



Overview Statement

The Denver Zoo was founded in 1896 when an orphaned American Black Bear cub was given to Denver Mayor Thomas McMurry as a gift. Mayor McMurray entrusted his rambunctious and difficult-to-manage protégé to Alexander J. Graham, who started the Zoo with this solitary legacy mammal. The collection grew primarily with animals native to Colorado, like waterfowl, prairie dogs, antelope, bison and elk – with a flock of Chinese pheasants and a species of Old World monkey as notable exceptions to the locally sourced animals. The Zoo’s direction changed somewhat in 1906, when Mayor Robert Speer hired a landscape architect to create exhibits - featuring rocks, waterfalls, and trees - in lieu of caged displays, the more traditional approach for the time. This set a strong precedence for Denver Zoo’s trend toward exhibits that allow guests to experience animals in (simulated) natural habitats.

In 1969, when the first Zoo Animal Hospital was built, the design included innovations to anticipate technological advances in veterinary medicine – although the discipline was relatively young - the first English language textbook on zoo animal medicine wasn’t published until 1978. It goes without saying that advancements in the field of veterinary medicine have been extensive since the original facility was constructed more than 50 years ago. A new facility was truly required to meet Denver Zoo’s fundamental principles - animal care and conservation, providing an intimate guest experience, leadership in education, and a sustainable future.

In 2015, Denver Zoo submitted an updated Master Plan to the City of Denver to guide the future of the Zoo. Unanimously passed by Denver City Council early in 2018, Denver Zoo continues to be dedicated to execution of this plan, committing to the highest quality guest experience and animal care and welfare. The Helen and Arthur E. Johnson Animal Hospital is Denver Zoo’s newest facility, offering guests a unique opportunity to connect with cutting-edge animal care. The Helen and Arthur E. Johnson Animal Hospital is a 22,000 SF facility. The project began with relocation of veterinary services into a temporary facility and demolition of the old hospital. The new Zoo Animal Hospital includes a world-class diagnostic laboratory, indoor and outdoor holding and quarantine spaces, state-of-the-art treatment rooms and surgery suites, and is one of the only animal hospitals in the country with a CT scanner. The Hospital offers guests the opportunity to watch procedures and animal care, allowing a glimpse into the world of veterinary



medicine. This facility was designed by Stantec, built by Haselden Construction, and totaled \$17.4M in construction costs. The project started in February 2019 and finished in August 2020 (a 19-month duration).

The Zoo Animal Hospital is unique because the construction process required constant attention to those inhabiting the occupied campus and their unique needs. Tight bolts, standard for most projects, are like child's play for great apes, so a keen understanding of the unique hospital patients was critical. Creative solutions designed to minimize the impact of construction on Zoo and its incredible inhabitants were uniquely suited to stated goals: connecting people to the awe and importance of wild animals while providing unparalleled care, educational experiences, and local and global conservation efforts that help save wild places and wildlife.

Solutions of Special Projects

More than a century ago in the early 1900's, a dairy barn sat in the same location as the new Helen and Arthur E. Johnson Animal Hospital – and not surprisingly, as-built documents from this first facility do not exist. Even more recent construction on this site, including the previous Zoo Animal Hospital facility completed more than 50 years ago, was not completed with as-built documentation showing below-ground conditions – so it's safe to say there were plenty of surprises below ground uncovered by constant potholing efforts.

Haselden knew the plan to build would revolve around sensitive animals adjacent to the site – and consistent collaboration and communication with animal care teams helped Haselden adopt hard-and-fast rules for construction, developed from the initial, more vague intention to “minimize the impact of construction”. Site logistics were intentionally arranged to consider parking, delivery, cranes, vibration, and other factors that tend to impact people less than animals.

When construction access to the hospital from the outside was replaced by exclusive access through the Zoo campus, the occasional truck passing Mountain Sheep was concerning because a new lamb had recently joined the herd. A continued commitment to communication proved



beneficial, so Keepers could relocate and quarantine the lamb, reducing its stress. An escort accompanied each vehicle through the Zoo through project duration.

Unique challenges didn't just include how the facility would be built, but addressed what design would accommodate all unique animals who would receive veterinary care. During design, the team took special care to consider each animal's unique experience in the hospital: for example, how would a vulture's needs differ from a great ape? Unique needs required a unique and deliberate design and construction process.

Excellence in Project Execution and Management/Team Approach

Exceptional teams create exceptional results – and that's certainly true at the Zoo Animal Hospital. Haselden worked with the team through an effective and collaborative CM/GC process from conceptual design, offering suggestions to help the team balance budget, quality, and scope with available funding.

