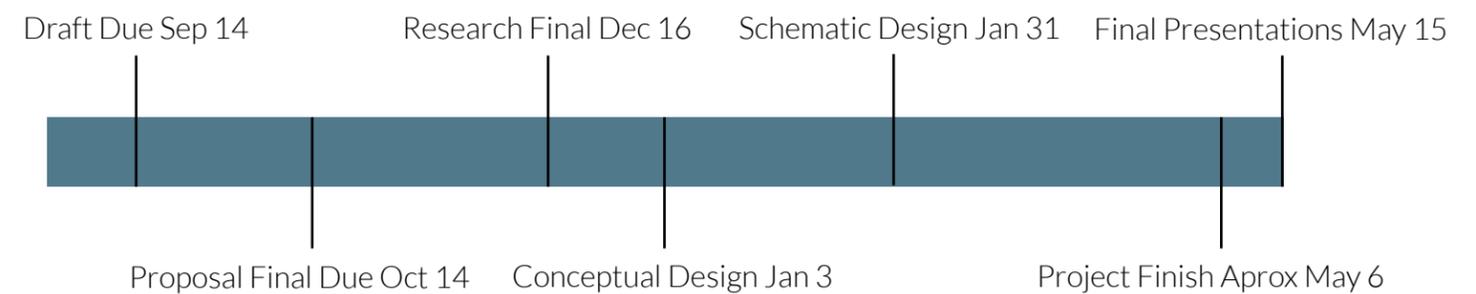
To keep a record to document the design process during the thesis project I plan to do the following:

Keep a designated sketchbook to document all physical sketching of the design process

Photo documentation throughout process

Document Conceptual digital ideas to convey the development of the project

B) Schedule



RESEARCH



Precedent 1:

SPUR Vida Complex CSU
Denver, Co

Firm: Clark & Ennerson

Project: National Western Complex (Vida) & Temple Grandin Equine Center

Team Member: Casey Roberts

Clark and Ennerson is the architecture firm, office in Fort Collin CO, that designed the SPUR Campus (at National Western Complex, aka Vida) for CSU and Temple Grandin Equine Center. Casey is one of the architects that worked on SPUR. In this research, I was able to schedule a Teams meeting with Casey to ask him a series of questions about the project and his experiences that hes had during the entire process of the project. The project is currently under construction and will finished by January 2022.



Figure 23 | Spur Campus Exterior

1) What are some things that you must know or understand when designing a space for disabilities and large animals such as horses.

- The ada path and how to get the them
 - A little more space, the ADA plus the helper

- Stalls to arena be careful with colors and transitions, they can be spooked
 - Slip resistance. Asphalt is great, but if you but sealing coat it's like ice
 - Concreate walkways, go with a brush finish or more so there's traction.
 - Drainage and slope right is important so there isn't up and down going through the space.
 - Doorways need to be really big
 - 10ft doors walking a horse through
 - 14ft of there's a rider
 - Turning radius
 - Tip over weight of the stalls
 - Access to the outside from stalls, outdoor run
 - Thinking of the support for them, viewing areas for staff and families
 - Hippo laws, be able to see the stuff. Able to shut down arena to the public.

2) Transition between indoor and outdoor spaces

- Spur campus is really tight, not a lot of nature around it. Really high overhead doors so the arenas could be open when it's nice out
 - Large tall glass to let the natural light in
 - Saddle your horses and then be able to go outside through large overhead doors
 - Weather- you want sessions to be controlled in the wintertime
 - Open-air arenas are really helpful to be able to see the environment around you rather than the immediate arena and support.
 - Have equine spart medicine arena for horse therapy
 - Breezeway- gates enclosing the space
 - Indoor Arena-17000 sf
 - Outdoor arena 5500 sf

3) Sequence for how humans interact with the space.

- Entrance opens into a corridor
- Corridor leads to the main reception area
 - Direct access to the arena from reception area and viewing as well.
- Outdoor arena
 - Framed by the facility on three sides
 - Open side is meant for horse to take out on trial rides
 - Large overhead door where you can saddle your horse and inside and bring it out to arena
 - Has a direct path to the sports medicine
 - Riding wall to keep the horse away from the edge
 - Wall to help screen the riders from distractions and make more private from the public (10ft). Takes away some of the visual cues.
 - 5,500 sf

- Could've been a little bit larger but that's what fit with the site
- Wall on south is three stories, east 2, north 1, so arena is pretty well shaded already
- Don't want high contrast changes on the running surface
- ADA ramp to mount on the horses.
 - a. Landing area
 - b. hoist for people in wheelchairs
 - c. Large turn around for the horses to minimize sharp turns
- Bathrooms
 - Designed to teach handy cap people in various things
 - Bathtub and shower
 - Adult size changing table
 - Extra space not just the minimum turning radius
- Kitchen
 - Small kitchen to learn skills
 - Space for Volunteers
 - Tack room right off of the walkway around the arena and adjacent to the tacking spot
 - Casework for disabled peoples to get ready for session
 - Space for instructors to do their tasks in between sessions
 - General physical therapy space.
 - a. Hangers are on ceiling to hang stuff
 - b. Mats and pads
- Hospitality
 - Very separate from the rest of the building, small section on the top floor
 - For on sight manager, vets on sight, someone teaching classes, users from FFA. They can be on sight and not have to commute
 - Hotel Style
 - Dorm style- own room and shared amenities
 - Public area
 - Fitness Center
 - ADA Rooms, type B, just need hardware installed
 - Rooftop deck with views
 - a. Large glass sliding doors to transition the inside and outside space
- Classrooms
- Main Arena
 - Concerns with natural light at first, didn't want high contracts from sun to shade
 - a. All the glass is frosted above eyelevel
 - b. A lot of windows on the east from the second floor up
 - Human path around the arena that is ADA with mats down.

4) Structure

- Pre-engineered metal building for the arena, and steel buildings on either side of it. Convoluted
 - For the spans, you want pre-engineered metal building or trusses. 15' deep truss. 100' across.
 - Economically, you probably won't get wood to span that far
 - Introduced wood in other areas like the riding wall
 - For my thesis, a suggestion to simulate structure with wood
 - a. Attach wood to bottom of trusses
 - b. Faux column

5) Spaces designated for horses

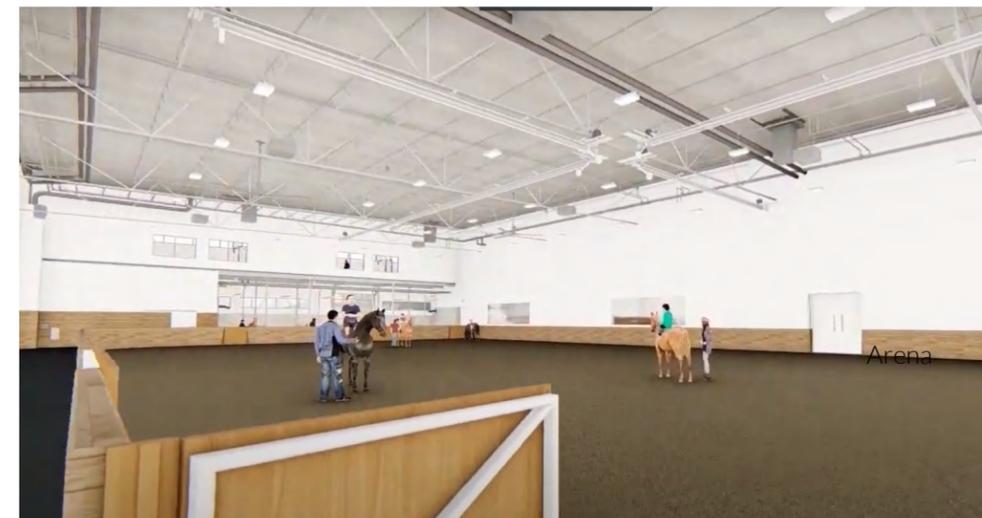


Figure 24 | Indoor Hippotherapy

- Runout for the horse- outside more have a covered portion. 10x10 typical stall
- Sick horses, be able to tie up in stall for the safety of the horses.
- Safety for procedures, make sure vet is able to be safe in space
- Equine Sports medicine
 - Exams or small surgeries
 - Sections of the building that are designated for special cases to be quarantined.
 - a. Horse enters from the outside of the building
 - Horse Walkers- rehab for the horses
 - a. Has curtains that pushes the horse on either side so the horse isn't attached to anything
 - b. A way to exercise them without someone having to lead
 - Lameness runway
 - Treadmill underwater
 - Aboveground treadmill
 - Spa with jets

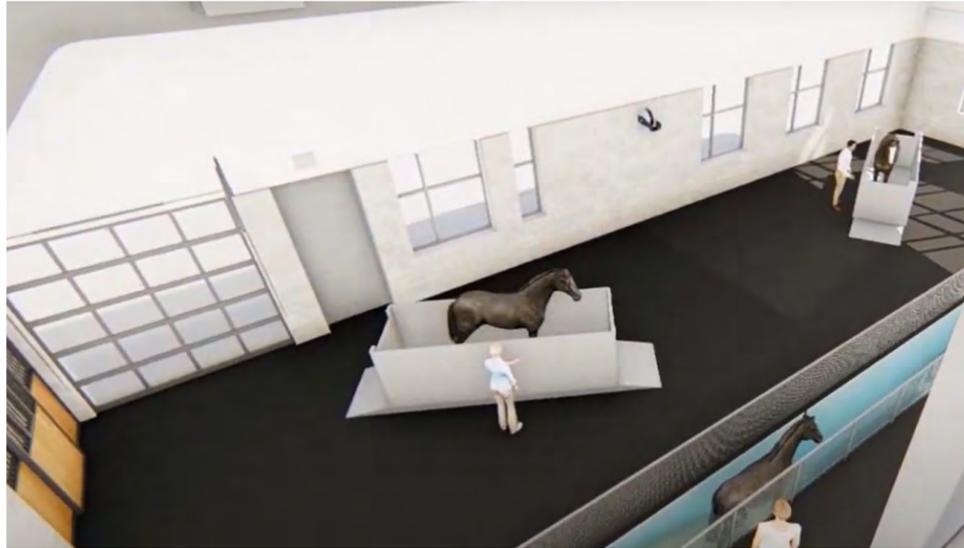


Figure 25 | Equine Sports Medicine

- Room with a vibration plate that shakes the horse and stimulates that joints
- Fans to dry out the horse
- Large breezeway for dropping off and picking up horses. Open air. Large enough for a semi to drive into.

a. You can walk them into the stalls or you can walk them in to the surgery area.

- Stalls
 - Long stalls for the therapy horses, more long term
 - stalls usually 10x10, some are larger
 - Each stall has an outdoor turnaround/ runout
 - Veterinary stalls don't need much natural light since it's more temporary.

6) Products

- Equine Sector
 - Oversized metal double doors
 - Fiber reinforced doors (FRP) door (to be sterile and cleaned)
 - a. Swing 180 degrees and latch when open
- In Lobby
 - Acoustical panel from Armstrong
 - a. Turned them 7 degrees and layered them to look like clouds
 - b. Large public mural
- Exterior
 - Terra Cota on exterior

- Wanted more of an earthy color with variation. More dynamic and tactile, and inspiring

7) Passive or green design strategies? Mechanical systems

- Plans to put solar panels on at some point
- Arena- Open overhead door on east and west side to create cross ventilation. Keep gates closed. Cross ventilation through the arena
- In Labs, pressurization and airflow is really important. Cannot have operable windows.
- Want to have control with air, can't usually recirculate air in these veterinary environment, have to throw it in the air and dissipate it high up. Make up for elsewhere like in heat recovery wheels.
 - Louvres on air systems that bring in fresh air filter out snow

8) Most Challenging Part of the Project?

- A lot of different user interests
- Finding the compromise of everyone's need on a tight site
- Putting a hotel above a vet clinic was also a challenge for code

9) What was your favorite part about the project?

- Uniqueness of the spaces
- All the nooks and crannies, figuring out how to maneuver a horse into certain spaces

10) Advice?

- Sitting down with the users and understanding their needs and helping them do it better.
- Try to understand the user and trying to make their life better.
- Focus on the users, the horses, the people and how they interact to and from the site. This is the key part in influencing your design
- There is a way to let your program influence your form. For example you have a rectangular floor plan and you turn it 7 degrees, makes the exterior more dynamic.
 - In Vida, a curve was introduced on the front face. Makes the front of the facade be more dynamic.
 - Really open so it didn't affect any of the program inside.
 - There's ways to use form to get your intent across without effecting the program.
 - Using intelligent with your program to move it
 - Labs have to be simple squares, but turning those will help you formulate your design.
 - Example: digram from BIG architects is a box, cut the box in half, and then rotated the box.

11) Other Projects:

- Temple Grandin Equine Center Fort Collins

- Arena
 - a. A little more narrow due to the precast structure
 - b. Has stadium seating on the first floor, different from the Spur campus that has seating on the second floor
 - c. Offices on the backside
 - d. Larger classrooms for teaching
- Human and Animal Side to the project
 - a. Therapy room with an overhead rail
 - b. Barns and stalls
 - Wash base neat barns and stalls
- TMI: Translational Medical institute.
 - CSU South Campus
 - Large MRI and CT scanners
 - Main purpose is to study horse joints and how to do surgeries with that
- Johnson Family Equine Hospital
 - Equine Hospital on south Campus
 - Clerestories above every stall for the horses on the west side
 - Stalls for moms and babies
 - Screens over the glass for privacy

Window with louvers for privacy

Clerestory Windows in Stables

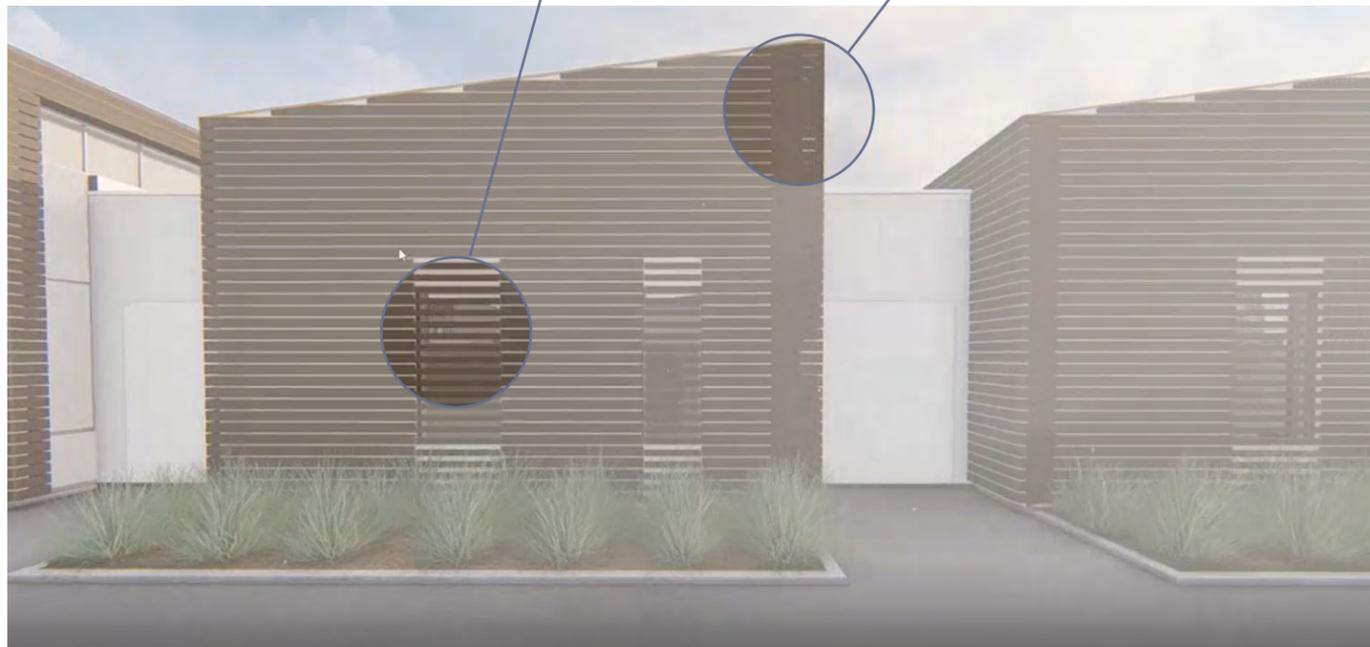


Figure 26 | Johnson Equine Hospital

Precedent 2:

True Strides
Annandale, MN

- True Strides is the Hippotherapy Center is part of a non-profit Organization Known as True friends located in Maple Lake, MN.
- True Strides offers Hippotherapy: defined as physical, occupational, or speech therapy treatment strategies that utilizes equine movement as a part of an integrated, intervention program to achieve specific outcomes.
- The horses movement is multidimensional which in turn causes the riders hips to go back and forth, side to side, and up and down all at the same time.
- This makes for an excellent tool increasing core strength, balance, posture, shoulder girdle stability, and motor planning.
- All the while the rider is having fun, which waxes their brain in serration. This chemical in like fertilizer for the brain and helps grow new motor pathways creating an optimum time to develop the brain.
- During hippotherapy session the therapist will utilize a variety of positions to facilitate neurological development and neurological strengthening.



Figure 27 | Hippotherapy



Figure 28 | Quadrilateral Position

- Quadrilateral all fours position replicates crawling and assists developing shoulder girdle strength. Stability needed for riding and motor coordination.



Figure 29 | Tall Kneeling Position

- Tall kneeling is a position that will continue to develop the core as well as stability for walking.



Figure 30 | Hands Overhead Position

- While trotting with hands overhead, this position develops balance and inherently elongation of the spine and unlocks the hips and places the rider in the correct balance seat position.



Figure 31 | Jump Position

- Jump position in English saddle strengthens the muscles needed for walking and running. It is very helpful in developing the heel toe stride. It will also assist in helping stretch tight heel cores and diminishes toe walking.
- Trotting, Cantering, stopping and starting allow for facilitation of the 8th cranial nerve, which then innervates the muscles of the eyes, mouth, head, and neck. This develops eye hand coordination, speech, visual tracking and improved posture and focus.
- True Strides graduates their riders to hippotherapy to therapeutic riding. This is a riding lesson taught by a certified, Pass certified riding instructor. In this program the riding learns independent steering, tacking their horse, grooming, and feeding their equine partner

Wellbeing is something we as people search and seek to attain consistently throughout our lives. Mental, physical, and spiritual health are all connected to who we are and each effects the other. We seek to find wellbeing through our daily regime, but at times we need to seek help from others outside of ourselves. healthcare like physical therapy, occupational therapy, and psychotherapy, are outlets which help us find wellbeing. Something that has been around for 1000s of years, but not yet practiced ubiquitously is animal-assisted therapy.

Growing up, I have had the opportunity to have animals around me that were a part of the family. In a household that didn't focus on how to express emotions or how to put them into words, I found that sometimes it helped to emotionally process with animals instead. Animals may not have a worded response, but sometimes all you need is for someone to listen and not just fix the problem. Dogs and horses in particular are very emotionally intelligent animals and can sense emotions in people. When we have negative emotions, these animals can respond to these feelings in an attempt to comfort us. In my own experience, animals have been a way in which I was able to process my emotions by helping me in balancing my mental health.

Along with metal wellbeing, animals can also help us grow in physical wellbeing. As a means for physical and occupational regenerative therapy, animals such as horses can be used as an extension of our body, unlocking capabilities that we cannot do ourselves when sitting in the saddle. Horse-assisted therapy helps those with physical disabilities find confidence in themselves and to have the ability to move in ways that they are not able to do on their own. There is something about the action of riding a horse that gives someone so much freedom from ties in their life that they felt were weighing them down. I have witnessed this personally in others with disabilities and I have experienced this riding myself as well.

The existing Bison Strides program that is connected NDSU current run their program in the NDSU Equine Center, but is constraining to the growth and promotion of the practice. Bison Strides was founded in May 2017 in order to provide students with an accredited site to earn their teaching hours and to provide the community with a place to experience the therapeutic power of the horse. Bison Strides is accredited by the Professional Association of Therapeutic Horsemanship International (PATH Intl.) and is currently the only PATH Intl. Premier Accredited Center in the state of North Dakota. Just 31% of the 880 PATH Intl. centers have earned this status. Bison Strides offers spring, summer and fall sessions for individuals with physical, cognitive, emotional, behavioral or mental health challenges at the NDSU Equine Center, 5140 19th Ave N, Fargo.

