

*When your project is unlike anything else in the country, there are going to be a **lot** of design changes... therefore, a lot of construction challenges. GTC dealt with both when we helped Aims Community College build their Public Safety Institute.*

Aims Community College knew they wanted a state of the art facility for first-responder training when they conceptualized their Public Safety Institute. The need was palpable; Aims could feel it. The creativity involved in figuring out exactly what that should entail took a *lot* of time and finesse. But the need drove the build forward, regardless of plan completion. On December 22, 2014 the project broke ground, prior to the plans being complete.

“There were a number of design changes due to program changes during the preconstruction stage,” Jamison Martin, GTC Vice President of Preconstruction Services, said. “There was a program piece they were considering that they realized wouldn’t have dovetailed with what future students needed. There were changes and revisions for a long time.”

“In the end, basically what we did was a college hooked to a fire station,” Joe Turecek, GTC’s Superintendent for the PSI project, says simply. But oh, what a college—and what a fire station!

The main 53,000 sf structure contains science labs, simulation-training labs, “smart” classrooms, full admin suites for three separate disciplines—EMT, Criminal Justice, and Fire Science—plus general campus admin functions. The building includes all the bells and whistles necessary for training first responders, including the first anatomage table (a high-tech, 4-D, cadaver/operating-training table) in Colorado. Additionally, seven-acres of site development include a fire apparatus bay with a separate training room, a live-burn training tower, a draft pond for rural firefighting training, and training yard for firetruck driving practice.

Originally, Aims had thought they’d be serving the population in-and-around the Town of Windsor. However, the project became such a state-of-the-art facility that they’re now working with first responders from across the state. “They’ve even got requests for training coming in from around the country,” Joe says.

“Nationally, Aims’ Public Safety Institute will rank among the top in offering an inclusive education in public safety disciplines such as fire, EMS, medical assisting, phlebotomy and criminal justice,” said Dr. Leah L. Bornstein, president of Aims Community College, in a press release. “This facility is truly unique to the Denver metro area, and we are looking forward to continuing our partnerships with emergency response agencies in Windsor and throughout Colorado.”

The process to achieve such a unique status, however, involved some fancy footwork during the build.

“We couldn’t move forward on the training tower, for example,” Senior Project Manager Nicole Wempe explained, “because we didn’t have the documents until six months after we broke ground. But the architect, AMD, was great, and we worked really well together, getting documents released as we needed them for permitting. Everything had to be phased: permitting, bid packages.... Everything. The building had to be ready for the start of their January 2016 semester.”

Another challenge was the fact that it *is* such a unique, one-of-a-kind structure. No place else in the country houses so many first-responder disciplines under one roof.

“Everything in this project was designed to serve multiple functions,” Jamison said. “The intent of this building was to be the heart of the campus. It was a building *for* the campus, not just a building *on* the campus.”

In addition to the academic- and simulation-aspects, the build also involved a data center, which wound up as the structure that will eventually become the data center for the entire college, all four campuses.

“There’s over 800 fiber optic drops in that job,” Joe said.

“The communications infrastructure is atypical for this size of project,” Jamison added.

Then again, a lot of things were atypical for this project. To solve these challenges, the entire team—GTC, AMD, and Aims—came together to find unique solutions.

“We were trying to move dirt in the winter, which is difficult to do while maintaining schedule,” Nicole said, “so Joe had the idea to put down a layer of dirt (for over-excavation and recompaction), and then a six-inch layer of ‘fluff.’” Fluff meant uncompacted soil from elsewhere on the site. (“It helped that it was such a large site,” Nicole said.) The fluff acted as a blanket against the colder weather.

The project also contained expansive soil throughout the seven acres. To solve, GTC overexcavated and re-compacted the building pad soils, and added fly ash to the subgrade beneath the pavements.

Later on, the plans called for the demo and reconfiguration of a parking lot. Problem was, the lot was highly in-use.

“Fred, who runs Aims’ auto college, had students using that lot most of the time,” Joe said. “Plus he had his big, annual show coming up.” Joe coordinated his schedule with Fred’s and demoed the 60,000 square-foot lot, replacing it with an 84,000 square-foot one, inside a narrow, eight-week window. “Got him the brand-new lot just in time for his showcase event,” Joe said proudly.

GTC was also aware of an irrigation ditch that ran the length of the college’s west property line, along part of a farmer’s fields. But since the ditch didn’t have the capacity to handle heavy storms, the college grounds were flooding every spring. Joe talked to the farmer and discovered he wasn’t even using that particular ditch anymore. With the farmer’s blessing, GTC laid pipe under the school’s property to reroute part of the ditch and drain excess into a retention pond safely away from the school. Joe filled-in the unused ditch just in time for April showers.

There were jurisdictional issues, having to do with the fact that the Windsor site was more rural. Electricity had to be brought in from the other side of Highway 34. The team worked with Poudre Valley REA to get the power they needed, without affecting the project schedule. Gas lines, another matter, were solved by bringing in propane tanks to supply the PSI’s constant fire-training needs.

The team had to design a unique, high-security storage room for the Criminal Justice because of the items being stored (i.e. firearms). Every entry had to have a passive proximity card for door access, and all area of penetration had to be secured, including the duct-work entering the space.

GTC also amped up its IT for the project, rigging the jobsite trailer with a technology kiosk that included LED flat-screens. It was the highest level of tech they’d experimented with, to-date. The team used Bluebeam and Navisworks, which gave them the ability to keep up with the rapidly-evolving design and identify conflicts in different building systems before the structures even existed.

“We’ve used Navisworks in the office for a while, but this was the first time we were using this better tech onsite. It made such a difference,” Project Engineer Jeremy Clift said. “Because it’s such a great collaboration tool, it helped us coordinate drawings between the different trades. It gave our subs the ability to pre-fabricate more materials, faster, in their shops, with a higher level of quality control than they could’ve done on-site. We were able to make changes on the fly.”

“We 3D-modeled everything, from the steel, through the mechanical systems, the electrical, the fire protection, and all the fiber optics in the building,” Joe said. “It saved us time, money, and kept us on-schedule for this job. There’s no way we could’ve finished on-schedule without that level of technology.”

One of the challenges GTC didn’t have to face was lost man-hours. “One worker hurt his knee, but we were able to use him in a different capacity until it healed,” Duane West, GTC’s General Superintendent and Safety Manager, said. “We had no other injuries on this job. But that’s not unusual for us.”

GTC takes the same, stringent safety measures for every project, but this time the entire team was aware of the irony of potential safety issues, while building a Safety Institute. Joe laughs about one aspect, though: “The Fire Marshalls from Windsor were using extra due diligence on this project, because they were aware this building would train future Fire Marshalls. Every time the inspector came, she brought six to eight extra people with her.”

Aims Community College’s Public Safety Institute is conventional steel frame, with perimeter and interior metal stud construction. Finishes include maple ceilings, incorporated seating areas fabricated with maple flooring, Italian porcelain and polished concrete floors, glass rails, composite metal panels, formed metal wall panels, and soaring, two-story glass curtain walls. But it has become much more for the community.

First responders now come from across the state for simulation training. While there, they also help train current students. Nearby first responder units that didn’t have simulation-training facilities now have access to the premiere site in the country. Windsor’s mayor, John Vazquez, said he is “so thrilled to see this in Windsor.” GTC is not just proud to have built this project; we’re privileged to have been part of it.









