

Project Name: **University of Denver Community Commons and Dimond Family Residential Village**

Category 13: Best Building Project – General Contractor (Over \$70 Million)

Contractor: **Saunders Construction**

Project Description

Higher education is facing significant challenges ranging from declining enrollment to rising student debt — with the pandemic intensifying these challenges. The University of Denver (DU) is innovating their approach to become an anchor institution dedicated to the public good.

“Rather than react to issues one by one, higher education must rethink our fundamental approach to teaching and learning, knowledge creation and civic engagement,” said former DU Chancellor Rebecca Chopp. A major component of the DU Advantage Framework Plan is to improve the student experience by reimagining connection and learning. To this end, the Dimond Family Residential Village and Community Commons are envisioned to be places where those who are underrepresented can see themselves and feel they belong.

Dimond, situated next to the Commons, has more than 250 bedrooms housing 500+ students. To create scales of belonging, the building is divided into six “houses” made up of “pods” each containing 20+ beds arranged in doubles, a lounge, and restrooms. In addition, more than a dozen study spaces bridge between the houses and a shaped outdoor gathering area accommodates the entire first year class of 1,500 students. Serving to foster lifelong friendships, a Village Kitchen allows students to break fresh bread and learn from one another.

The four-story Commons is placed at the heart of the campus. The building includes DU’s central dining with nine different micro-restaurants. On the first floor, a group of rooms opening to one another creates a large event space, the Grand Forum. The fourth-floor rooftop includes a glass-enclosed spaces and blends expansive outdoor patios and green terraces capturing the beauty of the campus — offering a rooftop oasis for gatherings. The exterior is clad with copper, glass and brick, making this building a stand-out feature on campus.

The buildings also reflect a deep commitment to sustainability. Rooftop solar is incorporated into the construction of Dimond, and the Commons features a green roof with approximately 30 percent of the roof planted with drought-resistant grasses. Both are on track for LEED certification — Gold for Dimond and Silver for the Commons.

Solutions of Special Projects

DU's specifications outline methods and materials to achieve a 100+ year life span. Using Saunders' experience on campus and a dedicated quality management team, the project was delivered meeting and exceeding these requirements. The quality management plan, modeled from the U.S. Army Corps of Engineers, included building physical mockups of the exterior envelope, deploying the use of augmented reality to verify installations, and hiring third-party inspectors.

The exterior envelope systems are relatively complex, with an aesthetically pleasing combination of windows, storefronts, brick and copper. With numerous windows and storefronts that can lead to water penetration, Saunders worked with the glazing contractor to conduct project-specific trainings. Each installer was required to complete the training and received an official sticker to certify their approval to install.

Due to the pandemic, the teams came up with intuitive ways to maintain the schedule while accommodating COVID-19 protocols. One way the team kept on beat was reinventing the approach for punch list walks. Most punch list walks were successfully completed through video conferencing and using Autodesk BIM360 for punch list administration. With the team's buy-in, the final punch phase eliminated the need for the typical punch crew of painters, millwork and drywall trades. Both buildings were completed on time and within budget despite the impacts of the pandemic and numerous weather events.

Excellence in Project Execution and Management/Team Approach

Effective communication to all 400+ workers can be challenging. Starting in preconstruction, the team engaged each trade contractor's team, including field supervisors, to agree on Lean principles, expectations, and common goals for the project.

A foundational commitment was made by everyone to “always do what is best for the project.” The team developed a defined set of *Project Promises*, which included defined common goals and transparency standards to hold each other accountable throughout the project.

When construction began, the team mantra of “respect for people” carried on in Big Room meetings, encouraging everyone to speak up with ideas. When faced with budget challenges, all parties involved agreed to start construction on time and work together to value engineer back into budget. This teamwork proved successful — to the magnitude of \$12 million in savings — due to the deep collaboration between Saunders, trade partners, DU and the design team. These savings were achieved while maintaining key functional and quality components into the project including a full concrete structure for Dimond.

The Lean approach continued through construction using Pull Planning sessions for concrete flatwork placement to coordinate formwork, reinforcing and MEP rough-in. Pull Plan sessions were held every six to eight weeks. This early work allowed trade partners to come together and plan out each day, leading up to a specific pour to ensure the placement date was achieved, enabling the critical path schedule to be maintained.