This thesis strives to bring the healing benefits of nature and animals all into one facility in the FM area. To help in expanding and growing the current practice of Bison Strides program, I want to design a facility that will expand the program, bring awareness to the practice, and overall encourage the health and wellbeing of the FM and surrounding area through a "one stop shop" therapy center. The design of the facility will bring new real estate for the Bison Strides program, as well as incorporate biophelic design throughout the facility that will partner in the healing and wellbeing for the facility's users.

Animal-Facilitated Therapy in Various Patient

Sarah Matusek

In this article, Matusek goes into an analysis in her findings of the benefits that animal-facilitated therapy brings to different people groups. Many studies have been facilitated to document these theories and expand upon the benefits that animals have on the well-being of people. The article discusses animals in a general sense, but goes into human-canine studies and relationships as a basis of research. Qualities on patients of these studies are focused on more qualitative improvements in the field of medicine as the animals are used as a complementary component to a human's well-being. "The belief is that they are more physical in nature, rather, their well-being is composed of many components such as mental, emotional, and spiritual."

Animal-facilitated therapy can be defined as using any animal for emotional support only. Animals can be used to compliment any treatment that a patient is already receiving. The presence of animals, at least for most people, introduces a subjective means of healing to the body. We know from experience that healing in not just physical, that we are connected mentally and spiritually to our physical body and environment plays a huge factor into our well-being. Knowing this, animal-facilitated therapy is used in several medial settings today. The first use of animals in a therapy context can be traced back to the ninth century in Belgium. People who were handicapped were assigned to assist and interact with the farm animals. later on in the 1700s the York retreat hospital in London brought in animals for the patients. Even in Germany, farm animals were used to help patients with epilepsy. Populations that are discussed in this article that are used for animal-assisted therapy include hospitalized patients, psychiatric population, palliative care, correctional facilities, war veterans, geriatrics, and homeless and abuse shelters. All these populations have immensely benefited from animal assisted therapy and there are many studies that show this to be true.

Studies animal-facilitated therapy for different populations:

Hospitalized Patients: "In a study²⁴ that investigated the use of AAT in hospitalized patients with heart failure, the patients' hemodynamic values, hormone levels (norepinephrine and epinephrine), and anxiety levels were all measured. In comparison with the preintervention and postinterventions, results showed an overall decrease in cardiopulmonary pressures, neurohormone levels, and anxiety in the group that received a visit from a therapy dog."

Psychiatric population: "For this population, animal therapy can be used to improve a person's mental status by increasing socialization, behavior, and motivation, or by providing a sense of purpose. A study that investigated the anxiety levels of 230 hospitalized psychiatric patients and the effects of an AAT session compared with a recreation session revealed a significant reduction in anxiety levels for patients with dual-diagnosis mental disorders.⁵ Moreover, in a study of emotionally disturbed children, regular visits from a therapy dog contributed to significant improvements in behavior and attendance."

Stall architecture influences horses' behavior and the prevalence and type

In this article, a study is conducted and discussed on the types of stall architecture and how it can impact behaviors and wellness of horses. Two types of stalls are addressed in the experiment: open stalls and grid stalls. Open stalls allow for the horse to put its head outside and see one neighbor while grid stalls had no outside access, but allowed for the horses to have contact with their neighbors. The horses behaviors were recorded by observing acoustical cues that signified their mood. OS favored outside contact and GS favored social contact.



Figure 32 | Open Stall Architecture



Figure 33 | Grid Stall Architecture

Finding in the experiment did not show any change in eating or drinking habits, but there are still prominent distinctions in behavior between the two stall typologies. Some behaviors that were seen higher in the horses in the OS included vigilance (alertness posture) or movement of the head fixed on the outdoor environment. Horses in the GS spent more time sleeping. Horses in the OS spent more time weaving and in tongue play than the horses in the OS stalls that spent more time licking the grid stalls. Sounds and expression of behavior did not differ between the two stall types.

To conclude, horses that lived in the OS stalls expressed more excitation behaviors while those in the GS stalls expressed more subdued behaviors and more vocals, which could be a sign of well-being. The finding show the negative affects that single box housing staff have on a horses well-being. I have found that it crucially important within stall and barn architecture that special attention in given to the social aspect of the design. Configuring opportunity for the horses to communicate and socialize mitigates the possibility of have negative behavioral conditions.

Palliative Care: “A research study involving companion animals for people with HIV/AIDS found several themes among their research, including having affection, having companionship, feeling valued, having source of support, and helping to focus on the present. These people perceived their pets as lifelong companions.”

Correctional Facilities: “One study showed that the attitudes of inmates changed along with an improvement in communication among the staff.^{8,9} Rehabilitation programs for inmates allow them to entirely care for shelter animals including feeding, bathing, grooming, and training them.”

War Veterans: “Equine therapy uses horses to help veterans emotionally and personally. The veterans have to care for the horses, can ride them, and communicate with them. These activities help build assertiveness, responsibility, and confidence. In addition, parrots are being used to help veterans with PTSD.”

Geriatrics: “One study examined the effects of dog visits on depression, mood, and social interaction in elderly people. Little improvement and impact on depression and mood after receiving dog visits was found. However, a positive effect on social interaction was noted. Furthermore, all of the participants reported that the dog visits made them feel happy.”

Community: Some of the those included in a community based setting include homeless shelters, schools, abuse shelters, funeral homes, disaster relief situations, citizen's homes, and funeral homes.

Therapy types are discussed in this article. There is active and passive types of therapy: passive meaning that the patient would need assistance in completing a task and active meaning that they would complete without assistance. Hippotherapy is considered a passive and active activity. “This therapy involves riding a horse. Each time a person takes a step, the pelvis tilts higher, sideways, forward, and then back. Because of the similarity between a horse's gait and a person's walk, riding a horse resembles the motions of walking without actually placing weight on the legs. The regularity of the movement of a horse aids in building posture, strength, balance, and mobility. Patients with disorders such as multiple sclerosis, cerebral palsy, spina bifida, and autism are examples that equestrian therapy may help. Benefits of riding a horse include increased flexibility, gross motor coordination, and speech and language abilities.”

To conclude *Animal-facilitated therapy in various patient* reveals the various populations in which animals benefit the well being of people. The evidence shown in qualitative studies proves that it is worth investing into animal-facilitated therapies across the board. These studies are a good start to the research on these therapy sessions, but it is not exhaustive and there is a lack of extensive research into the benefits of animal-facilitated therapy.