The project started in February 2019, and sustained 12 months of construction as planned before adapting to COVID requirements in March 2020 – processes and standards that would become the new “normal” for every construction project. Haselden remained a proactive partner to Denver Zoo during Denver's city-wide shutdown orders. The zoo was suddenly faced with the unthinkable reality of no visitors, dwindling cash and 3,000 animals to feed. From a logistics perspective, Denver Zoo's 80 acres were not configured to account for social distancing – though reopening would require that guests follow distancing recommendations. Haselden aided Denver Zoo across the campus with hundreds of feet of fencing and hay bales installed pro-bono and during the weekend to establish single-direction pedestrian flow, allowing for a relatively early re-opening in June 2020 – which ultimately helped the Zoo re-establish cash flow to support operational costs, including nearly \$25,000 each month just to purchase meat to feed the animals.

Construction Innovations/State-of-the-Art Advancement

The Zoo Animal Hospital utilized Lean Construction processes, like pull scheduling, to guarantee an efficient and highly coordinated sequence. The project was fully coordinated virtually using Building Information Management (BIM) technology, specifically used to evaluate collisions



between caging lids and mechanical equipment above ceilings. The team worked collaboratively with the City of Denver to design the project to achieve LEED Gold certification. Perhaps the most innovative solutions utilized on this project were implemented to accommodate the highly unique end-users: the animals, the Doctors, and the guests.

The Zoo Animal Hospital is one of only a few in the country with a CT scanner, so early structural design to accommodate this heavy equipment, as well as a coordinated delivery path through the building were required for installation. Dr. Scott Larsen, Head Veterinarian at Denver Zoo, warned the team that bolts that would typically require a torque wrench to remove had been handed to him in the past by great apes who removed them with their fingertips. The Association of Zoos & Aquariums offers standards to account for unique animal characteristics, and these were considered during design, product selection, and construction.

And of course, the impact of COVID, always present in these uncertain times, was considered through the entire construction process. As the rest of the world learned best practices related to flattening the curve, so the Association of Zoos & Aquariums worked to understand how COVID might impact a diverse animal population. The team modified an Intensive Care room to convert to a containment room by establishing negative air pressure as a proactive solution for potential infectious diseases, like COVID. If one day we learn that animals can catch and carry the disease, Denver Zoo will be prepared.

Environmental/Safety

One side effect of Mayor Steele's change to exhibits that mirror natural habitats is that animals are able to eat and drink anything they can reach – including from exterior water features or moats, easily impacted by stormwater from jobsites. Haselden was conscientious with water leaving the jobsite, much of which flowed directly into a nearby rhino moat, to confirm the water was free of chemicals or contaminants that could be harmful to animals.

Excellence in Client Service and/or Contribution to Community

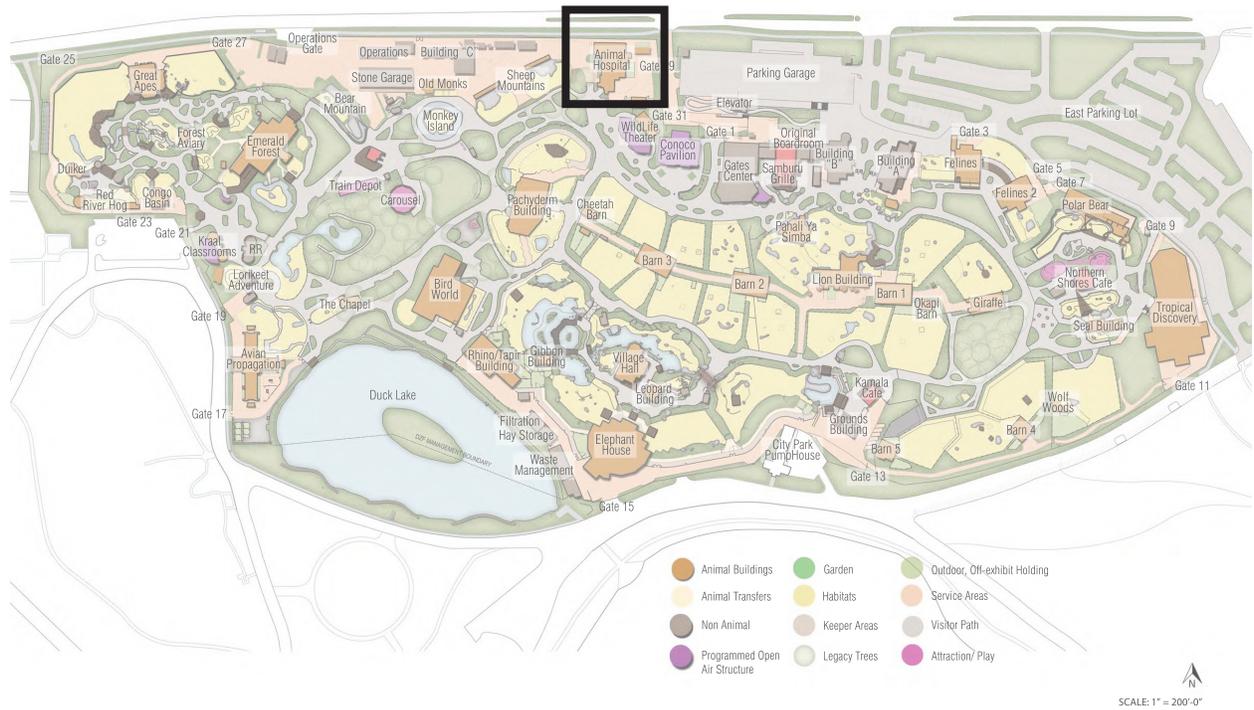
A legacy client, Haselden's first project with Denver Zoo was a renovation to the Zoo's original animal hospital in 1991, and since that time we've completed about 20 major projects as well as