In April 2019, DU approached Saunders to accelerate the Dimond schedule for delivery by August 2021, two months early. By using Pull Planning, deploying selective use of overtime, and managing daily progress with graphic area maps, the team delivered the project on the accelerated date — even during the height of the COVID-19 pandemic.

Environmental/Safety

The project is in the heart of campus, with 12,000+ students, faculty and visitors walking by the site daily. Additionally, the project is located adjacent to Raffatto Hall home for DU’s Disability Services Program and intensely used by students with disabilities. A well-coordinated site logistics plan was necessary to ensure no one was injured. This was achieved by using screened fencing and covered walkways, deploying certified flaggers at major intersections, scheduling deliveries during off-peak hours, and maintaining a clean and organized site.

The safety plan resulted in zero incidents with the public and an OSHA recordable incident rate 80% below average.

With a peak of 400+ workers onsite, daily safety communication was vital. A project-specific training program exceeding OSHA requirements was developed, which included conducting daily pre-task meetings, requiring scope-specific safety training (in English and Spanish), enforcing the code of conduct, and completing weekly safety walks to identify any hazards. Additionally, Saunders' safety managers completed audits to ensure safety practices and protocols were followed, with authority to enforce any corrections. The team also hired a dedicated safety intern to continue providing students opportunities to explore careers in safety.

When the project started in 2019, the team would have no idea the immense challenge they were about to face just 12 months later. The project was at its peak workforce when the COVID-19 pandemic came to the U.S. Saunders quickly went to work. The team established cleaning and distancing protocols, implemented a comprehensive communications plan, developed a mobile device application using QR code for the onsite in-take process (temperature screening, contact tracing, and symptom-free affirmations), and hired a third-party industrial hygiene expert to ensure the workers were not at risk. No official outbreaks, long-term disruptions or campus impacts were experienced due to the virus.

Construction Innovations/State-of-the-Art Advancement

On the Dimond and Commons buildings, the BIM coordination between the trades was not only successful for resolving clashes but the models were also used for the following:

- Augmented Reality (AR)
- Embed placement
- Real-time design coordination

Saunders engaged early with the installation process by using AR in the field. Overlaying the model during installation helped track progress, ensuring all elements were being installed per the coordinated model providing enhanced quality assurance. The team provided alerts of any issues early, which eliminated potential rework. The team conducted eight AR headset walks, which included tight corridors, mechanical/electrical rooms, and intricate design elements.

The walks proved to be beneficial by identifying and adjusting design coordination items before creating costly and time-sensitive challenges.

The entire team aligned with DU's goal of massively reducing their overall emissions and creating a sustainable environment. The project's sustainable principles were based on using resilient and responsible materials while reducing environmental impact during construction. LEED compliance was led by Saunders' project engineers. Monthly meetings ensured overall goals were understood and met, as well as daily checks of waste streams, dust protection and proper material storage. The team achieved 80% waste diversion on Dimond and 72% on Commons.

Excellence in Client Service and/or Contribution to Community

Saunders worked hand-in-hand with DU to create and implement their first-ever disadvantaged business program for the project. The Dimond building achieved 20% participation and Commons achieved 35% participation from minority-, women- and veteran-owned businesses as well as small businesses. This program resulted in a \$27 million economic impact to these diverse businesses.

Saunders and DU also sought to use the project as a learning tool for university and high school students. The Saunders team hosted on-site presentations and field walks monthly (pre-pandemic) with the DU real estate/CM students. In summer 2019, the Saunders team hosted 24 high school students for a construction careers presentation. Additionally, the team discussed details about the project and what kind of impact they can expect with a career in construction. The team pivoted in 2020 and hosted an online video series for local high school students.

"This was an enormous task starting in 2017 to complete these on time through 2020/2021 ... Thank you to the team for helping DU to design and construct such transformational buildings that made up the Denver Advantage program," said James Rosner, DU Associate Vice Chancellor. The project is an inclusive and welcoming environment promoting cultural awareness and empathy to support meaningful and lasting relationships — advancing DU's commitment to the public good.