Existing Features



Figure 34 | Existing Roadways

Existing Features



Figure 36 | Existing Buildings

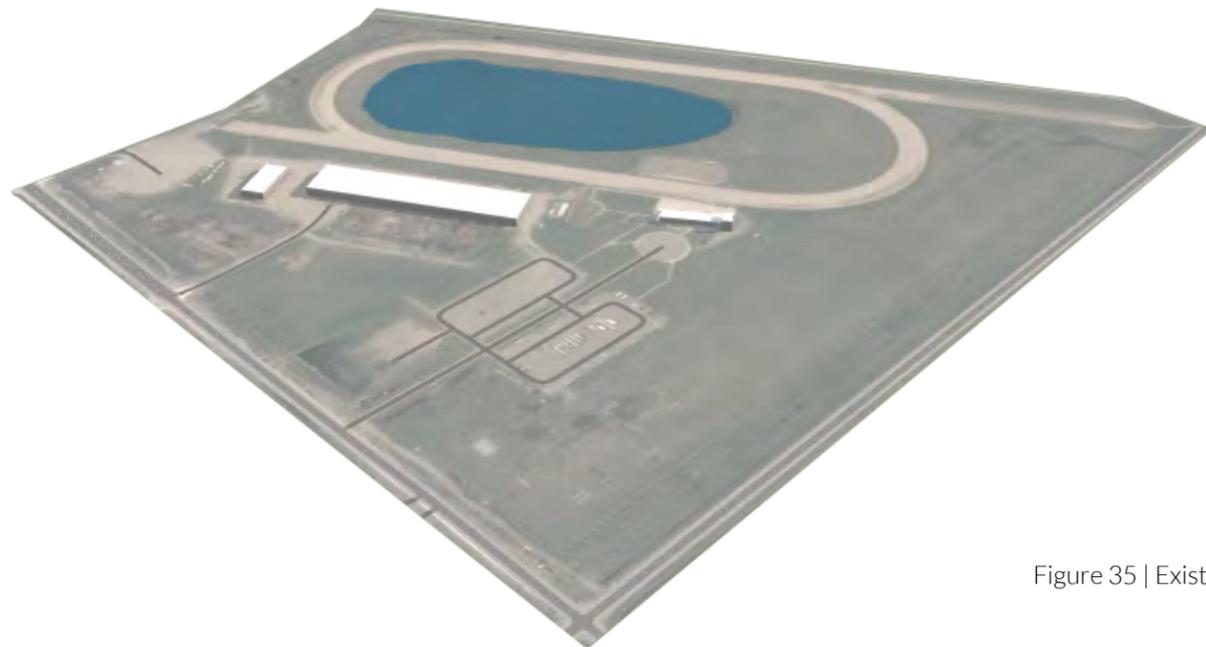


Figure 35 | Existing Water

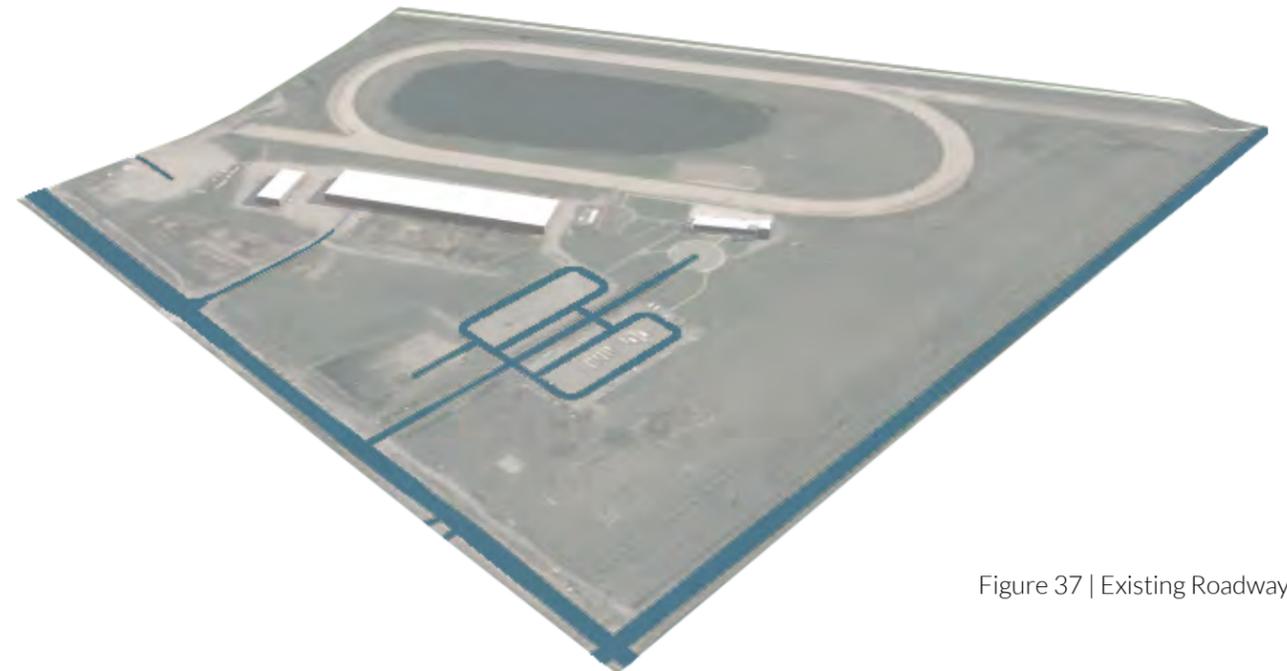


Figure 37 | Existing Roadways

Sun path Diagrams

Longest Day June 21
Summer Solstice
Altitude: 60°
Azimuth: 135°

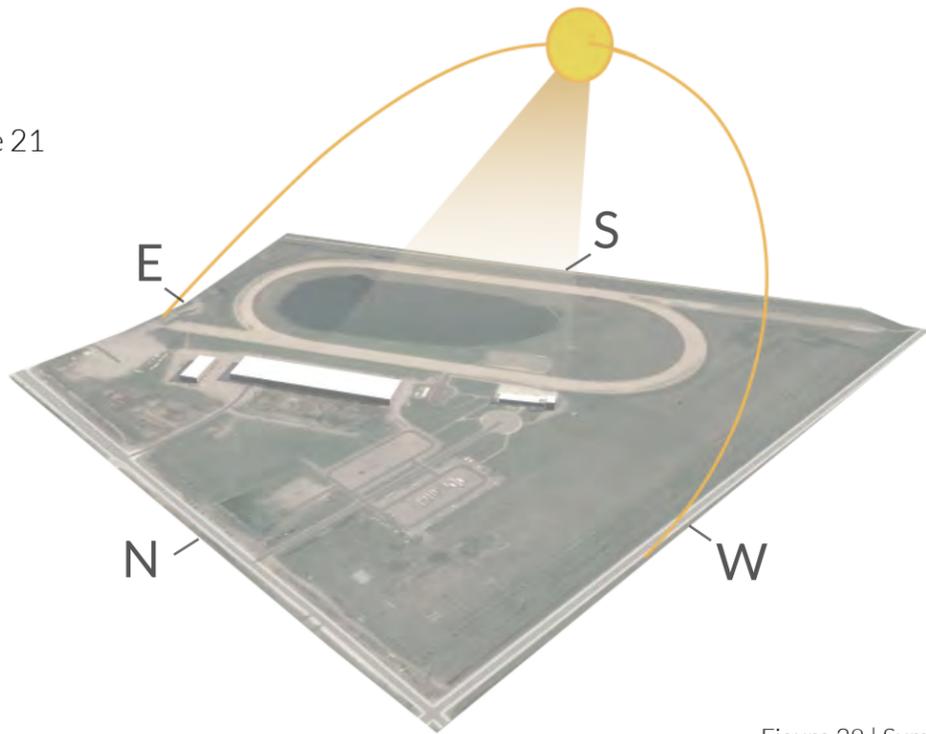


Figure 38 | Summer Solstice

Shortest Day December 21
Winter Solstice
Altitude: 20°
Azimuth: 175°

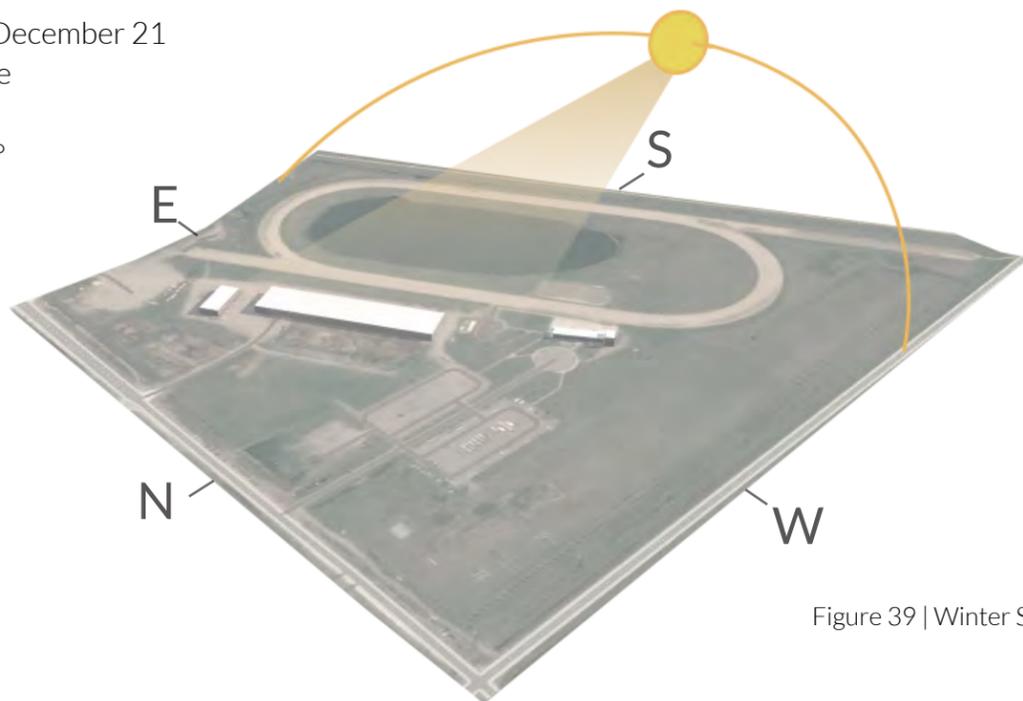


Figure 39 | Winter Solstice

Land Studies

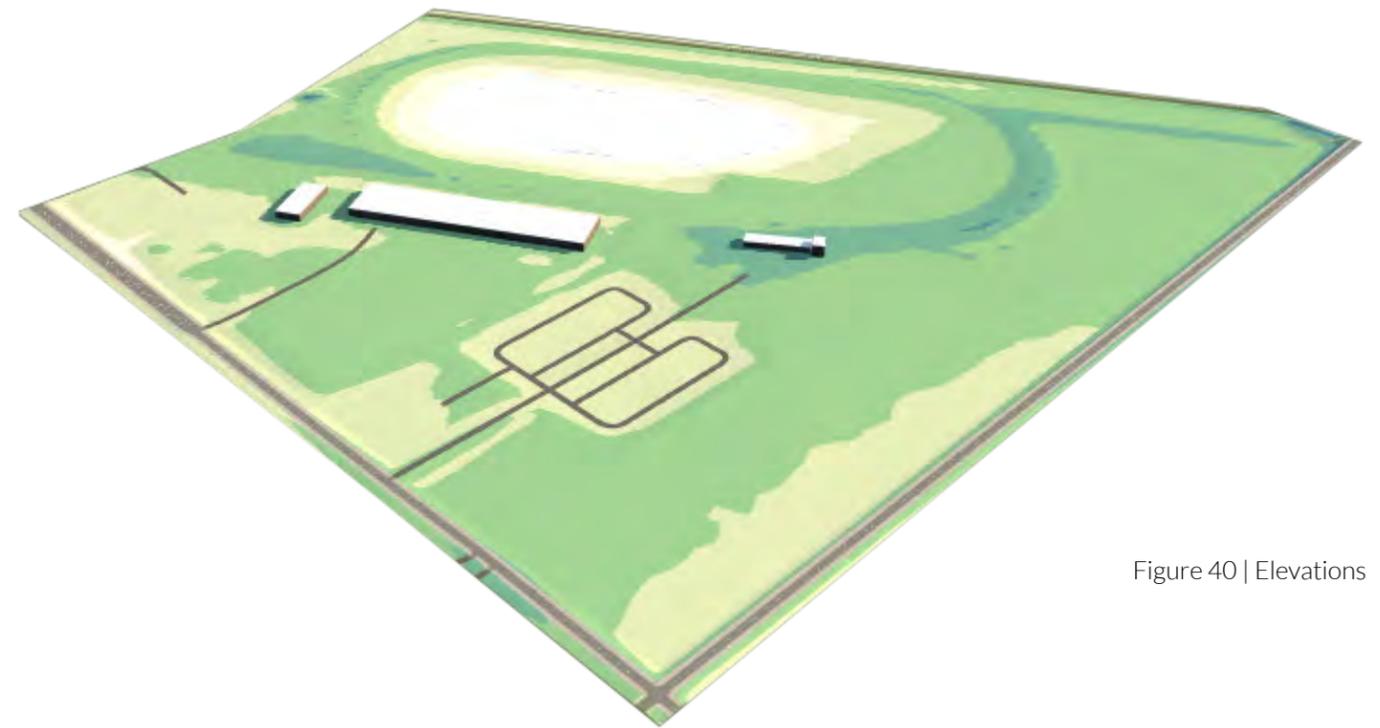


Figure 40 | Elevations

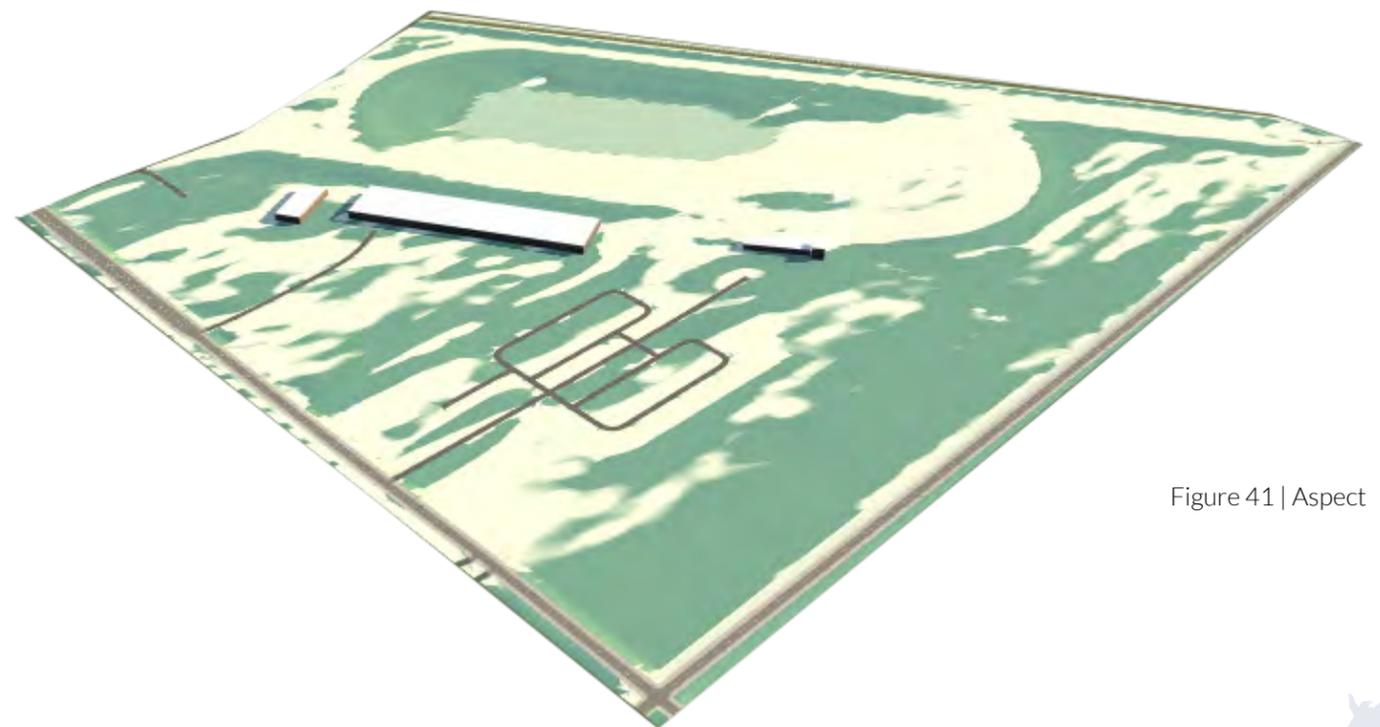


Figure 41 | Aspect

Wind Rose Diagrams

Average Wind Speed (mph)

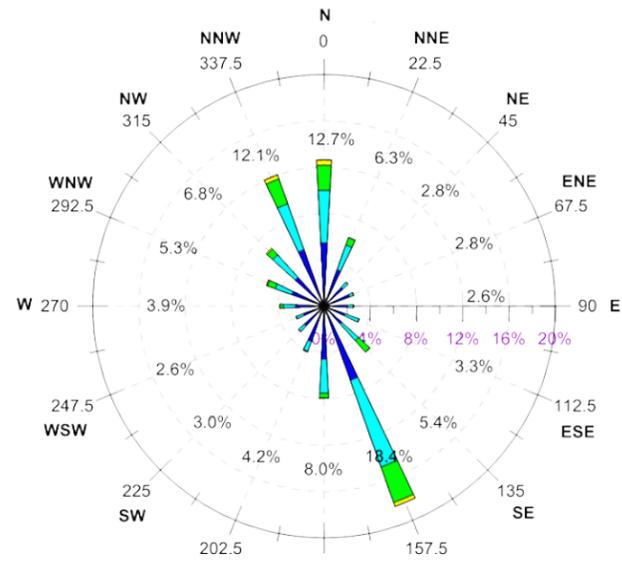
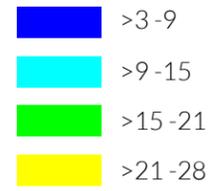


Figure 42 | March Wind Rose

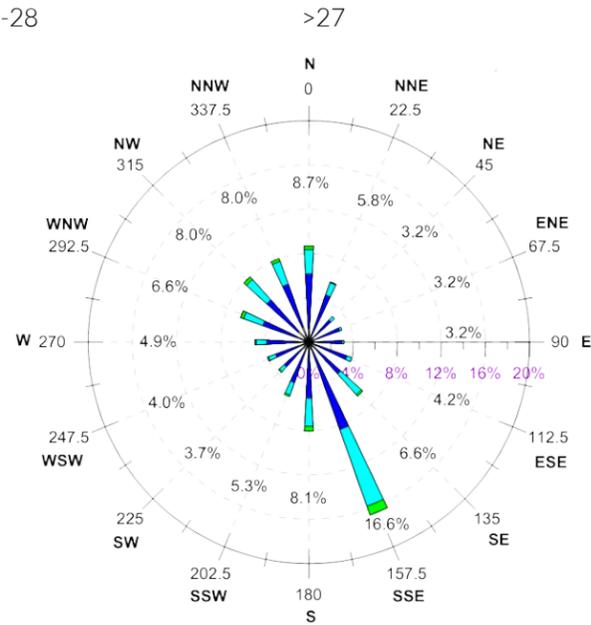


Figure 43 | July Wind Rose

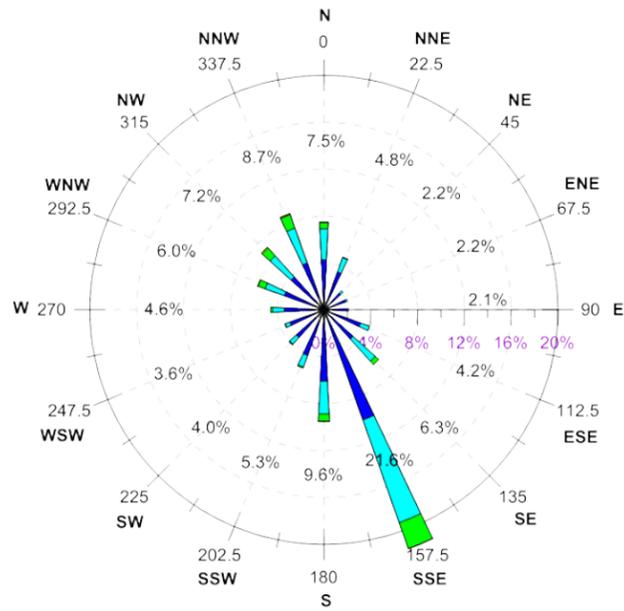


Figure 44 | September Wind Rose

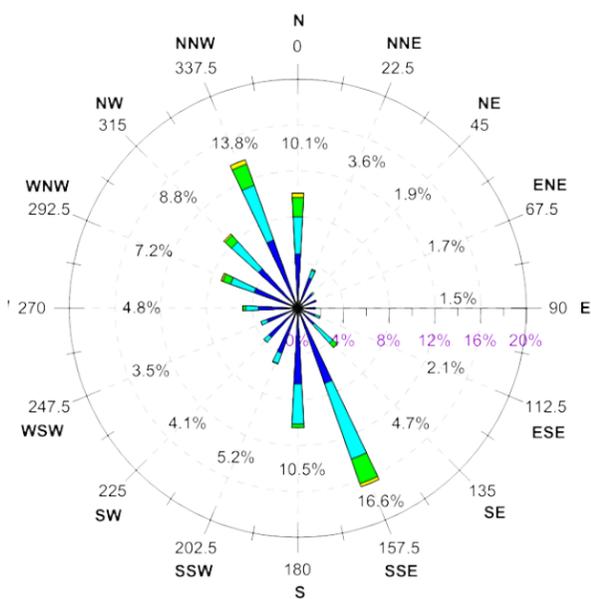


Figure 45 | December Wind Rose

Existing Structure Photos



Figure 46 | Existing Open Pasture



Figure 49 | Arena in Equine Barn



Figure 47 | Exterior of Barn Looking Southwest

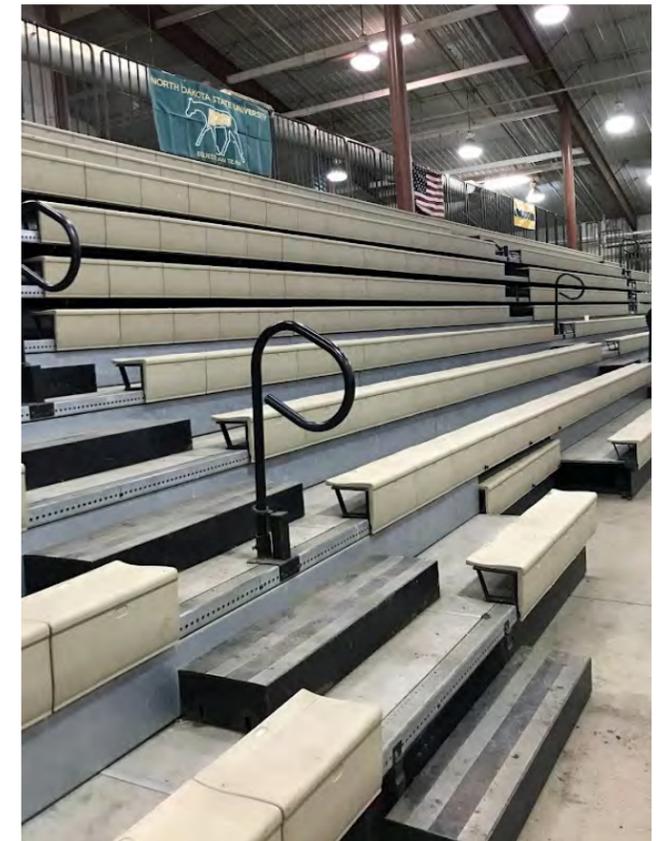


Figure 50 | Bleachers facing Arena



Figure 48 | Exterior of Barn Looking Southwest



Figure 51 | North Entrance to Barn



Figure 54 | Existing Parking on North Side



Figure 56 | Existing Parking on North Side



Figure 57 | Arena Looking Southeast



Figure 52 | Tack Room on Northeast Wall

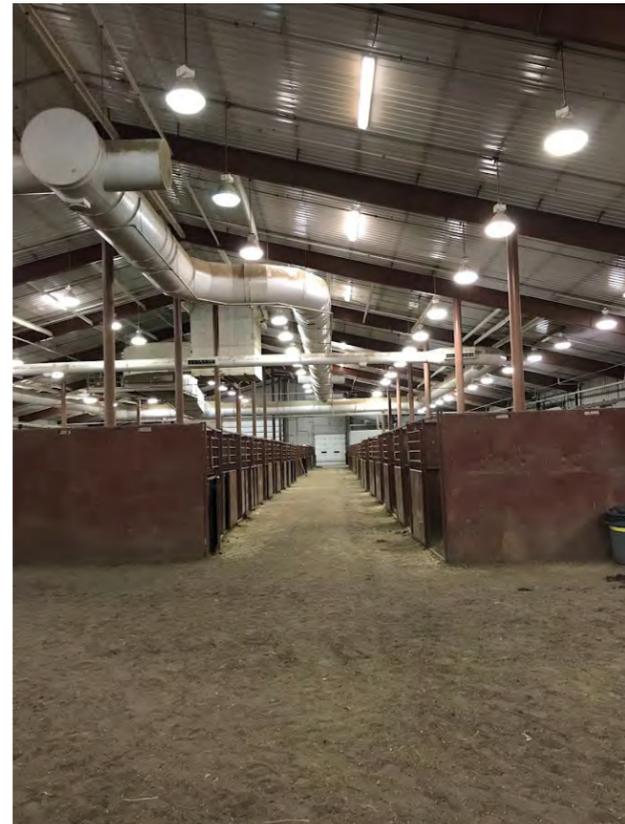


Figure 55 | Stall Isles Looking West



Figure 53 | Manure Pile near North Entrance :P



Figure 58 | Arena Looking West

Thinking back to the beginning of humanity and how we are connected to animals, you can't deny that they are a principle key to our roots. From the beginning we learned to live with creatures that were different from us and lacked the intelligence and being that we had, but still carried an instinctual intelligence that inadvertently taught humans ways to live. Some of first domesticated animals in the history of humanity include horses and dogs. These animals offered strength and the ability to carry burdens for us that we were not able to handle. This was not the only benefit to the domestication of these animals, as they offered companionship for humans as well.

To really understand a horse and why it behaves the way it does, you have to understand it's role in nature. In the wild, horses are very gregarious prey animals. Intrinsically, they are wired to run from any signs of danger. Instinctively, horses are able to read their environment quickly and efficiently to survey if there is any threat. "Horses are prey animals. Dogs are looking for supper but horses are looking for safety." (Thompson, 2019.) Being over 1000 lbs and full of muscle, horses are not an animal that you want to mess around with. But that's not to say that they are indifferent beasts that lack any sense. Yes, horses are strongly built powerful machines, but their survival doesn't just rely on strength, it relies on relationship. Horses must stay in herds in order to survive. Without each other, they would be left completely vulnerable to predators. This inclination to stay in numbers makes horses extremely social, intelligent animals. Horses, when they aren't concerned about safety and security, are very affectionate animals and have an inclination to form bonds with those that it chooses to trust. "We ride on a horse right where a wolf would essentially latch onto a horse on it's back, it shows us how trusting they are of us and create a bond that is only possible through our mind and emotions" (Thompson 2019.) Horses have been one of the first animals that have been domesticated by human kind. First used for their brute strength, horses were an aid to humans to carry burdens that our bodies were not built to endure ourselves. Some cultures even used horse for their meat, fortunately today, we have seen a great improvement in human-horse relationship and horses and now mainly used for their companionship. In captivity, horses need a lot of space to be able to well, be a horse. Paddock and large enclosed outdoor areas are ways people have handled keeping these creatures in captivity. Adaption of small enclosure like stalls kept the animal in a more controlled confined area, but is not a great long term means of confinement for the animal.

Today, horses are mainly used for their companionship and are more of a leisurely hobby rather than an asset to survival. Modern society offers us the opportunity to investigate even further into the horse-human bond and find out the benefits to this relationship. Horses can be a very focused animal, so when you are around them they demand that you be completely present and not distracted. This interaction helps those who have a difficult time staying engaged and focused on one thing, and this helps them learn skills to focus. It also helps those who may have stressors in their life that are constantly demanding their attention, and horses can sense that distraction. It helps them to disconnect from what's going on and presently engage with the horse. As stated earlier, horses are looking to form relationships by building trust in those those who bring a sense of safety and security. Horses possess this institutionally, and they can also teach those to trust who have lost it through trauma. Horses can give help people learn relational trust in a way the humans are not always capable of.

Acutely, horses have contributed in several ways to the history of humanity and they still are even today. They have opened many doors to the growth of society and continue to teach us how to function relationally with each other.

Amber Bach-Gorman's Therapeutic Practice

Animal Assisted Interventions

I was able to connect with NDSU counselor Amber Bach-Gorman to discuss her practice and how she incorporates dogs in her therapy sessions. Amber Bach-Gorman is an Assistant Director and the coordinator of clinical services at NDSU. She earned a Bachelor's Degree from the University of North Dakota in Psychology, her Master's Degree in College/Agency Counseling from the State University of New York - Plattsburgh, and her Doctorate in Counselor Education at NDSU. Amber is working to give me direction in my thesis and some insight into animal assisted interventions. The following notes include some take take aways that Amber has given me to incorporate in my research.

- Office layout is specifically set up for the dogs in an ethical and safe way.
- In the therapy room, Amber has a bed and space for the dog further away from the session and then she has one that is between the client and therapist.
- The dog has the choice of how much they wanted to be in the session or not.
- There is also a crate that's more out of site if the dog wants to completely check out of the session and have a safe space.
- The space for the session should be designed large enough to give the animal freedom of choice. The animal is loose in the space and they have the choice to be involved as much or as little as they'd like.
- Dogs can be used in OT practices as well but that constitutes for larger space
- You can have interventions with kids where the kids are actively interacting with the dogs, similar to how you interact in the arena with horses, of course just a much smaller space.
- An example is with someone who is on the spectrum or autistic and you can have them partner with the dogs to try and do training with them. That can be a part of OT.
- Keep in mind how the space is going to be safe and ethical for the humans, but also how it will also be that way for the dogs as well.
- Think about the possibility of agility activities as well and the floor material in those agility spaces.
- Spaces for animal husbandry would be great to incorporate as well because an aspect of therapy can include caring for the animal like bathing and clipping nails.
- Western North Dakota has a Kennel Facility called Home on the Range where a part of their program for the kids is animal husbandry.

Research Journals

Fri, Sep 24th- Mental Health Symposium

To start my research, I participated in a mental health symposium hosted by NDSU. The Bison Strides program director Erika Berg was one of the researchers at this symposium and shared her research and work with equine-facilitated therapy. (hippotherapy) I was able to connect with her after the symposium and schedule a meeting with her the following week. I was also able to connect with other animal assisted-therapy advocates including Amber Bach-Gorman.

Wed, Sep 27th-Meeting with Erika

I was able to meet up with the Bison Strides program director Erika Berg on to talk about design for a hippotherapy center and what the criteria for that may look like. She showed much enthusiasm and was very excited to give me direction on how I should go about designing for the audience that I am designing for. At first, I came only with the expectation that she would give me a few pointers on what this kind of therapy center needs, but it quickly evolved into a project for the NDSU hippotherapy program. The site was chosen for the Center, where the current NDSU Bison Strides program operates at the NDSU Equine Center Barn. Erika expressed some issues that were present with the current program setup for Bison Strides. Some of those issues included a stale, dirty environment, windows that cast awkward shapes in the arena, conflicts and tight schedule with the riding teams, and bad artificial light that is noisy. She gave me other great resources including a case study and tips on design informed for equines and accessibility.