100+ small projects. The Helen and Arthur E. Johnson Animal Hospital is an incredible project that brings state-of-the-art veterinary medicine to meet the world-class level of care the Denver Zoo provides. Innovations and technology built into the new Hospital put the facility within the top zoo animal hospitals in the United States. Haselden looks forward to continued work at the Zoo, representing our commitment to exceed their expectations as our client for life.



Historic Denver Zoo: Natural Bear Habitat Construction, Early 1900's



Denver Zoo Campus: 2015 Master Plan



New Helen and Arthur E. Johnson Animal Hospital - Exterior



New Helen and Arthur E. Johnson Animal Hospital - Exterior



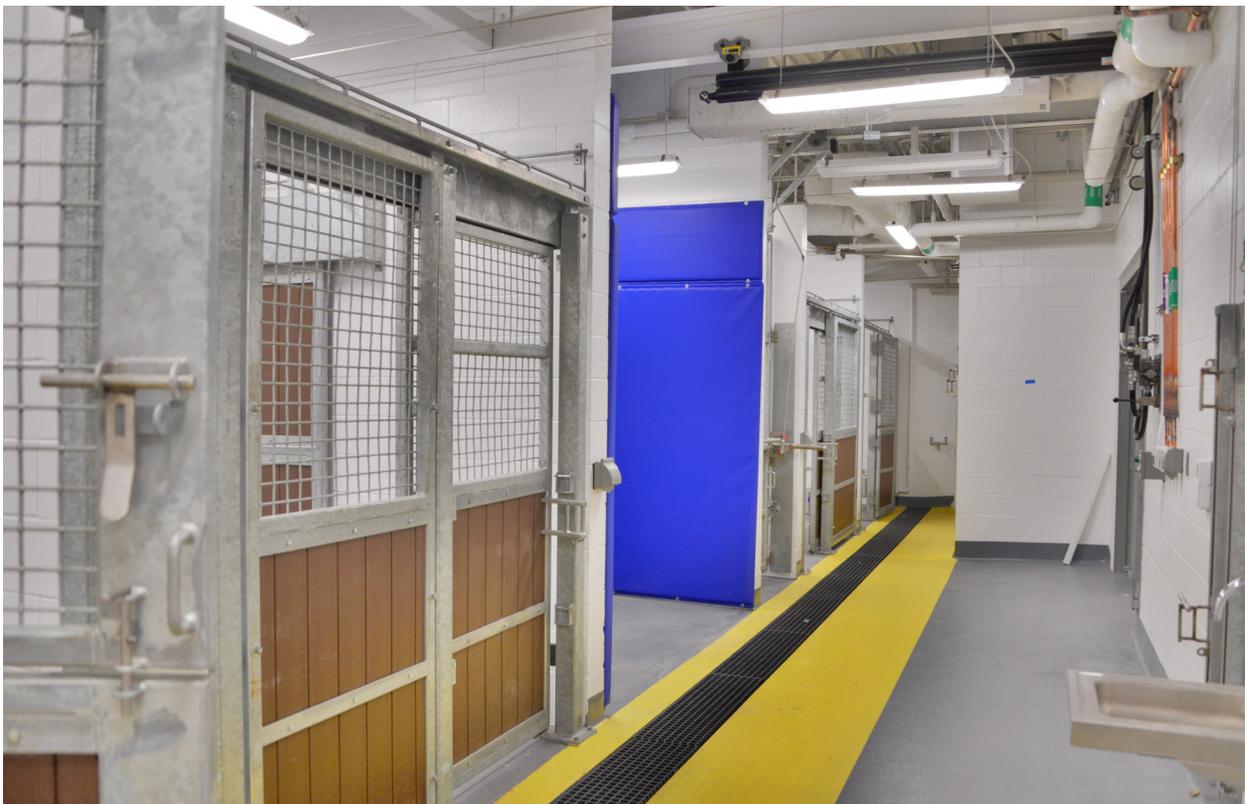
New Helen and Arthur E. Johnson Animal Hospital - Guest Viewing Area



New Helen and Arthur E. Johnson Animal Hospital - Guest Viewing Area



New Helen and Arthur E. Johnson Animal Hospital - Lab Area



New Helen and Arthur E. Johnson Animal Hospital - Interior Caging Environment



New Helen and Arthur E. Johnson Animal Hospital - Exterior Caging



New Helen and Arthur E. Johnson Animal Hospital - Animal CT Scanner