

2019 ACE AWARDS

Category 10: Best Building Project
(General Contractor \$40 - \$70 Million)

C. Wayne McIlwraith Translational Medicine Institute at Colorado State University

Project Overview:

The interdependent relationship between humans and animals is truly extraordinary as many of us can attest to. The mutual benefits that those relationships bring to the lives of both is what makes this project particularly special. Rooted in its mission “To improve the lives of animals and humans through biologic therapies created via the collaborative work of leading scientists and clinicians...” the C. Wayne McIlwraith Translational Medicine Institute at Colorado State University will foster the discovery of solutions that will improve the lives of animals and the humans that care for them.

In design-build partnership with Tetrad Property Group, JE Dunn Construction and The Clark Enersen Partners delivered the C. Wayne McIlwraith Translational Medicine Institute (TMI) at Colorado State University (CSU). The new 138,000 SF building is located on the South Campus of CSU in Fort Collins and includes four different major program elements: animal health, offices, laboratory research and continuing education.

The building features a three-story atrium that spans the entire length of the building to provide visual connectivity to the interior spaces. The first floor houses equine and small animal surgery suites, in addition to an extensive array of imaging systems including an MRI and CT, along with a large surgical skills laboratory and instructional spaces. On the second floor, contemporary research laboratories designed for maximum flexibility house a diverse group of researchers. This level also contains over 5,000 SF of innovation space to foster collaboration among the varying research groups. Executive offices reside on the third floor in addition to a large lecture hall and gathering spaces.

The C. Wayne McIlwraith Translational Medicine Institute is a one of a kind facility that brings together scholars, creators, and entrepreneurs to work in collaborative spaces where innovation will thrive.

Solutions of Special Projects

CSU awarded the TMI project in January 2017, followed by a construction start less than five months later on May 1, 2017. Due to the effective partnering efforts of the design-build team and CSU, the team was able to progress from programming to ground breaking swiftly, while maintaining a firm fixed price.

During the early stages of design, on-site design workshops with all CSU stakeholders were held utilizing the latest in three-dimensional design software to develop floor plans, site plans, and exterior renderings in real-time for immediate review and feedback by all workshop participants. The ongoing transfer of design models between Clark Enersen and JE Dunn allowed for expedited budget updates. As the project neared construction, JE Dunn began weekly BIM Coordination meetings with trade partners to streamline the process for integrating models. Representatives from each of the design disciplines were present during these coordination meetings to answer design questions. This process was extremely advantageous in that it identified potential issues allowing for resolution before they became problems.

The TMI project was also unique in that it was a public-private partnership, the first ever for CSU! This, along with the shortened schedule, led to enhancements in each firm's standard process for communication to ensure the highest level of communication was attained. Clark Enersen, JE Dunn, and sub-consultants were in constant contact with one another and with CSU and Tetrad to ensure that the entire team kept was up to date and able to meet all goals. Utilizing tactics such as the collaborative development of a Graphic Master Schedule (GMS) early in the process to illustrate and plan for multiple bid packages, allowed for construction commencement well in advance of overall design being completed. The GMS communicated critical project milestones and commitments that each team member agreed to provide by the date represented on the GMS in order to keep the project on track from day one.

Establishing a clear, compressed, and realistic project schedule upfront was the key to the project's success which resulted in the project being delivered four months ahead of schedule!

Excellence in project execution and management/team approach

The design-build team worked hand-in-hand to deliver an exceptional experience and finished product for CSU. Significant cost savings were achieved by evaluating every system and exploring cost effective alternatives. One example of this was the evaluation of the costs associated with ductwork distribution across the large three-story open atrium. These costs included fire-proof enclosures, fire sprinklers, and smoke detectors among other elements that needed to span the entire length of the atrium. We proposed a more economical alternative which involved adding a separate HVAC unit to serve the areas north of the atrium – versus the more expensive atrium crossing solution.

Throughout the finalization of the interior design package Clark Enersen and JE Dunn used the Target Value Design (TVD) process to provide maximum value on the interiors without compromising program or performance. One example of many included a detailed study of which partitions needed to be CMU (Concrete Masonry Unit), which partitions needed to be full height, and which rooms needed hard lid ceilings in lieu of lay-in ceilings. This detailed analysis resulted in cost savings that allowed the owner to upgrade materials in critical interior spaces such as terrazzo flooring in lieu of tile within the atrium space as a cost neutral solution.

In addition to interior changes we were also able to quickly respond to the owner's request to increase the size of a program space within the project's research horse barn. Clark Enersen was able to quickly provide several massing studies on options to include additional program as a part of the project's gait lab and through the use of JE Dunn's proprietary estimating software suite, we were able to provide real-time feedback on overall cost options. The result of these quick analyses coupled with the teams TVD approach resulted in the project absorbing the requested additional scope without increasing the overall fixed limit of development and construction for the project.

Construction innovations/state-of-the-art advancement

Upon selection the JE Dunn and Clark Enersen used numerous Lean practices to provide an overall collaborative experience on the project. Two examples include the use of a Design-Phase Pull Plan and the Last Planner System Schedule Management. Each of these strategies pulled together all project stakeholders to align expectations, outline project schedule, drive out potential constraints and define the path forward on the overall project schedule from design through construction. The use of these Lean practices on the TMI project enhanced the team's ability to collaborate amongst numerous stakeholders, continually improve and make timely decisions as to not impeded the progress of the project.

Environmental/Safety

JE Dunn's safety philosophy is based upon evaluating leading indicators as opposed to lagging indicators. This included providing safety by design reviews, positive recognition for safe working habits, daily pre-planning from a safety perspective while completing the work and tracking and acting upon documented unsafe behaviors observed on site.

During design of the facility numerous elements were incorporated into the overall project to ensure that future maintenance could occur safely. This included the addition of engineered fall protection at the roof level and engineered fall protection at critical points around the atrium. In addition to safety by design there were numerous administrative controls instituted to prevent injuries on the jobsite during construction.

- Each contractor and employee on site was drug tested and participated in JE Dunn's safety orientation which consisted of informing all employees of job specific and campus specific safety requirements.
- Ongoing safety meetings which included daily plan of the day huddles, weekly site-wide safety committee meetings, weekly tool box talks, and site wide safety stand-downs.
- Prior to working each day each employee on site was required to provide a plan of the day and Activity Hazard Analysis (AHA) which detailed the nature of each trade partner's work for the day. These were reviewed and acknowledged by every member on the crew.
- Weekly safety leadership and observation walks were held throughout the course of the project. The nature of these walks was to provide positive reinforcement for safe actions occurring in the field and to engage with front line works to promote positive dialogue.

These overall administrative controls help set the tone and continually reinforce a positive safety culture throughout the duration of the TMI project.

Excellence in client service and/or contribution to the community

CSU had a strong vision for the University's South Campus, which included selecting one master developer for the entire master plan, with the C. Wayne McIlwraith Translational Medicine Institute identified as the first project for the development.

The building's materials solidify it as an integral part of the CSU campus fabric, utilizing two CSU-standard variations of stone to emphasize the linear aspects of the atrium and building exterior. These linear stone elements, align with the aesthetic design of many buildings on CSU's multiple campuses. TMI was delivered with the utmost respect for the history and composition of CSU's existing landscape, while pushing the limits of innovation through its integration of technology to foster dynamic learning.

"The relationship between CSU and Tetrad/JE Dunn/Clark Enersen was an example of how a successful P3 Design-Build project should happen," said Tracey Abel, Supervision of Capital Construction for CSU.