Wed Nov, 3rd- Hippotherapy

Today I was able to volunteer with the NDSU Bison Strides program for the first time. I showed up at the NDSU Equine Center at 9:30 to start training. The sessions took place in the arena so I walked over to the middle of the barn and was able to sign in. The Bison Strides program that takes place on Wednesday at 9:30 is the Hippotherapy program that helps children (I believe they had kids that have autism or cerebral palsy) through occupational therapy with the aid of a horse as a co-therapist. I was able to meet another student volunteer as well, her name was Lizzy. She is a freshman that is majoring in sociology and wants to move on to medical school after receiving her undergrad. I found Erica and she started by training me on what my responsibilities are as a volunteer and what to do to keep the client safe. She explained to me how to interact with the horse and how to be safe around them. One thing she explained was that when I'm walking alongside the horse during a session, I need to avoid walking alongside the flank of the horse which is the part where the back leg meets the body and that I should stay around the girth which is the strap on the saddle that comes around the chest of the horse. Another tip she had was when I approach any horse, I should first walk up to their shoulder and make sure that they know that I am there by giving them a pat on the shoulder. If I need to get around them from behind, I should either keep a hand on them and stay really close to their body as I walk around or keep a really long distance away, like 6ft or so, as I walk around. I know all these things already really, but it's good for someone who is a lot more experienced

than I am to explain it to me more specifically. I was able to watch and observe for a while during a session with a little girl about 8 or 9 (I can't remember her name but I will note it next time.) Those involved with the session include someone leading the horse (she had a stick that helped the horse move which I think is called a riding crop.) Victoria who was the OT (occupational therapist) and one or two volunteers that would help the client stay secure on the horse. As I watched the session, Victoria led it by choosing what the next activity would be and the interactions she had with the child. Victoria took special attention to how the girl was sitting in the saddle, and how the horse was standing. If the horse was not standing right, the girl would be sitting on the horse wonky and she would tell the person with the lead rope to "square up" the horse. To mount the horse, the little girl climbed on a mounting block that was maybe 3.5 ft tall. They helped the little girl onto the horse but still gave her some freedom on controlling her legs and being able to facilitate mounting the horse on her own. The little girl, by my own observation, seemed to have a cognitive and physical developmental delay. Her legs were weaker on foot, but on the horse, she seemed to gain confidence in the ability to move. Some of the different activities and exercises in the session included walking across the arena, catching bean bags with and without the horse moving, placing rings on a pole (the therapist made sure that the girl was using the hand that was on the opposite side of the horse from the pole) and even trotting for a little while. There were also cones throughout the edge of the arena that had letters on them that would be used as points to stop at or objects of interest in conversation with the girl like playing i-spy. Throughout this whole session, the little girl seemed to have so much joy in the activities that she was doing and had a lot of excitement for all the things that she completed. The therapist was very encouraging throughout the session and praised the little girl for every accomplishment that she had. There were times where the girl rode on the horse backward as well. I thought that this was very interesting and that this exercise placed a lot of trust in the horse since there was not much that you could grab onto in this position. It gave the little girl more confidence in her ability to ride and it also taught her to have a lot more trust in the horse. The girl was showing signs of affection towards the horse as showed a bond that she was forming with the animal (she at one point leaned down and kissed the horses' neck and scratched her too it was really cute.) Another aspect that the therapist incorporated into the session was to give the little girl a sense of control over the session as well. She did this by letting the little girl give cues to the horse to move when it was time to move. She would say "tell her to "go on". It took a bit of coaxing to get her to ask the horse to go, but once she did, the one leading the horse would begin leading the horse again. At one point the horse was trotting and the little girl was bouncing and laughing and had so much joy. You could tell that she felt like she was flying and was able to move in ways that she wasn't able to before. She even asked to trot again later in the session because she loved it so much. I was asked a few times by Victoria to come and put my arm on the little girl's leg so that she was secure on the horse, that way Victoria could interact with the girl more freely and toss bean bags or whatever she was doing. While we were working with the girl, there was another hippotherapy session going on as well with a little boy who also appeared to have cognitive and physical delays as well. There was enough space in the arena for them, but it was a bit small and it seemed a bit restricting. The parents were able to watch on the bleachers on the side but the environment wasn't very inviting as it looked bleak and it seemed a little dirty. If there was a space that was enclosed by glass and that allowed for the parents to watch, but in a separate space, that would be more ideal. When the session was over, Victoria helped the girl get down from the horse (this time without the mounting block.) The girl was able to pet the horse afterward, and she struggled to be more gentle with the horse. I noticed that she seemed to be able to be much more in control with her motor skills while she was on the horse and was much more gentle with her. Overall, I think that the arena needs

to have more space, and feel more of its own dignified space rather than being connected to this huge overall barn. It felt too open and I think creating a sense of intimacy in a space that is already large would be beneficial. Another thing stated earlier is that the onlookers should have a space that is separate from the arena and is enclosed. This will help the participants to focus on their own session and the onlookers can be able to interact without being a distraction to the clients.

Mon Nov, 29th- Adaptive Horsemanship

Tonight I was able to experience the Adaptive Horsemanship program that Bison Strides offers. The biggest difference between this program and the Hippotherapy program on Wednesdays is that there is no OT or PT present for the session. There is an instructor that stands in the middle of the arena and she instructs the riders in physical and cognitive engaging activities. That was the last session they had for the year, so the riders had been paired with the same horses and the same leads and side walkers for most of the program (at least that what I was picking up from observation.) There was about five horses and participants that walked around the arena for the running hour of the session. I got to walk along with a 7 year old boy named Calvin and his favorite animal he told me were horses. The walkers were able to have conversation with the participants, as well as encourage, and remind them of activities to participate in. Some of the activities that we did included weaving between poles with the rider steering with the reigns or they're legs, finding the matching color beanbag to the one they have, letting the rider have control of the horse by saying "woah" or "walk on", and doing some stretches and other movements while on the saddle. The participant didn't have full autonomy of the horse since there was a lead, but there was much more opportunity for the rider to dictate the movements in the session compared to the Hippotherapy. The participants ages were probably between 6 years old and 12 at the session. A few of the participants were on the autistic spectrum.

Quantitative

1. Sterile

Use of materials that are necessary to keep an agricultural typology sterile in an environment where animals and people are constantly interacting. Hard materials such metals like stainless steel are necessary in areas of higher equine traffic. Warm materials are also emphasized in project and bring a warmth that mitigate harsher, sterile materials.

2. Space Allocation

Spaces are designed to inhabit animals in a safe manor, along with people. Special attention will be given to the users of the facility that will require intentional design through accessibility, and safety with large animals. Space for private counseling and therapy will be a large aspect to the program, and well as community space. More private areas for the equine residents will be allocated within the facility as well, with the opportunity for visitors to come and observe/experience as well.

3. Usage

The facility offers usage for several users in the FM area. The main purpose of the facility is to offer innovation means of heals and growth through animal-assisted therapy. Programs within the facility include Hippotherapy, canine-assisted therapy, Occupational Therapy, Physical Therapy, and Psychotherapy. Other opportunities that involve the NDSU campus and the community are also incorporated into the facility's usage.

4. Hours of Operation

The facility is designed to be operated all year round. Summer being the busiest time of the year, with the outdoor programming. The vision for the facility would be too see that it is used 7 days a week, 365 days a year, with different community and educational opportunities. These programs would be hosted by staff and volunteers from the community that want to invest into this facility.

5. Supportive Services

Supportive services within the facility are the staff and volunteers of the operation. Service spaces in the facility would include the breezeway for trailer traffic and loading dock for equine goods such as hay. Storage spaces for hay, tack, and manure for the stables. Service spaces including mechanical, restrooms, dirty/soiled linen, laundry room, and janitorial closet are included within the therapy programming. Sterilization, and clean/soiled linen and included in the sports medicine programming.

6. Energy Consumption

With the emphasis on daylighting within the project emphasis, there will be less of a need for artificial lighting. The facility will run for a majority of the daytime during it's operating hours, with the exception of winter hours. Passive heating and cooling will be an option within the large arena, with operating garage and accordion doors, as well as overhangs that allow for solar heat gain in the winter time.

7. Environmental Impacts

The facility aims to mitigate it's environmental impact by redistributing excavated soil, using passive cooling and heating during different times of the year, flood control with greenroof system, and less energy consumption with daylighting strategies.

8. Materials Necessary

Materials necessary for the design of the facility include laminated wood materials, glulam columns and beams, wood cladding, heavy steel framing, etc. These materials contribute to the structural integrity of the project as well as the aesthetic for well-being.

Qualitative

1. Daylighting

Daylighting is largely emphasized in the project and achieves the goal for biophilic design as well as less reliance on non-renewable energy. This is achieved through the form of the facility, with each essential programming space receiving daylighting through an exterior courtyard.

2. Color therapy

Color therapy has been considered within the interior design of the facility, with the use of warm, natural tones from wood materials.

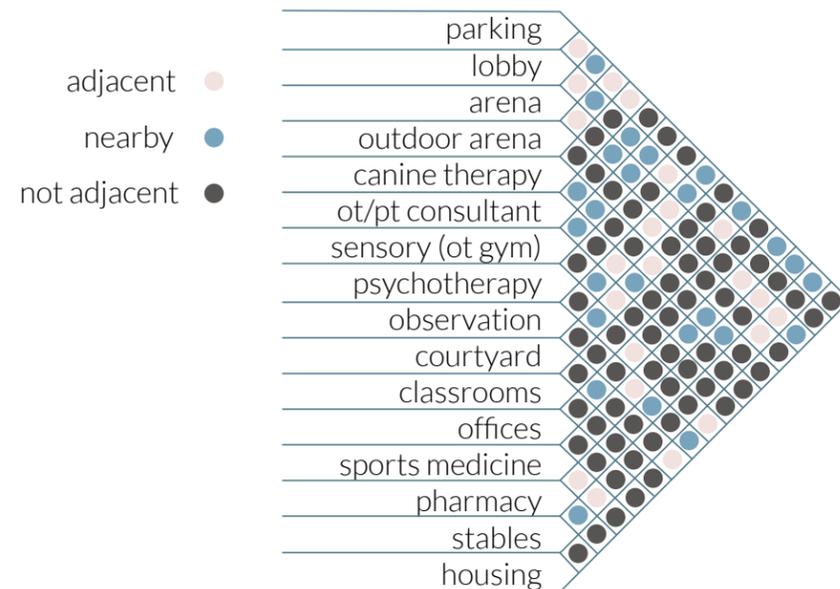
3. Psychological impact

Through the use of the programs of the facility, combined with the design, my goal is to create a space that helps individuals find mental healing through these attributes. The facility is not just a space for these programs to take place, but is also an environmental factor in the psychological impact of the user's experience.

Summary

Overall, this facility aims to create a user centered experience that not only hosts therapeutic programs, but is included in the healing therapeutic process itself. Through the use of biophilic design impacts, and environmentally concise design decisions, there is a strong connection between nature and the built environment. Ultimately, the facility creates the healing environment, but the staff, volunteers, and animals are the main accomplices to a path of well-being.

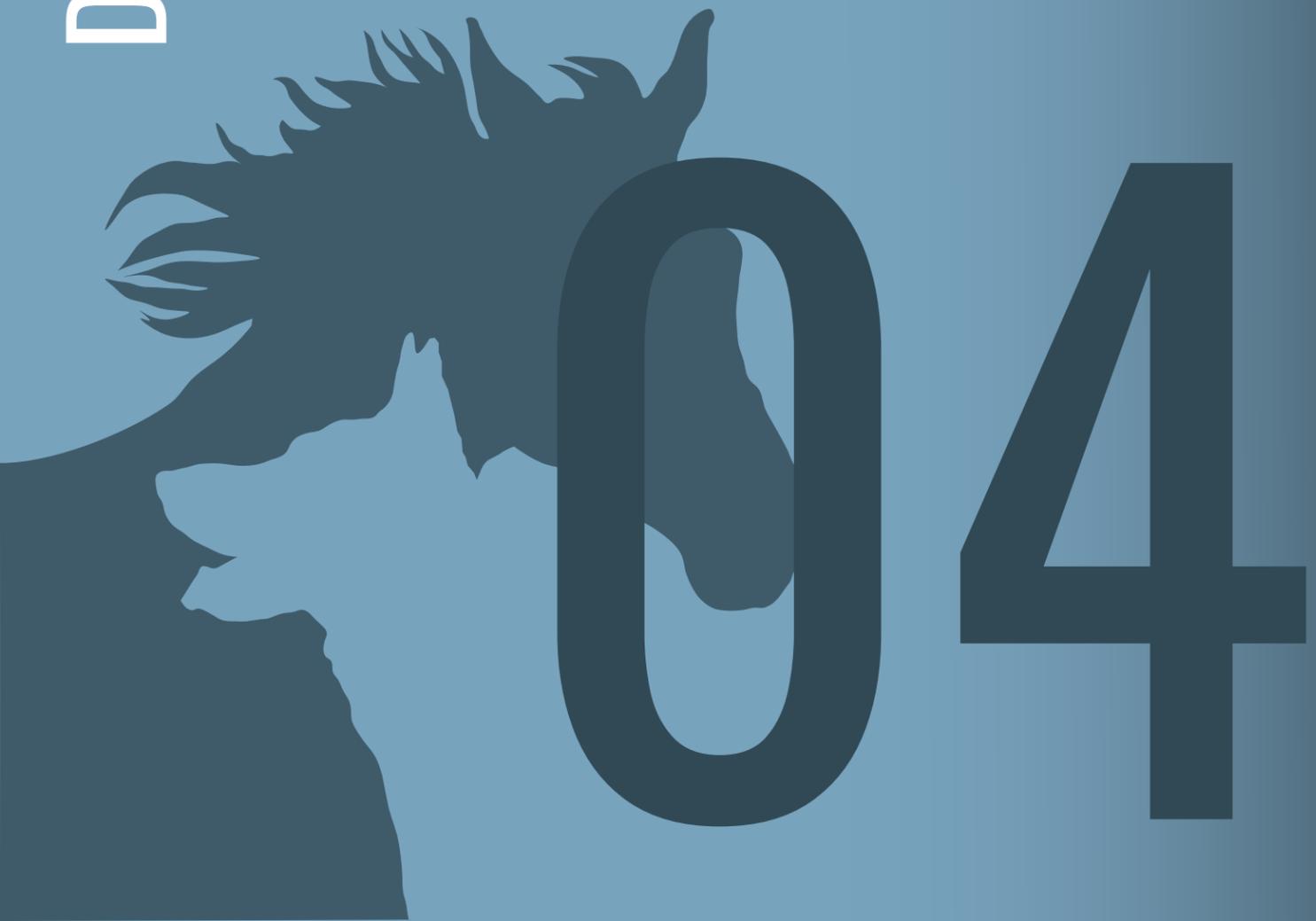
Adjacency Matrix

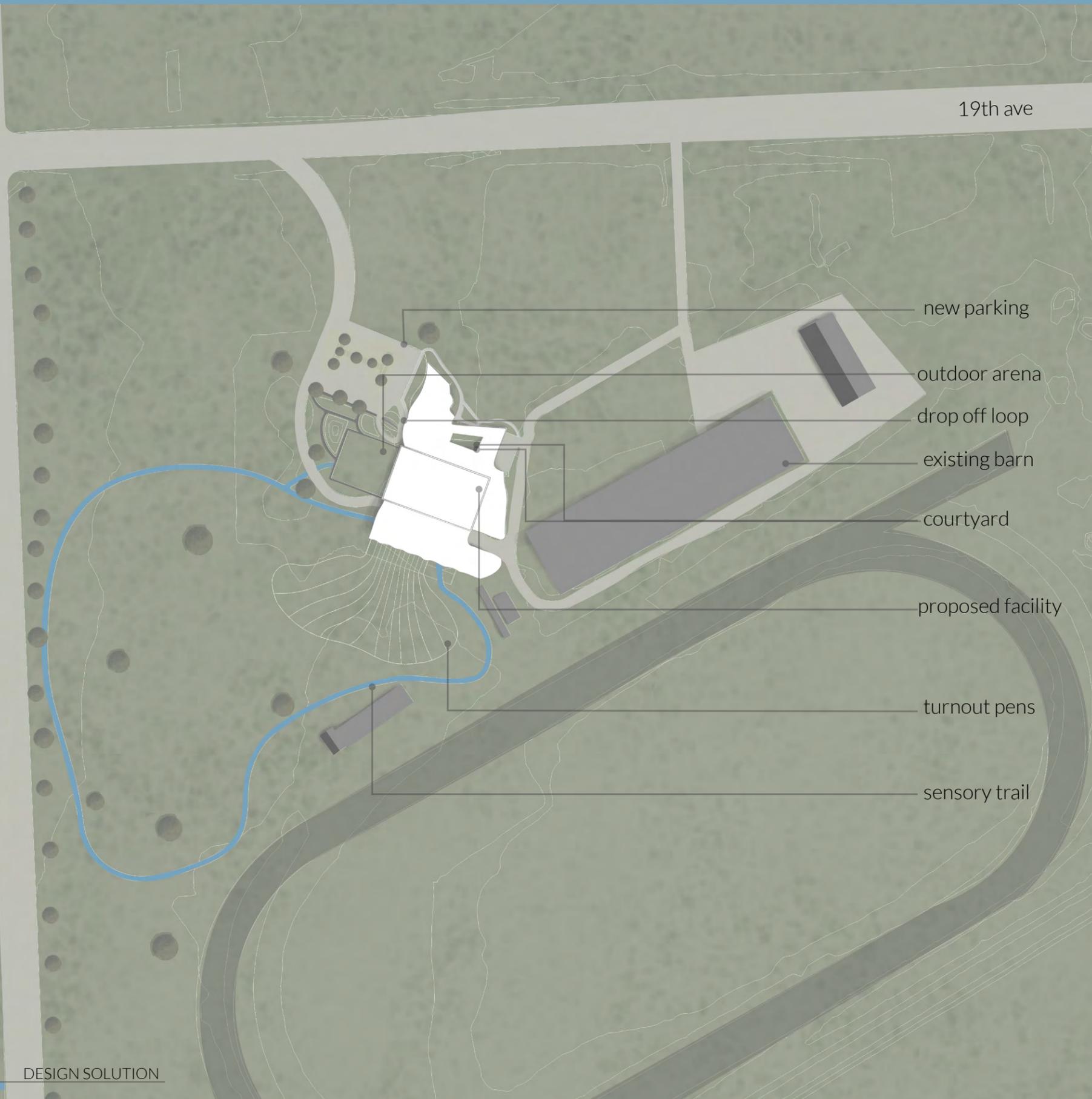


Space Program

ID	Space Name	W	x L	SQFT	QTY	NSF
Public Spaces						
1A	Lobby	50 x	25	1250	1	1250
1B	Vestibule	12 x	12	144	1	144
1C	Reception	7 x	12	84	1	
Mixed Spaces						
2A	Arena	190 x	105	19950	1	19950
2B	Outdoor Arena	150 x	100	15000	1	15000
2C	Canine Therapy Room	10 x	12	120	3	360
Client Spaces						
3A	Therapy Rooms	8 x	10	80	2	160
3B	Sensory Rooms	20 x	25	500	1	500
3C	Observation Room	30	15	450	1	450
3D	Classrooms	25 x	30	750	2	1500
3E	Bathroom w ADA Showere and Tub	10	12	120	1	120
3F	Bathroom	25	15	375	2	750
3G	Kitchenete	10 x	8	80	1	80
3H	Nursing Room	9 x	7	63	1	63
3I	Adult Changing Room	10 x	8	80	1	80
3J	Getting ready cleint space	10 x	8	80	1	80
3K	Volunteer and Staff Transistional Space	10	8	80	1	80
Staff/ Private Spaces						
4A	Offices	8 x	10	80	5	400
4B	Conference Room	14 x	20	280	1	280
4C	Staff Toilet	9 x	7	63	2	126
	Vetrinary Hospital	50 x	30	1500	1	1500
	Sports Medicine	30 x	20	600	1	600
	Pharmacy	10 x	8	80	1	80
	Horse Walkeres	50 x	50	2500	1	2500
	Stables	80 x	45	3600	1	3600
	Runouts	100 x	80	8000	1	8000
	Breezeway	25	80	2000	1	2000
Housing						
	Dorm Style	25 x	20	500	2	1000
	Hotel Style	15 x	20	300	3	900
	Kitchen area	10 x	10	100	1	100
	Common Space	20 x	10	200	1	200
	Fitness Center	20 x	20	400	1	400
Building Services						
	Breakroom	12 x	12	144	1	144
	Hay Storage	20 x	30	600	1	600
	Tack Room	20	15	300	1	300
	Electrical	8 x	4	32	1	32
	Mechanical/Plumbing	15 x	15	225	1	225

DESIGN SOLUTION





19th ave

new parking

outdoor arena

drop off loop

existing barn

courtyard

proposed facility

turnout pens

sensory trail



Sensory trail

This isn't just physical therapy and occupational therapy, this is a broader way of healing. Mainly this thesis overall strives to bring psychotherapy, PT, OT and a connection to nature all in one single facility by combining a traditional clinical typology with animal therapy. This broadens the healing approach to the holistic level with a person's physical, mental, and spiritual healing process supported through the use of architecture and animals.



Within the design solution, goals that were formulated within the proposal portion of the thesis project were carried on throughout the design process. One goal that was emphasized the most throughout the process was the innovation and blending of a traditionally clinical practice with animals in one, cohesive facility. Overall, the final design blends the two together well and does it in a safe way that encourages mental, physical, and spiritual wellbeing. The facility also brings opportunities for green design within the space with elements such as a green roof, daylighting, thermal gain, and passive cooling. The materials of the facility achieve the desired warmth of the space and partner well with the therapeutic environment. Finally, ada accessibility was a must in the design solution, and was thought through within the progression and circulation of the facility.



