

FIRMS breaking new ground



Photo courtesy of Metropolitan State University of Denver

Metro State's Aerospace & Engineering Sciences Building Aims for the Stars

Metropolitan State University of Denver's Advanced Manufacturing Sciences Institute marked the recent opening of MSU's new Aerospace and Engineering Sciences Building. The event was attended by more than 300 students, employees, and members of the huge team that built the top-of-the-line facility devoted to the future.

"The idea for this building came from a meeting in fall 2013 in Washington, D.C.," said MUS President Stephen Jordan, noting that someone suggested that there are eight key economic drivers in this country. "One was aerospace, and one was advanced manufacturing."

While other universities focus on research—Jordan lauded the University of Colorado—he said, "We are one that builds a workforce... We can make a mark and fill a gap that did not exist before."

The 117,000-sq-ft building, designed by Anderson Mason Dale Architects and prominently sited along Auraria Parkway, houses programs in aerospace science; civil, electrical and mechanical engineering technology; computer information systems, computer science, and industrial design—courses related to Colorado's current push to promote STEM education.

Metro State officials worked with Colorado's top aerospace companies to help shape the design and functionality of a building intended for theoretical and real-world discussion designed to serve workforce development needs.

Two companies—Hartwig Inc. and York Space Systems—have developed partnership agreements with the university. A third, the mega-space company Lockheed Martin, also has become part of the equation. Jordan, who retired from MSU on June 30, announced that the company had given a \$1-million gift to the program, which included funding for an additive manufacturing laboratory 3D printer called the Stratasys Fortus 900mc. All three companies will set up shop on the school's fourth floor, extending the scope of the project's interior build-out.

Bruce O'Connor, vice president of production operations at Lockheed Martin Space Systems, told those at the ribbon-cutting that the new building would provide a "game-changing advantage as students come out of school." The gift also funds a new Lockheed Martin endowed director of the Advanced Manufacturing Sciences Institute: the current director of the institute, Robert Park, will assume that job.

According to MSU, the facility will house advanced additive and precision machine tools driving advanced manufacturing, as well as advanced satellite and aerospace technology. The top level, called the growth floor, will house York Space Systems' new manufacturing facility and mission operations center, which will operate spacecraft on-orbit, in real-time with production capability for up to 150 to 200 satellites per year. Students will work on complex design projects, new product development projects and manufacturing cyber-security.

Construction Spending Holds Steady From April to May

Workforce shortages, political gridlock depress public-sector investments

Construction spending in May was unchanged from April but increased from a year ago amid growing reports that contractors are struggling to find enough skilled workers to keep projects on schedule, according to a recent analysis of new government data by the Associated General Contractors of America. Association officials said a mixture of worker shortages and political gridlock appears to be holding back construction-sector growth.

"Spending on most types of private construction has remained relatively flat from month to month so far in 2017, but at a higher level than in the same period of 2016," said Ken Simonson, the association's chief economist. "By contrast, public investment in infrastructure has generally declined from last year's levels despite a pickup from April to May."

"At this point in the year, it looks as if private demand for structures remains healthy, but gridlock in Congress and in several state governments will depress public infrastructure spending," Simonson said.

Construction spending in May totaled \$1.230 trillion at a seasonally adjusted annual rate, unchanged from the upwardly revised April total, Simonson said. He added that the year-to-date increase of 6.1% for January through May 2017, compared with the same months of 2016, shows overall demand for construction remains positive but that the recent flattening of investment coincides with more frequent reports that contractors and home builders are stretching out completion times because they cannot find enough qualified workers.

Private nonresidential spending slipped 0.7% for the month but grew 5.3% year-to-date. The largest private nonresidential segment in May was power construction (including oil and gas field and pipeline projects), which edged up 0.3% for the month and 3.4% year-to-date.

The next-largest segment, commercial (retail, warehouse and farm) construction, decreased 1.0% in May but climbed 15.2% year-to-date. Manufacturing construction declined 1.7% for the month and 7.8% year-to-date. Private office construction increased by 0.8% for the month and 16.9% year-to-date.



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Ken Simonson, Chief Economist, AGC of America

Private residential construction spending slipped by 0.6% between April and May 2017 but gained 12.4% year-to-date. Spending on multifamily residential construction dropped 3.3% for the month and was up 6.2% year-to-date, while single-family inched down 0.3% from April to May and was up 7.3% year-to-date.

Public construction spending grew 2.1% from the previous month but declined by 3.5% for the first five months of 2017 combined. The biggest public segment—highway and street construction—dipped 0.9% for the month and 1.3% year-to-date.

Among other major public infrastructure categories, spending on transportation facilities such as transit and airport

construction inched down 0.2% year-to-date; spending on sewage and waste disposal plummeted 21.5%; and spending on water supply fell 11.0%.

Association officials urged Washington officials to act on new measures to support workforce development—such as passing new legislation to support career and technical education—and to find a way to pay for needed investments in aging public infrastructure.

"Washington officials must enact measures to support career and technical education and to get our aging roads, bridges and water systems back to a state of good repair," said Stephen E. Sandherr, the association's chief executive officer.

May Contracts for Future Construction in the state of Colorado

(in millions of dollars)	2017	2016	% Change
Nonresidential	\$1.055B	\$332M	+++
Residential	\$843M	\$850M	-1
Nonbuilding	\$188M	\$240M	-21
TOTAL CONSTRUCTION	\$2.087B	\$1.423B	47

Construction starts, year-to-date on a cumulative basis

(in billions of dollars)	2017	2016	% Change
Nonresidential	\$2.538B	\$2.364B	7
Residential	\$4.017B	\$4.232B	-5
Nonbuilding	\$436M	\$916M	-52
TOTAL CONSTRUCTION	\$6.992B	\$7.512B	-7

- Nonresidential buildings include commercial, manufacturing, educational, religious, administrative, recreational, hotel, dormitory and other buildings.
- Residential buildings include one- and two-family houses and apartments.
- Nonbuilding construction includes streets and highways, bridges, dams and reservoirs, river and harbor developments, sewage and water supply systems, missile and space facilities, airports, utilities and communication systems.

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