COMPREHENSIVE, WELL DESIGNED

- Awareness
- innovative
- Community, engaging
- Physiological influences
- Trauma informed



GREEN DESIGN

- Steward environment
- indoor/outdoor blend
- glazing, daylighting



WELL MAINTAINED HUMAN-ANIMAL SPACE

- innovation in agricultural design
- warmth through materials
- Sterile but aesthetic



EASE OF USE

- ADA
- Equipment for accessibility
- awareness of space



COMPREHENSIVE, WELL DESIGNED

With the conclusion of my architectural design thesis, the goal was to create a design that informed the general population of the innovative therapeutic practice of animal-assisted therapy through an avant-garde facility. After presenting my design solution, I found that not many people knew of hippotherapy and that this facility informed them of its effectiveness and existence. The space also acts as a "one stop shop" for various therapeutic practices where individuals can find what healing process helps them the most. Physiological influences are integrated into the facility with integration of daylighting throughout each programmed space. This is achieved by the use of a courtyard centered in the northern mass of the facility. Materials also played a large factor into environmental influences like wood on interior and exterior walls, flooring, and the weaved ceiling element. Bringing in the Fargo/Moorhead and surrounding community plays a key part in bringing people together in the facility. Opportunity for local artists to show their work, as well as community spaces like the lobby, observation area, and courtyard invite visitors to engage with one another.



GREEN DESIGN

Using the environment as a basis for the space played a big factor in the conceptual design choices that I made. Providing a connection to nature became an anthem throughout the facility with glazing that gave views to the outdoors in a majority of usable space. The form of the building with the courtyard, gave way to this sight line of nature. Accessibility to a green roof blends the North Dakota landscape into the elevation of the building. The green roof presents benefits such as an absorbable surface, minimization of hardscapes, and natural cooling. Passive cooling within the arena is another proposed idea with operable windows and accordion doors that allow for cross ventilation. Heat gain through a clerestory and skylight bring warmth into the arena and stables in the winter time. Daylighting, with glazing throughout facility illuminate the space for a majority of its operating hours.



WELL MAINTAINED HUMAN-ANIMAL SPACE

Safety was an important factor that I kept consistent throughout the flow of the facility. Decisions like doors with appropriate operation, width, and height, and hardy wood materials in high traffic areas ensure the safety and effectiveness of the whole operation. Inside the arena, elements like the walkway circumventing the space give pedestrians a safe area to circulate while inside the arena. The divider wall keeps sessions in the appropriate space and are built to take high impact. Circulation between the arena and the stables is effective and secure when it needs to be closed from the public. With an agricultural typology, aesthetic was not lost in the design solution and moved away from the traditional, cold materials of a stereotypical "barn like" structure. Daylighting is a more innovative concept when designing a space with animals. A skylight inside the arena brings in daylighting while also diffusing it with a organic, laminated wood. Horses can be spooked by the presences of large environmental contrast, so diffused lighting allow for sunlight to stream through while avoiding interruptions with anticipated equine behavior.



EASE OF USE

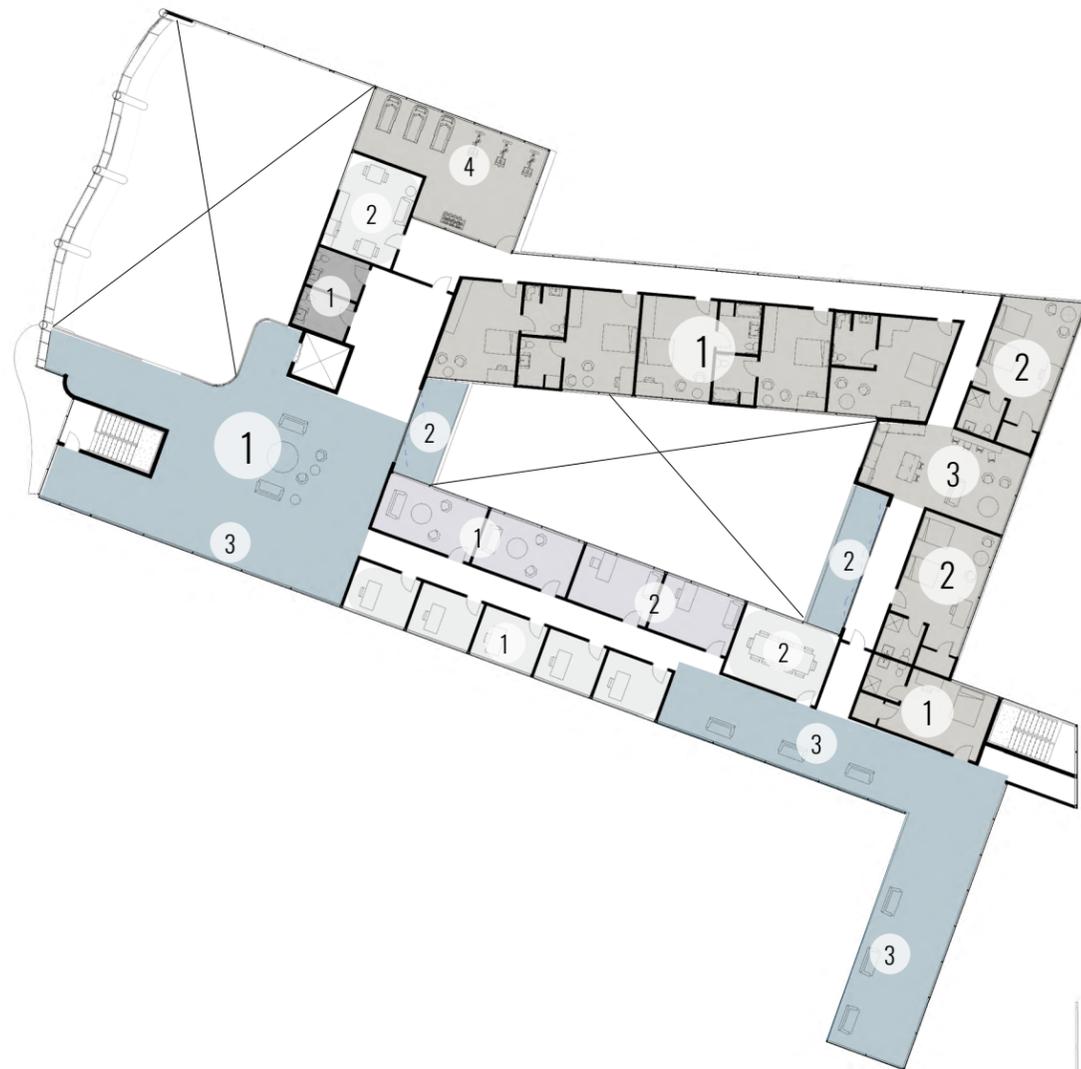
What makes this space so inclusive is the accessibility and ease of use incorporated throughout. With physical and occupational therapy programs, it is essential that all spaces are easy to access and circulation flows smoothly consistently. The main PT, OT, and hippotherapy programs are situated on the first floor with handicap assisting elements such as a ramp in the arena for mounting. Easy navigability like flow from lobby to adjacent program spaces are applied through wide hallways with short commute distances. ADA standards are applied in complementary and service spaces including ADA restrooms, changing room, ADA bathroom with shower, and nursing room. Elevator is located in close proximity to stair and main front entrance. Parking is made accessible along with a drop off loop for ease of access to entrance. The outdoor programming and landscaping allows for handicap usage as well with paved paths and a sloped ramp into the courtyard.

Much of the typological and space programming throughout the facility was inspired by research through interviews with Bison Strides director Erika Berg, and the Spur Vida thesis precedent in Denver, CO. Service spaces such as nursing room, changing room, ada shower room, were some areas of need expressed by Erika Berg. Other elements such as the sensory trail, and ada mounting ramp were also needs expressed from Erika that the new facility would need. Much of the space programming was in partner with Clark Ennerson Architect's project Spur Vida. Some spaces that were inspired by the precedent include the indoor arena, housing, sports medicine, breezeway, and stables. Much of the precedent research done for this project was the main driver of the programming of this facility and would not have been possible without the assistance of those involved in the research.

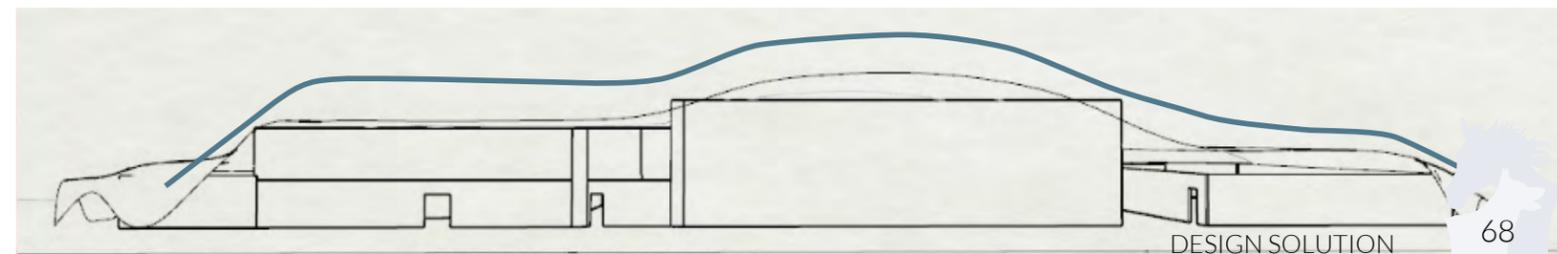
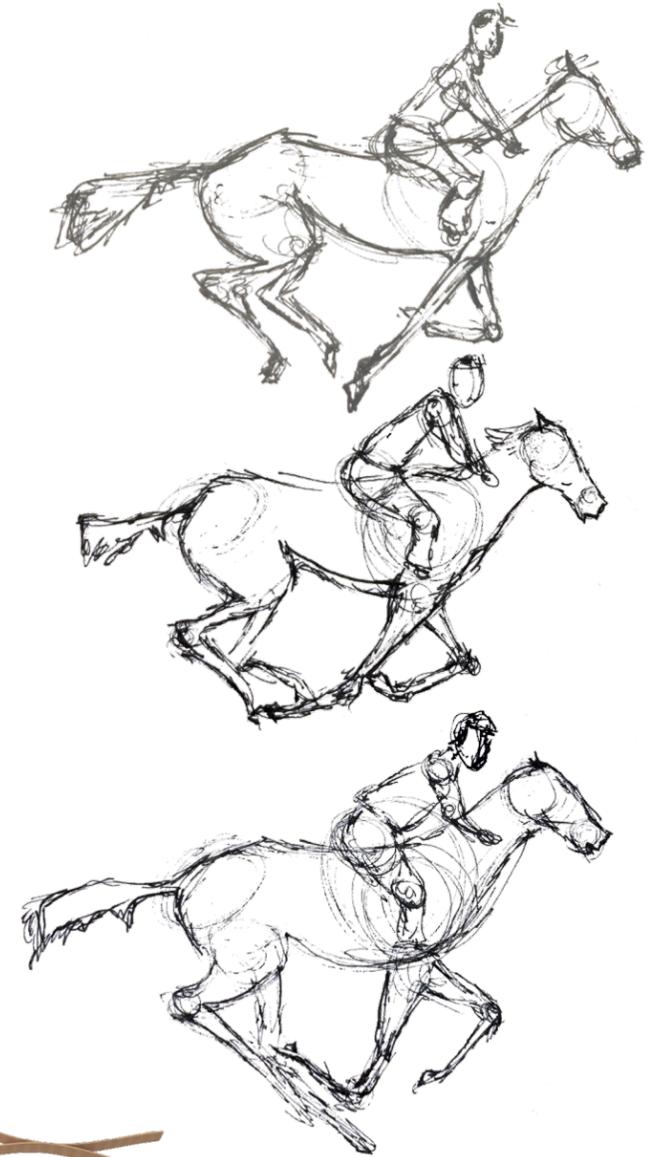
- | | |
|---------------------------|----------------------------|
| community space | stables |
| 1 lobby/reception | 1 stalls |
| 2 lobby/reception | 2 tack room |
| 3 observation space | 3 wash basins |
| therapy spaces | 4 tacking space |
| 1 indoor arena | 5 horse walker |
| 2 pt/ot consultant spaces | 6 hay storage |
| 3 canine therapy | 7 breezeway dropoff/pickup |
| 4 laundry | sports med |
| 5 janitor | 1 treadmills |
| 6 clean/dirty linen | 2 underwater treadmill |
| 7 staff space | 3 holding stalls |
| 8 ot gym | 4 clean/dirty linen |
| 9 outdoor arena | 5 sterilization |
| bathrooms/ private | 6 mechanical |
| 1 lobby bathrooms | 7 pharmacy |
| 2 changing room | 8 office |
| 3 bathroom with shower | |
| 4 nursing room | |

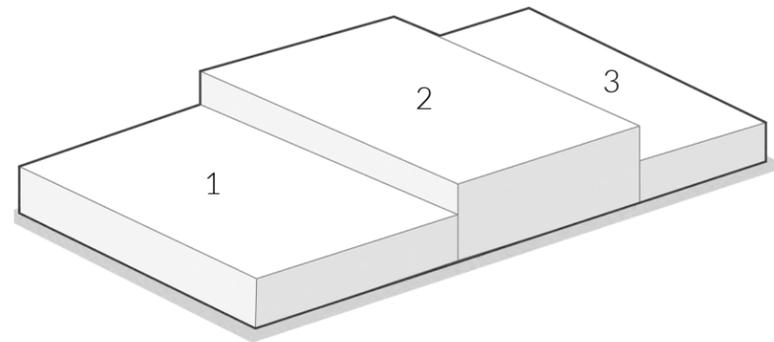


- | | |
|---------------------------|------------------------------|
| community space | staff space |
| 1 counseling lobby | 1 staff offices |
| 2 outdoor patio | 2 conference |
| 3 Observation space | 3 break room |
| therapy spaces | complimentary housing |
| 1 group counseling | 1 1 bed |
| 2 counseling | 2 2 beds |
| bathrooms/ service | 3 common space/ kitchen |
| 1 restrooms | 4 workout gym |



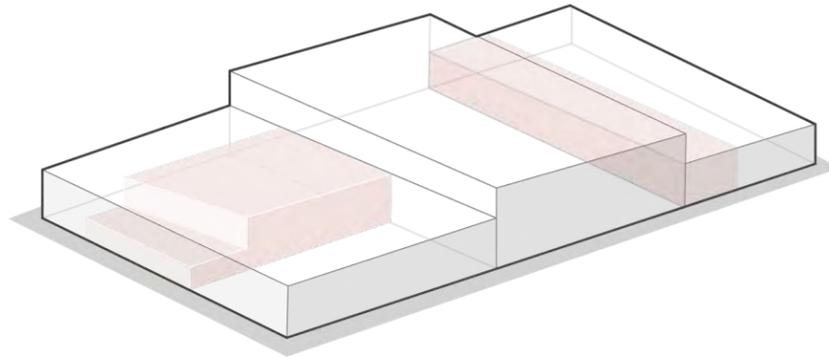
Thinking about the form of the Anothrozoology center, I looked to inspiration by the movements of a horse. Edward Muybridge was a photographer that studied stages of movement through his photographs. One of his famous works, the moving horse, was a case study that I look for accurate depictions of that the different stages of movement might look like. The dynamic organic form of the roof line indicates the movement of a horse in motion. The weaved decorative element of the underside of the roof also ties into the organic theme of the facility. This form, inspired by the natural movement of a horse, contains biophilic qualities, tying into the goal to create a facility that blends the natural and built environment. The presence of the organic forms helps establish the presence of the beneficial qualities that biophilic design has on a person's wellbeing.



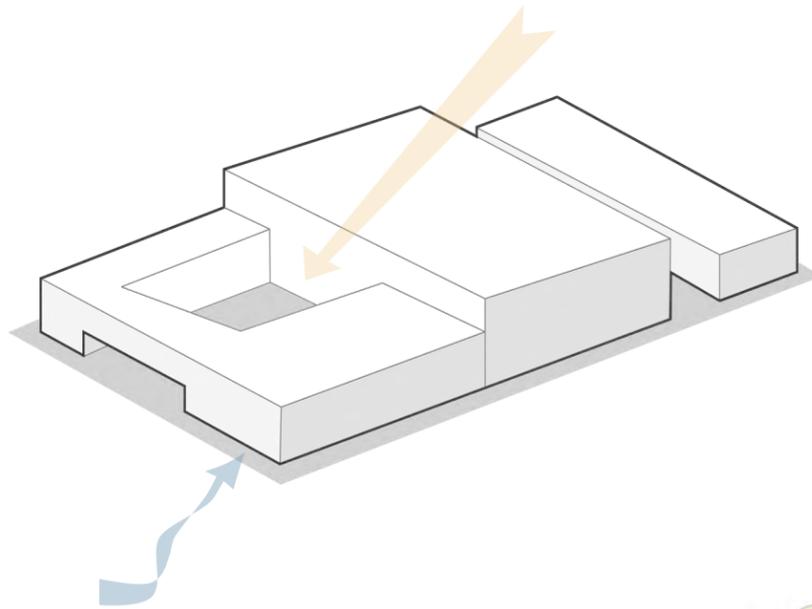


Massing began with three separate spaces with three separate needs:
 1. Most pedestrian activity
 2. Pedestrian and equine activity
 3. Most equine activity

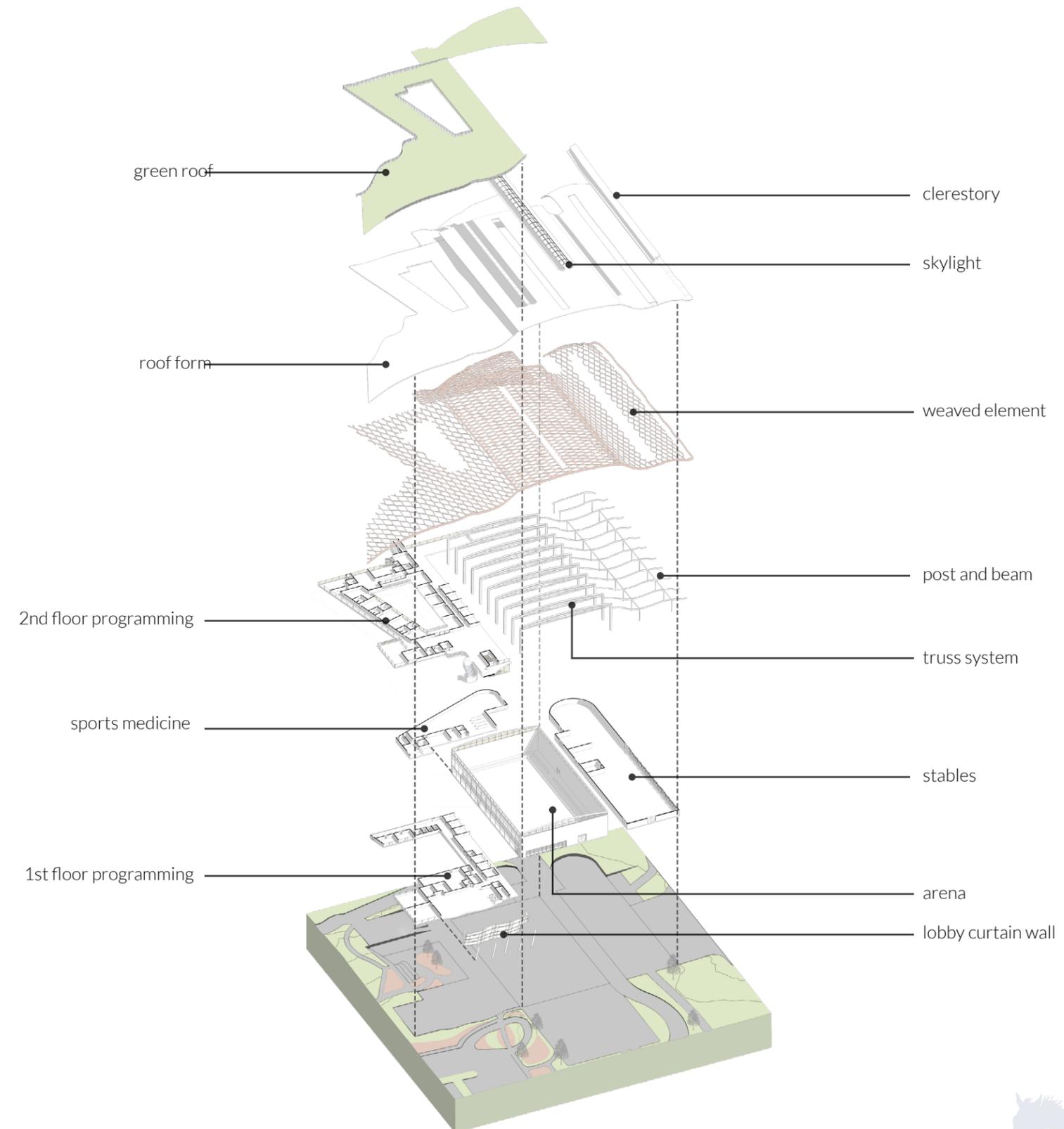
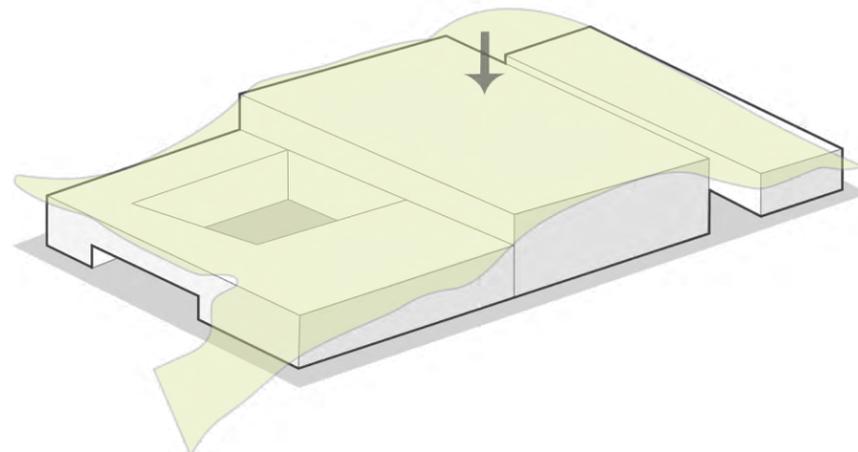
Moving forward with this programming concept, I sought to create voids in the form that would help develop the form as well as make sense of the facilities programming with a breezeway and courtyard.



Site analysis was considered within the voids of the massing. courtyard bring in daylighting to all spaces in facility while also providing a community space that is open to public. North wall helps in protecting facility for nw winter winds.



Organic roof drapes over the masses. The form resembles the movement of a horse or even the draping of a horse blanket. Roof also ties into ground to create connection with the landscape as well as an accessible green roof to the public.





GREEN DESIGN

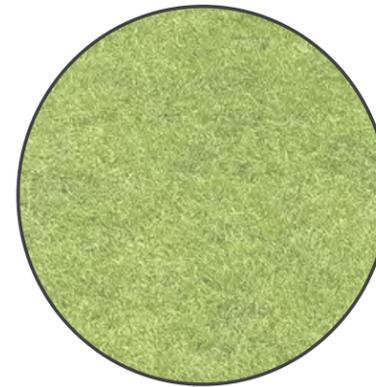
- Steward environment
- indoor/outdoor blend
- glazing, daylighting



WELL MAINTAINED HUMAN-ANIMAL SPACE

- innovation in agricultural design
- warmth through materials
- Sterile but aesthetic

Goals that were achieved the materiality of the facility include the blending of the outdoor and the built environment, and the use of warm materials within an agricultural typology. Moving away from the traditional nature of an agricultural “pole barn”, this facility uses materials that add warmth to a therapeutic environment. Grass on green roof blends the building into the nd landscape.







warm wood materials
Adds to the healing environment and physiologically evokes a sense of calm.

local art
Encourages community through artist expression and invites conversation and contemplation.

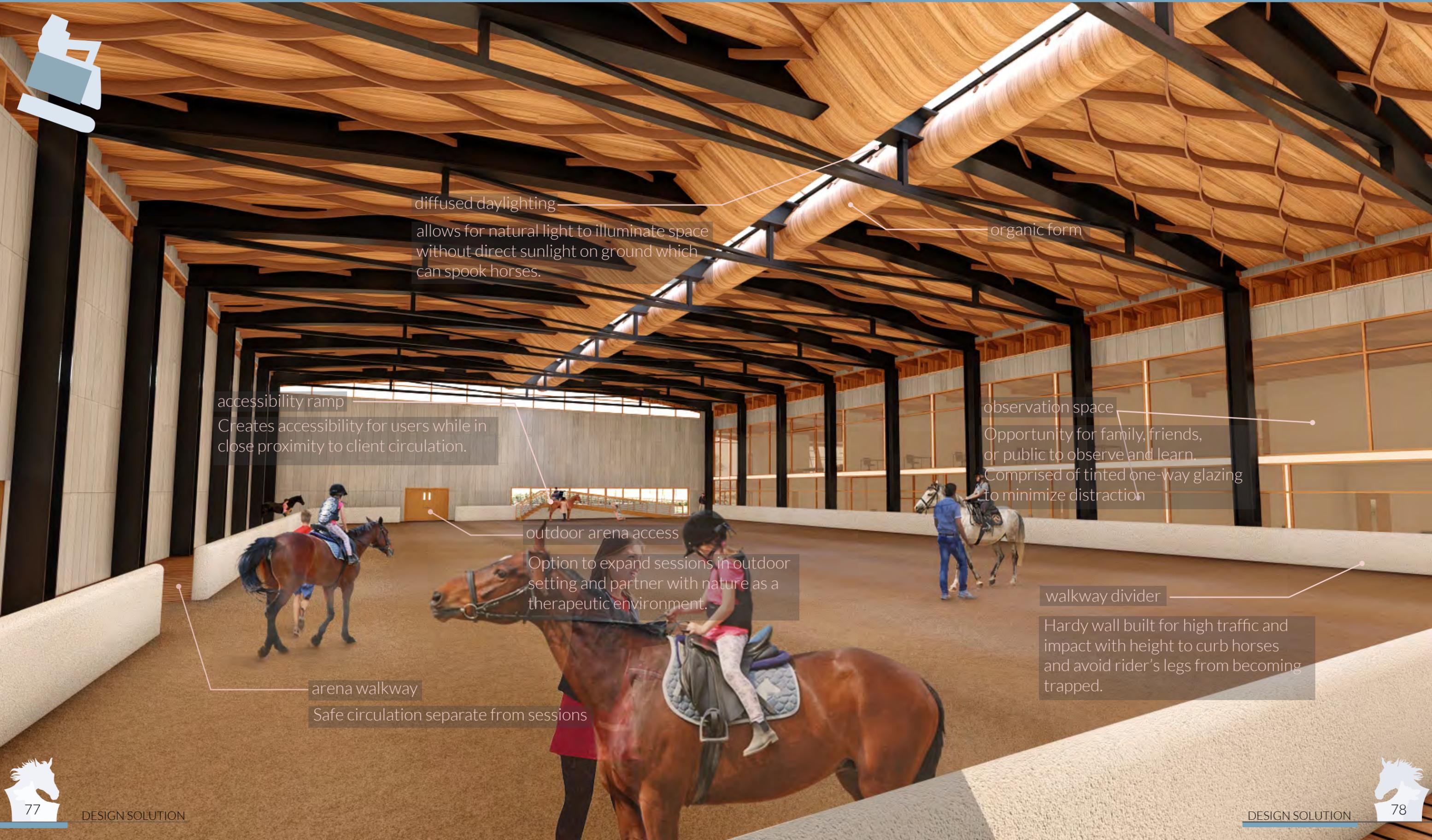
daylighting
site line to nature and natural lighting that innately improves wellbeing

openness throughout
Uninterrupted views of different parts of facility that minimizes feeling of anxiety and cultivates a sense of community.

west window for sunset views

views of the sunset provide a connection to the natural rhythms of the environment to promote a connection to nature and circadian rhythm.





diffused daylighting
allows for natural light to illuminate space without direct sunlight on ground which can spook horses.

organic form

accessibility ramp
Creates accessibility for users while in close proximity to client circulation.

observation space
Opportunity for family, friends, or public to observe and learn. Comprised of tinted one-way glazing to minimize distraction

outdoor arena access
Option to expand sessions in outdoor setting and partner with nature as a therapeutic environment.

walkway divider
Hardy wall built for high traffic and impact with height to curb horses and avoid rider's legs from becoming trapped.

arena walkway
Safe circulation separate from sessions



walkable greenroof

Connection to nature with continuation of landscape and minimization of hardscape.

accessible slope

canine therapy

Outdoor environment partners with canine therapy program through agility course activity.

2nd story bridge

Bridge opens courtyard to public while also providing a sense of safety and enclosure

greenspace

Softening concrete with greenery and site line of nature in interior spaces.





daylighting

playground

climbing wall

ot swing



observation

organic form

treadmill

examination space

underwater treadmill





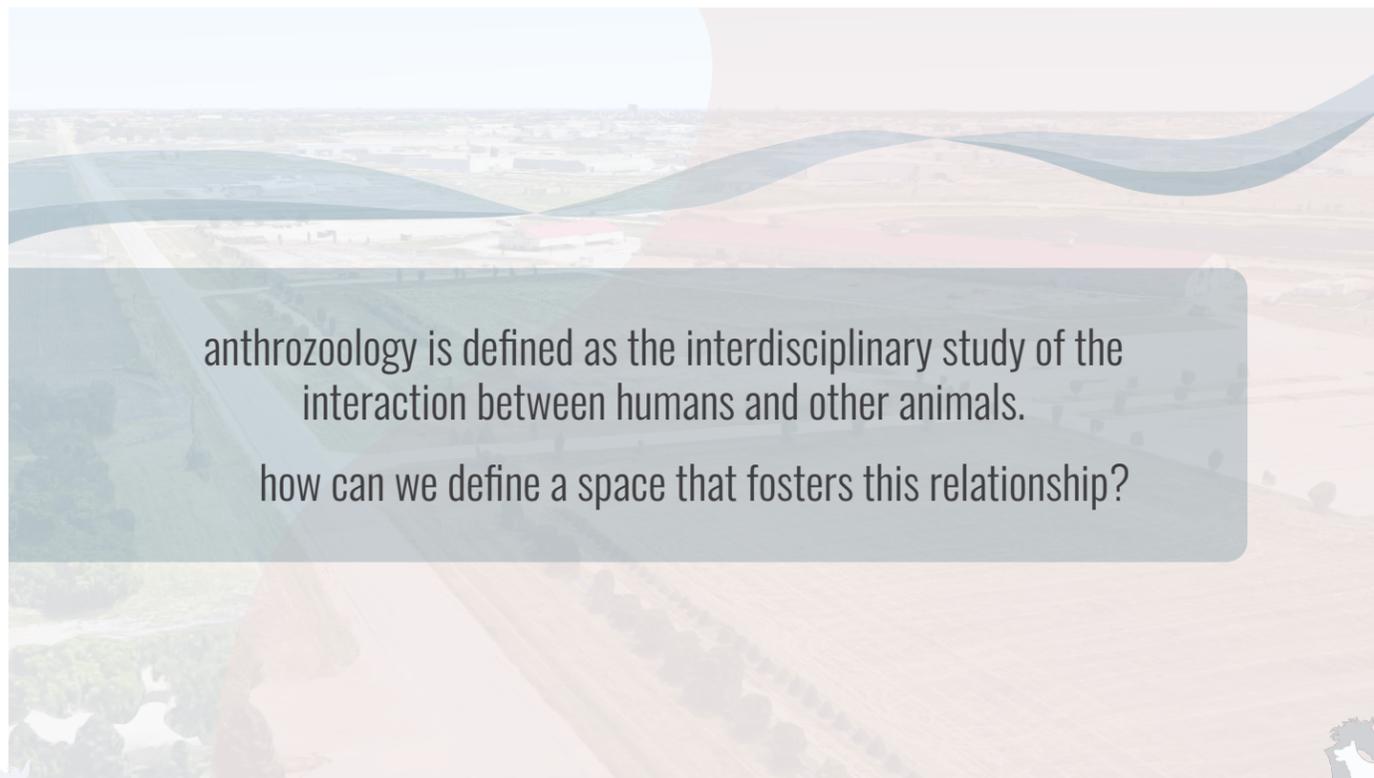
daylighting

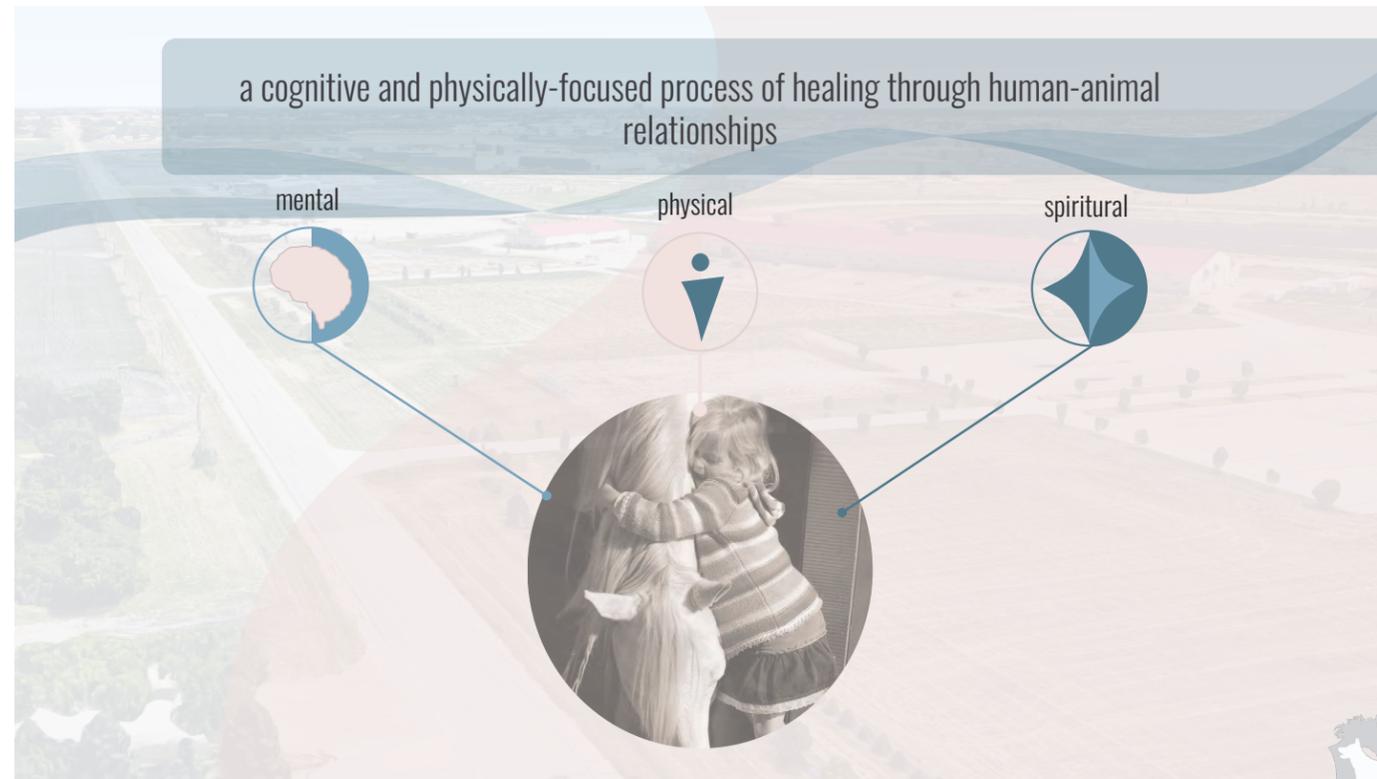
organic form

post beam structure

tacking space

tack room





client/users

- Children or adults who have experienced trauma and lost relational trust
- PTSD victims
- Veterans
- Kids and Adults on autistic spectrum
- Those with physical disabilities
- Foster Children
- NDSU program and academic users
- Horse Owners boarding at the facility
- Anyone!

hippotherapy

typology/program

equine space

- Stables
- Runouts
- Horse Walkers
- Sports Medicine
- Veterinary Hospital
- Drop off/Pickup Breezeway
- Pharmacy
- Storage

human space

- Sensory Trail
- Indoor Arena
- Outdoor Arena
- Canine Therapy Rooms

human space

- Greenspace
- OT and PT Offices
- Therapy Rooms
- Sensory Rooms
- Observation/ arena viewing
- Classrooms
- Housing for Staff and Clients
- Reception/ Commonsplace

function

- Adapted Therapeutic Horsemanship
- Equine Assisted Learning
- Physical and Occupational Therapy
- Hippotherapy
- Military and Veterans Horsemanship Program
- Canine assisted Therapy
- PT Sessions
- Psychotherapy



hippotherapy



adapted therapeutic horsemanship



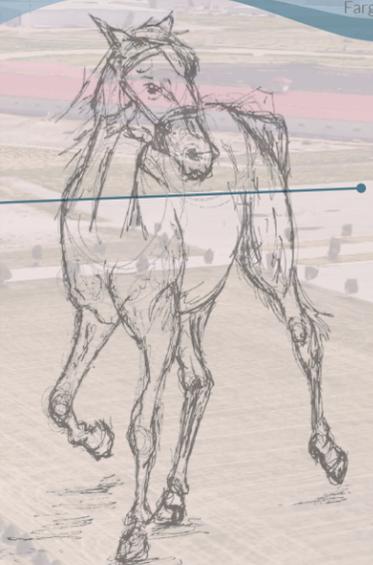
military and veterans



equine assisted learning

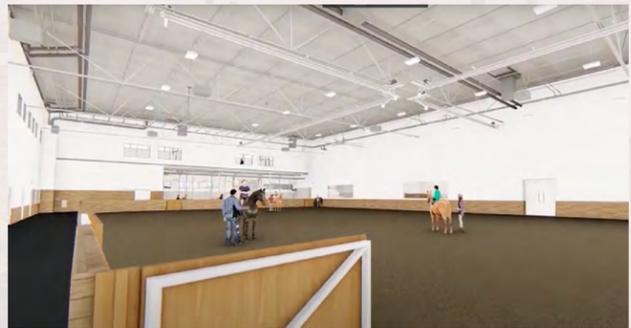
site

NDSU EQUINE CENTER & HORSEPARK
5140 19th Avenue North
Fargo, ND 58102

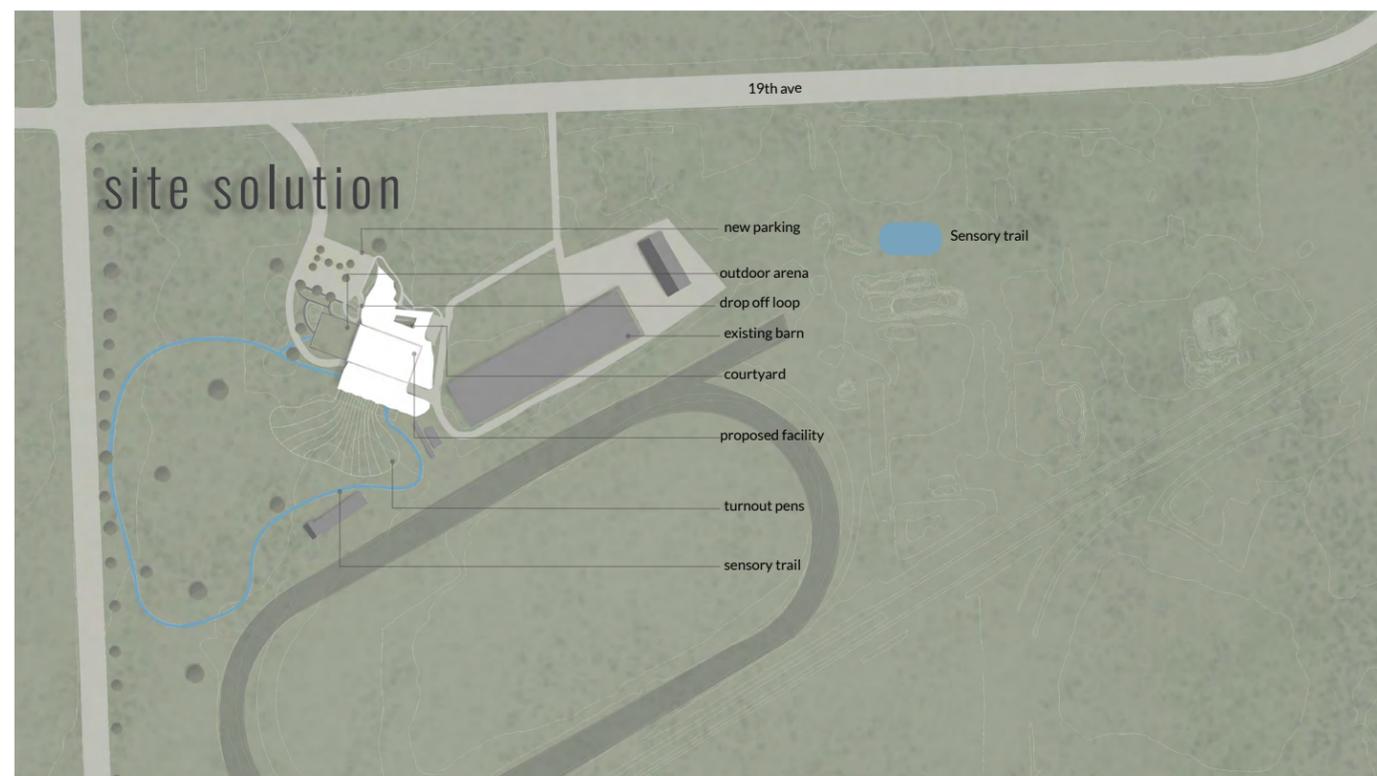


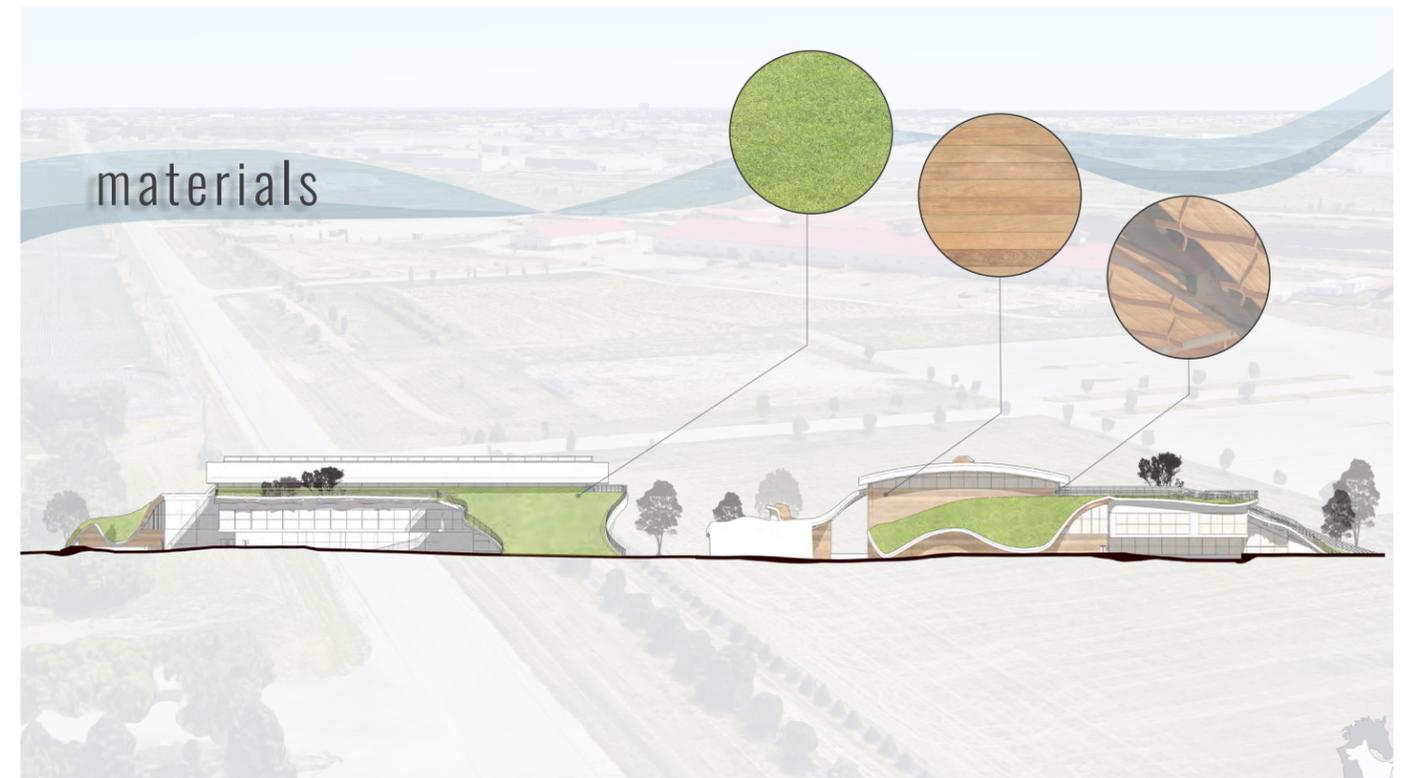
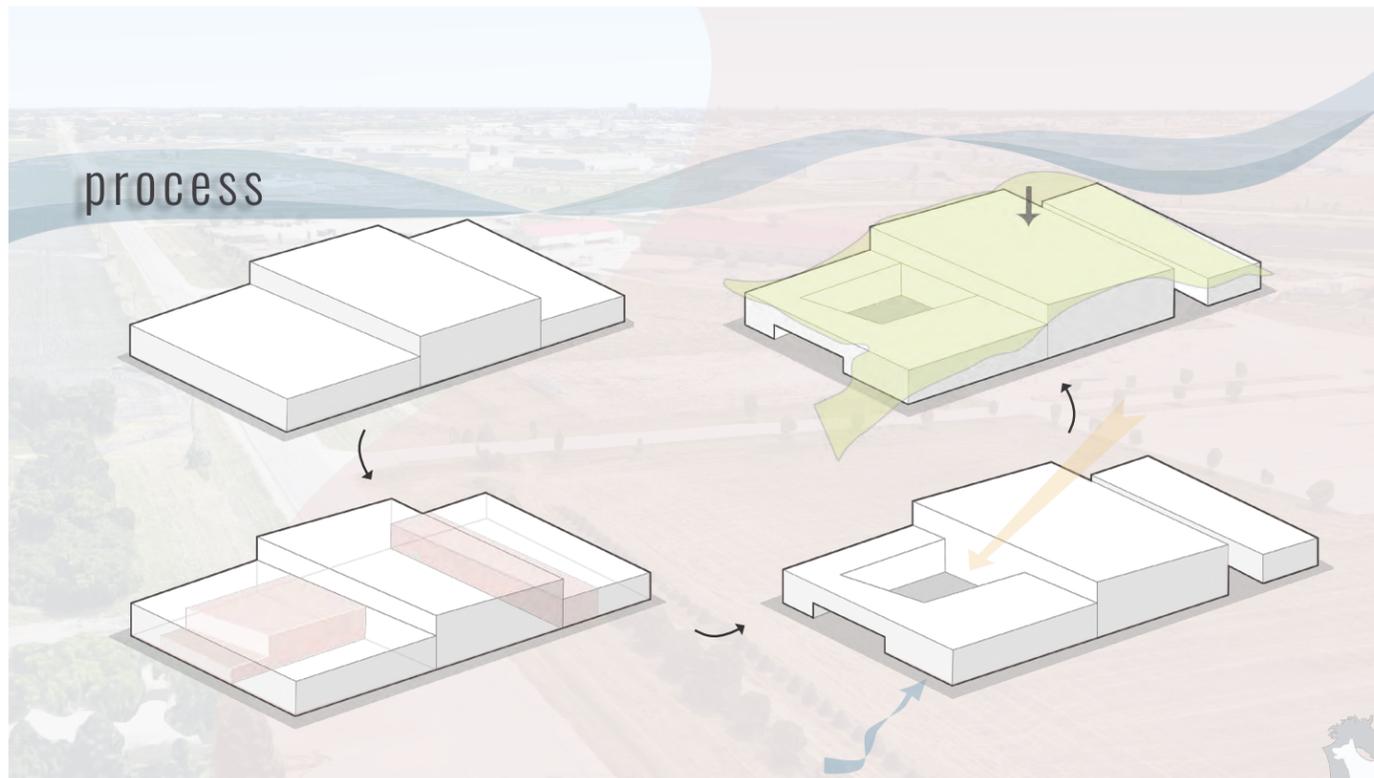
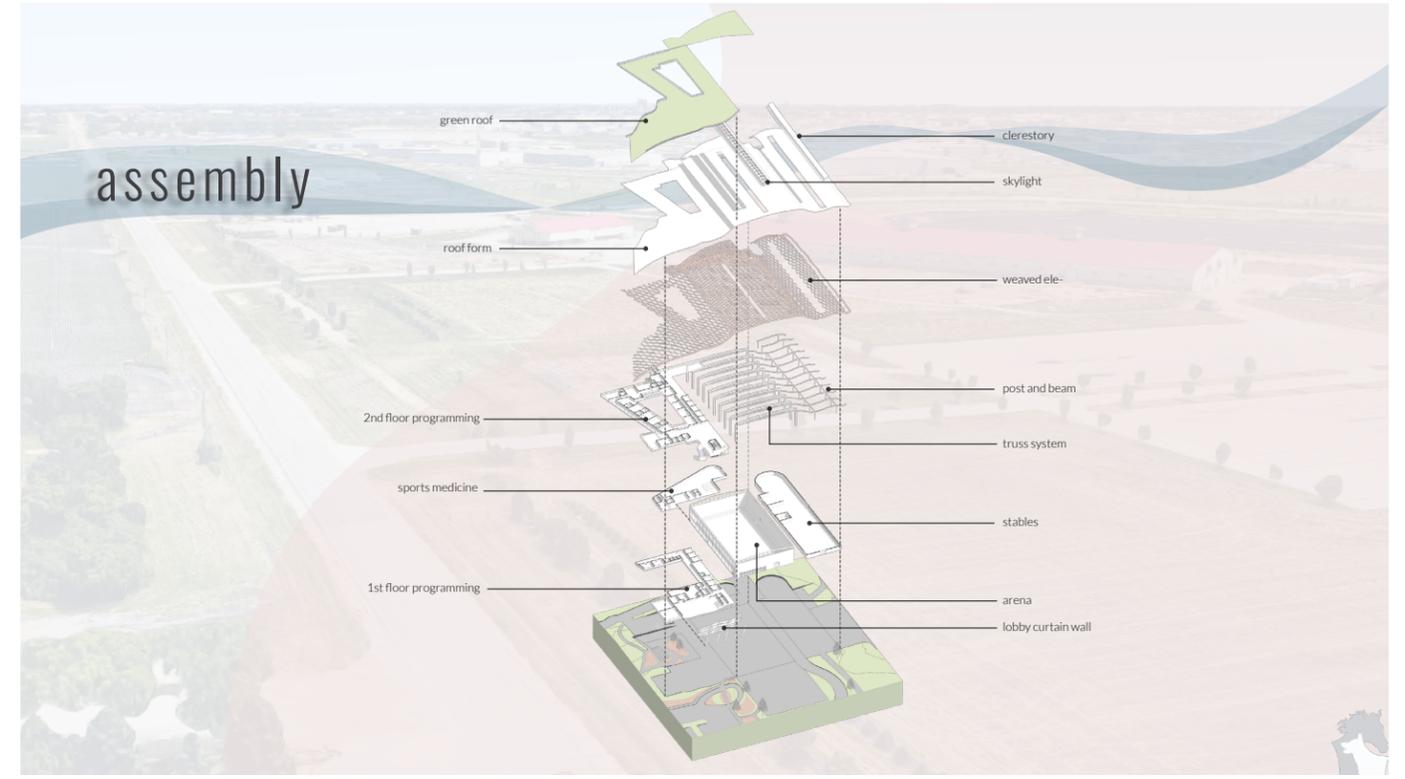
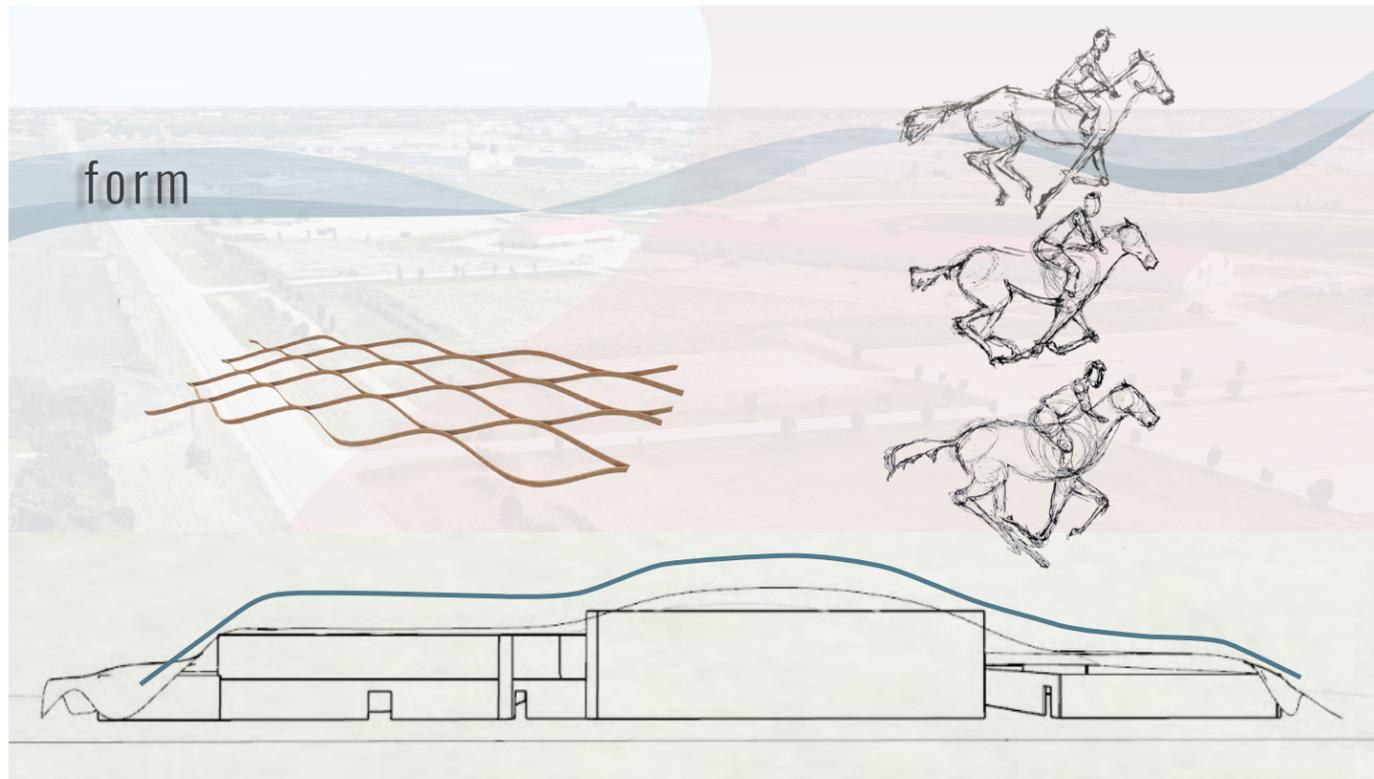
case study

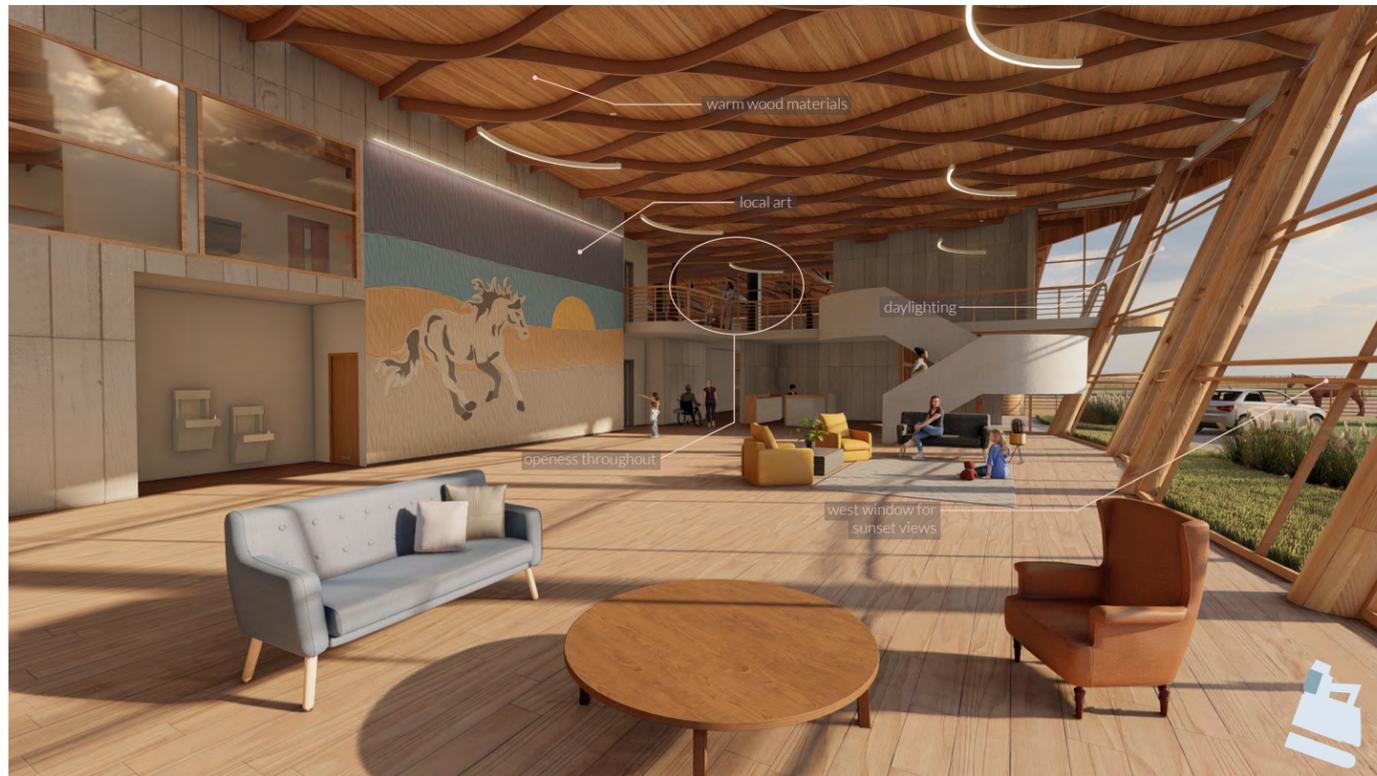
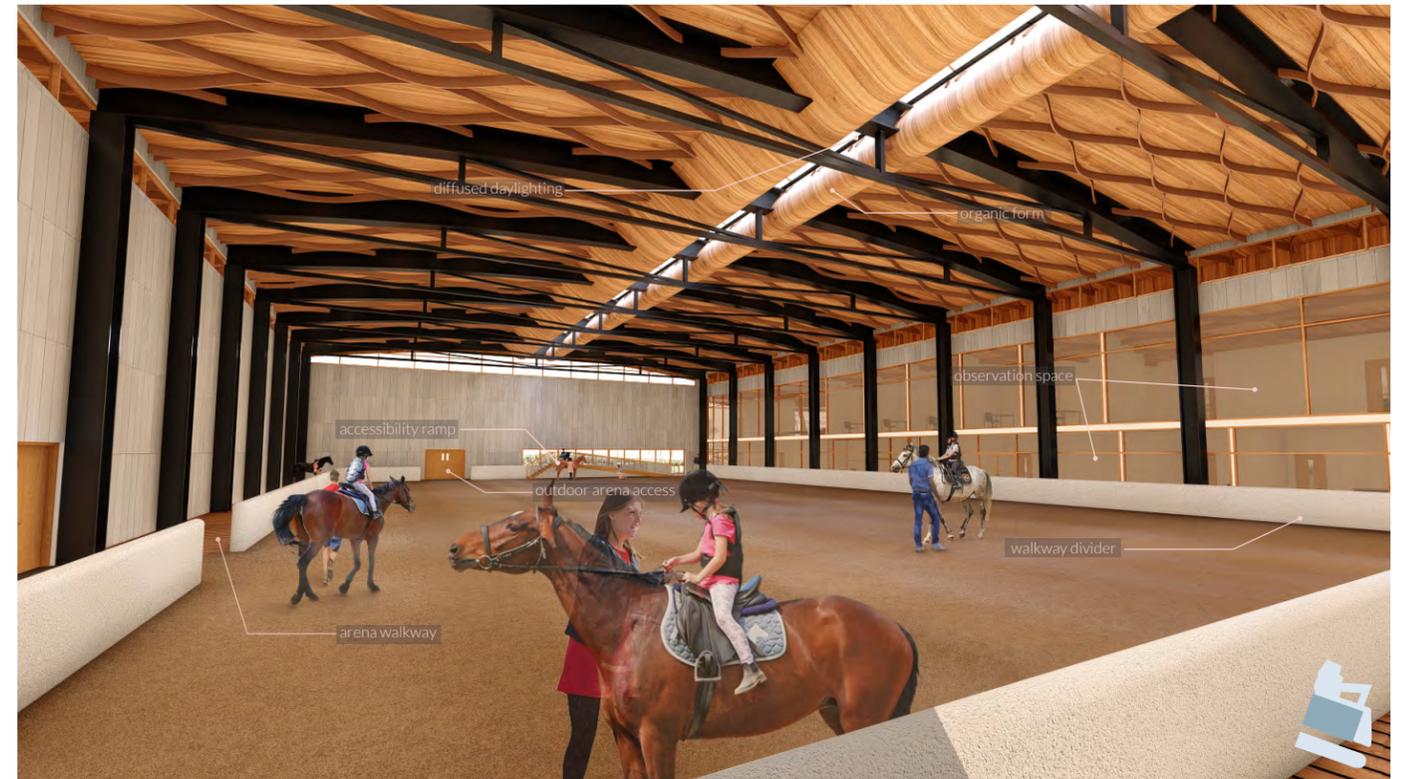
Spur Vida Complex
Denver, CO

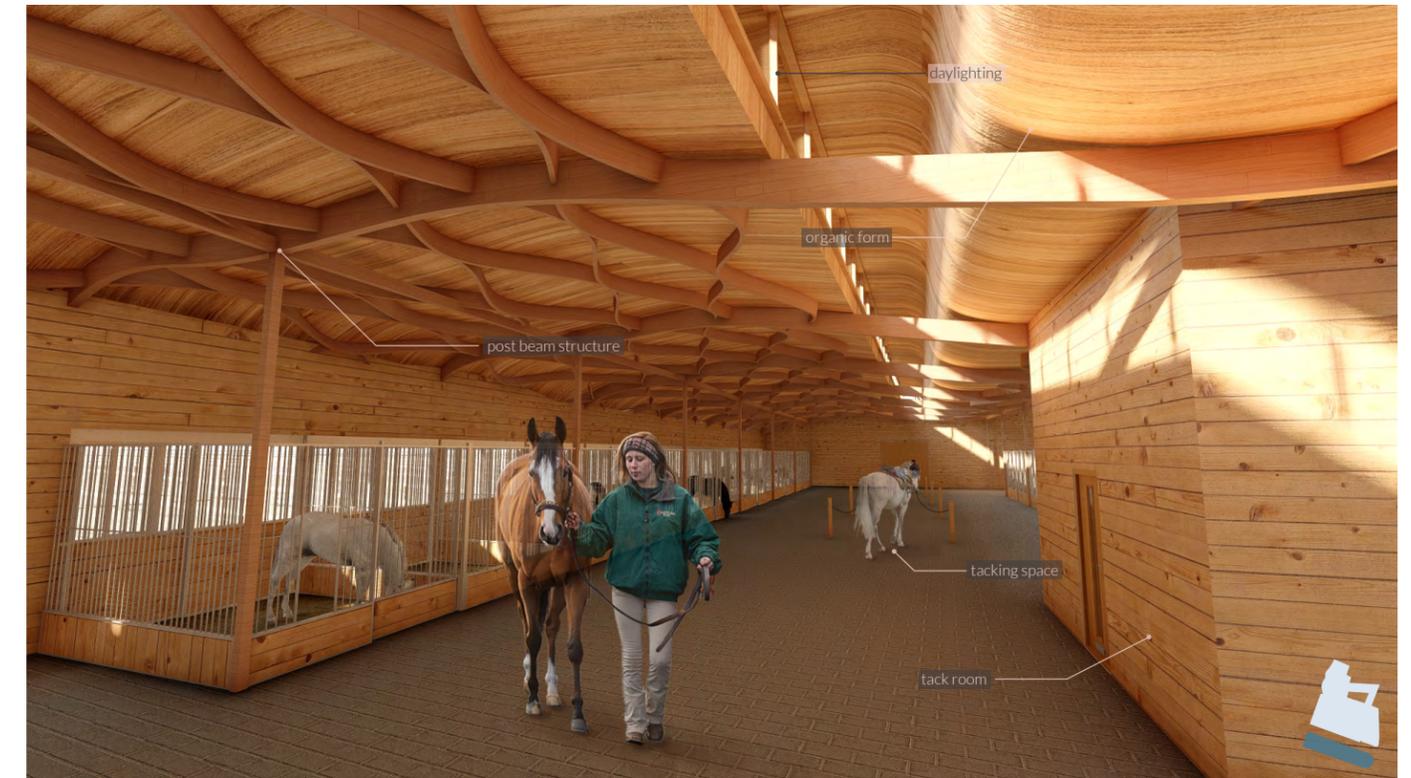


existing











<https://photostoragebackup.wixsite.com/anthrozoologycenter>



APPENDIX

05



This is a complete transcription of the audio recorded for an interview with a participant in the Veterans Bison Strides Program conducted on ____ via zoom. The participant's identity is kept confidential in the entirety of the transcription and no personally identifiable information will be disclosed.

Q:1 Elaine: How did you find out about the Bison Strides program and what drew you to it?

Participant: He found out through the website and he Animal Science 200 and Anthrozoology with Lisa Christianson and Dr Berg was one of the speakers so she talked about the program. It had just reopened because it was shut down due to COVID, so spring 2021 was one of the first sessions they had since the pandemic had started, so he was able to get a spot in the Veterans program.

Q:2 Elaine: Before starting the program did you have any experience with riding at all or horse before that?

Participant: A little bit of experience, taken lessons as a kid and went out riding with Susan at the dude ranches back in Tuscan. Everything else was just trail rides, renting a horse.

Elaine: That kind of happened with me too, I don't own horses or grew up with them, I just get the opportunity when I can with trail rides. Still love them, just don't own any.

Participant: I've always loved horses and whenever we have an opportunity, to do a trail ride I've always tried to get it set up when we've been on vacation or family Christmases together. This is the first formal program that I've been in.

Q:3 What is the type of therapy, the technical name? Is it occupational? Physical?

Participant: I'm not 100% an expert on these at all, but the way I understand it is that the Bison Strides program has 4 different programs that they are offering right now. One is a therapeutic riding program which is focused on the physical it's kind of Hippotherapy. One is the equine Assisted Learning which is a grown based program which is around more learning. And there's a specific therapy program for people with specific disabilities to learn how to ride. I've sat in on each of the different types of sessions to get a feel of what they do for each one and how it compares to the horsemanship class and how that compares with our Veterans program. The Veterans program is probably closer to the Equine Assisted Learning in terms of the types of thing we do in a ground based program. And the other program that I sat in on was for younger people who had physical or developmental disabilities and then they had different challenges that they

could try. I think the key thing and the difference between the therapies and the equine assisted activities is whether there is a licensed therapist who is in the session itself. My understanding is on the therapy side that one or more of the participants (the side walkers) is a licensed therapist that is involved with the student as a patient. As opposed to the Equine Learning of the Military Program where we're there working with someone who is an expert with equine therapy, but who is not necessarily a therapist themselves. It's a subtle distinction.

Elaine: Going off of that, can you give me an explanation of what a typical session is like for the Veterans Program. What do you do with the horse?

Participant: The program I'm in is called the Military Horsemanship program that is offered both to Veterans and anybody who is in active or reserved military status. I'm a Veteran, and I just retired after 28 years in the Navy reserves and I have a couple of classmates, one of whom is retired, army reserves, another one who is an active guardsman and a former classmate who is also a Navy Veteran like me. The program really tailored for the individual because one of my fellow students is very experienced with horses he has worked with them for a really long time. He has been in the program since 2017 when it started. He does more advanced stuff. For those of us who are learning the basics we do more basic groundwork for example a typical session is meet the horse at the stall, get a Halter on the horse, lead the horse out to main arena, do a release, let them exercise for a while on their own, and observe their behavior and see what they are up to, make sure their behavior's healthy and that there's no signs of lameness, that they're active, they're not feeling droopy, normal horse play. Typically we do some grooming so I've learning how to groom, hoof maintenance, then we often do some leading exercises. For me the therapeutic part is the leading. I'm a heart patient, I've got fairly significant heart condition that limits my mobility. Being able to work with the horse gets me around, moving, put focus on pacing. First round I did in conjunction with cardiac rehab over at Stanford. I was able to match my exertion levels with what the activity was with the full size horse. The really cool thing in the last two session is the we got introduced with the two minis that have joined the program. They're not quite therapy horses yet, they're candidate horses. I got a chance to work with the minis Spark and Toni and same thing, leading, grooming, same as what I was doing with Pepper my full size therapy horse. They're ultimate thing is for them to become outreach ambassadors. They would be able to go out to schools and hospitals as therapy animals.

Elaine: That's so fun bringing mini horses into hospitals, I would love to see that.

Participant: I had never really worked with them before, and I always wanted to. I was a big Heartland fan and love horse movies and the featured minis really got my attention. When they got

the minis in the program I was like “yes!” I wanted to work with them. I volunteered right away. I had two sessions where we had them out to work with. On the Friday session they were still down at the barn. They back between the barn and their owners house right now.

Elaine: You talked about how they help you physically with your heart and getting activity, is there anything that emotionally or mentally that the horses help you in as well?

Participant: I would definitely say, I’ve had issues with depression, especially being a heart patient and having a “horse day”. It’s Fridays I get a chance to go down there. It’s just really fun to work with the horses. First semester I work close with Bronco, who just won the therapeutic hors of the year. That was really great tot just bond with him and I think what really different in his academic horsemanship programs is the therapeutic program are much more centered around slow pace, sensing the animal’s emotions, understanding how to safe around a big animal. That’s also confidence building. You get to know what you are doing when you are leading a 1,200 lbs. of animal. From a mental perspective that’s a great part of it. In our military program, we don’t have a specific VA physiatrist or a social worker with us at the session, but it dovetails in nicely to program that the VA. Eventually there will be a more formal link between the two.

Q:4 Elaine: Can you think of a specific moment or story where you experienced a time where you saw improvement in yourself?

Participant: I could probably have a dozen of those. From starting out, the first day I went there I was nervous about the horses and, would I be able to keep up? Just the calming effect of working with Bronco. He is the calmest horse in the world. It was like “relax, walk with me, you’ll be fine.” That was kind of a defining experience. The opposite of that would be getting in with the minis and trying to get them under hater because they were exact opposite. They are full of energy, they’re young horse that want to run around. We took them into the arena and they went bolting off for the next hour. I also work with Pepper and she is a 16, 17 year old mare, vert steady. Part of the qualifications for a therapy horse if they have to be calm, they have be ridable, not spooked by anything. A different paradigm than the typical performance horse. I sat in on one of the horsemanship classes and that is very oriented around rider performance, horse performance, and there is a high bar on “we need to make the horse do this”, “you gotta be in this position”. As opposed to the therapeutic environment which is much more fell your horses emotions, understand, work that bond. The intangible part of working with horses is made much more tangible.

Q:5 Elaine: What is some of your feedback on the environment and how it affects your sessions? The organization? The quality? Comfortability? Feelings?

Participant: I have lots of opinions when it comes to that.

Elaine: Good I want to hear them all :)

Participant: Have you been down to the barn to watch the therapy sessions?

Elaine: I went to the hippotherapy sessions this morning and last week.

Participant: Good then you got a good feel for what it’s like. The barn is physically a really well designed from a functional perspective. We did a lab and walked around and looked and saw how functional it is. There’s door in the right places and the lighting is good. The washstands are next to the door. The arena is accessible to the three different sides. The turnout pens are attached directly to the structure. Functionally it works really well for the horses and the people. But, as you may have saw, it’s a very austere environment. Very industrial. I’ve talked to Berg about this but they have a lighting that causes a constant buzz. For me, that sounds like an alarm clock going off. For Veterans that’s probably the worst thing that you could have going cause we’re all socialized when an alarm goes off you have to do something. I had to get past that background noise to make that connection with the horse. Being out in a green field with wind blowing that’s very much not the environment which is kind of a bummer. That would be my comment for a therapeutic environment I would want to borrow more element from a spa, than from the barn because that noise probably has an impact on the horses too. Working with kids who have sensitivities to noise, light, motion, would have to take into effect. The barn was not designed with any of that in mind. It’s a horseman’s barn, not a therapeutic environment. The plus side is that the arena is set up so that the parents can sit and watch the kids. The tac room, stall, and arena arrangement is very convention. One of the things from a disability perspective is that I wanted to take their horsemanship class but, physically, I would have to be able to carry tac from the tac room to the stall and be able to get the horse out, tacked up, and into the arena. I looked at what was involved and came to the conclusion that was outside my physical abilities. I worked with the disabilities center about whether to ask for accommodations or how to address that. It is difficult for a disabled student to participate in their regular horsemanship classes. In my case I would have to have a person with me to do the heavy lifting. For someone with a mobility limitation, a wheelchair, an amputee, or someone with neuroglial issues, it would be hard to integrate a disabled person in to their regular horsemanship classes. Weather that is a separate activity that is done in a therapeutic environment, or where you could come up with a regime where you could do it in the existing environment.

Elaine: I was talking to Erika and she was saying that the barn was prioritized for the race horses. It's been designed for "in and out", not really for residing in there. They had to make accommodations, like the tac room was built. All that was an afterthought when they designed it. It's interesting how NDSU uses that space... they have a big agriculture program. It works and it's very functional, but it was definitely an afterthought for being useful for classes and the programs. Bison Strides is pretty new so that wasn't kept in mind at all.

Participant: I'm sure when the facility was built it wasn't on their books at all. One of the things that's missing is there's no classroom. I'm taking a class down there and I'm just sitting on the bleachers, which is actually kind of fun because usually we're working hand on with the horse. Having an actual classroom for the actual classroom portion would be better than just a white board. From a therapy perspective, if I were thinking about what I want from therapy in a building I would probably borrow some elements from a dude ranch environment where you've got some sitting spaces and have a break room. At the current center you have two coke machines and a candy machine and the candy machine doesn't work. They have problems with pigeons and mice. They have a cat the is a mouser but he can't of course get into the ductwork. That candy machine is mouse bait I'm not sure I would eat anything out of it worked. If I were doing a facility for Veterans I would look at having a ready room, borrowing some elements from military clubs and a gathering space where you can sit down. I notice in equine science they actually have that in their lobby in Halts Hall. An environment like that with an exterior sitting area, a classroom environment, and have that adjacent to the horses would be ideal. Some sort of a quiet room, low sensory stimulation room as part of it as part of the therapy and go and relax if you need to. My limitation is fairly basic, I can only stand on my feet for 10 or 15 minutes at a time. That been pretty east to accommodate, I just bring a chair. To make it more inclusion for people who have sensory overload issues which I noticed in one of my fellow classmates. His military experience has left him super sensitive and that's fairly common around veterans. His accommodation would be to step out to the tac room arena or step outside when was getting overwhelmed with everything going on. I would imagine that might be a factor for the other developmentally disabled programs that are offered. Somewhere where the horses aren't neighing and whinnying. You'd want some whey of separating the client from that level of disruption.

Elaine: Can we go back to the Dude Ranch? You were saying something about how the Dude Ranch had a really good feature.

Participant: I think the element that I would borrow from the dude ranch is the outdoor indoor gathering areas where you can interact with the horses outside. One of the dude ranches that we went to had a big bucket of treats that you could go grab a handful of horse treats and go visit the horses when they are out at pasture. The Equine Center Sort of has that but you have to walk out to a muddy parking lot in the wind to get out there. It's hard to visit the horses when they're not in their

stalls. It's kind of bad etiquette if they're in their stalls you're supposed to leave them in their stalls pretty much alone, not go in the stall. If you give them treats you give it through their treat buckets. That part of the experience I would borrow. We were at White Stallion Ranch which had that set up. That was a thing where everybody grabbed a handful of treats in their pockets and people would just hang by the fence and the horses would come over. They knew if they saw a person they would get a treat. They would come running up to the fence as soon as they saw somebody. That was an element from the dude ranch and the other is probably traditional wood barn look rather than the industrial metal barn. Have you seen heartland?

Elaine: I love that show!

Participant: I would totally go for the heartland vibe over the Equine Center industrial vibe in having a therapeutic center. The other thing that is completely absent is art. At the dude ranch there's also horse artwork around. When you pull up to the Equine Center the first thing you see is a pile of manure. Everyone I've talked to has been really receptive to that and they think the barn is really industrial. It's fits agriculture production but some of the horse culture seems to be missing. Jubilee stables in Horace has a little bit more of that. When you walk in there is a reception desk and some couches and hunting pictures on the wall. There's an intermediate space. When you go back its heavy duty and there is industrial but there's a transition area.

Elaine: Agriculture Architecture has harsh cold environments, but there people that are interacting with the animals aren't thought of.

Participant: In our anthrozoology class we had a guest speaker come in from the swine science. They did studies that showed if the caretakers were happy, they took better care of animals. Then the animals require less medication and better feed efficiency. There is a benefit to having a better environment. They were mostly looking into working safely because a lot of the environment was very hazardous for the workers. The agricultural workers are at the very bottom of the wage scale but still have to be very skilled. It gives the workers a sense of ownership in a well-designed space. The barn has to be a whole lot of things. It has to be a production environment, a work, a recreational. At the case of NDSU a competition environment because they train an compete. It's awesome that you're working on this problem. Dr Berg is really interested in what you come up with as well. Jesse Moe is the program manager and the volunteers. I would encourage you to share your results.

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2nd year

Fall Semester: Milton Yergens
Breathing Room | Moorhead, MN
Boathouse | Jamestown, ND

Spring Semester: Cindy Urness
Birdhouse | Fargo, ND
Dwelling | Marfa, TX
Mixed Use | Fargo, ND

3rd year

Fall Semester: Paul Gleye
Visitor Center | Fargo, ND
Student Mixed Use Center | Fargo, ND

Spring Semester: Regin Schwaen
Residential Project | Fargo, ND
ND Office | Bismark, ND

4th year

Fall Semester: Omar Hussein
High Rise Capstone | Miami, FL

Spring Semester: Mark Barnhouse
Marvin Windows | Fargo, ND
Water Treatment Plant | Miami, FL

5th year

Fall Semester: Ganapathy Mahalingham
Performing Arts Hall | Moorhead, MN

Spring Semester: Jennifer Brandel
Graduate Thesis Project

about me



hometown: Big Lake, Minnesota

