

UTD Engineering & Computer Science West Building

Richardson, Texas

CASE STUDY | college / university



Client - University of Texas at Dallas
Rep Office - ADW Corporation
Lead Architect - SmithGroup JJR
Lead Mechanical - SmithGroup JJR
Construction (GC) - Beck Group
Construction (M&P) - Dynamic Systems Inc.
LEED Certification - LEED Gold Certified

Project Highlights:

- » 206,000 square-foot facility
- » State-of-the-art research lab
- » 2019 Laboratory of the Year Special Mention by R&D Magazine
- » Opened August 2018



ABOUT THE PROJECT

Research. Recognition. Recruitment. Retention. Those were the goals that the University of Texas at Dallas (UTD) presented SmithGroup JJR to achieve with the new building. In return, the design team created an awe-inspiring facility that fosters collaboration, teaching and interaction. The building itself is a 206,000 square-foot learning environment with mechanical systems uniquely color coded and at times visible through open or perforated ceilings to showcase how different components work together. It's the perfect learning environment for the next generation of mechanical engineers to learn about the latest technologies in electrical, plumbing, hvac, and other systems. To make it an even better teaching tool, the new building incorporates sustainable design elements that include reducing water consumption, utilizing regional materials and IAQ. This facility has also achieved LEED Gold Certification making it the seventh building on the UTD campus to earn LEED certification and the third Gold recognition overall.

THE TITUS SOLUTION

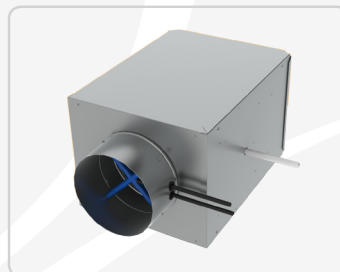
The UTD Engineering and Computer Science West Building has several air distribution products from Titus ranging from grilles and diffusers to terminal units and chilled beams. The four-story facility is a true learning environment from an HVAC perspective because it incorporates a wide array of energy efficient solutions across several product lines.



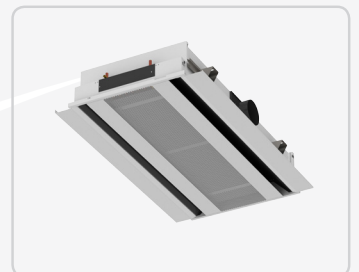
CBAL



R-OMNI



DESV



CBLE



Titus active chilled beams features the aerodynamic properties of Titus ceiling diffusers and benefit from the use of using hydronic coils and induced air to reduce energy consumption associated with removal of sensible thermal loads. The primary air is supplied to the chilled beam subsequent to it being discharged through a series of nozzles located along the length of the beam. The nozzles inject the primary air into the mixing chamber at velocities capable of inducing room air through one or two coils and where it mixes with the primary supply air. This mixture of air is then discharged into the space through the ceiling slot diffusers. This provides high cooling outputs with low amounts of primary air. The reduced volume of air results in the reduction of the air handler capacity and size, smaller duct sizes, and the overall energy consumption.

Primary air from the air handling unit is tempered and dehumidified to handle the latent load. The remaining loads in the space are addressed with the heat exchanger which is incorporated into the chilled beam. Applications with low latent cooling loads could use 100 percent outdoor air allowing for use of a dedicated outdoor air system with energy recovery further reducing total system energy consumption.

The two active chilled beam models selected for this project are the CBAL and the CBLE. The CBAL is a ceiling mounted, active linear chilled beam capable of being mounted either Tegular or Lay-In into the ceiling. The CBLE is ideal for open ceiling or retrofit applications with limited floor height. Both units have 1-way or 2-way air distribution patterns and are used in heating and/or cooling applications. The CBAL and CBLE are both available in lengths from 2 to 10 ft.

Single Duct terminals have been the foundation for Variable Air Volume (VAV) systems for many years. Their primary function is to regulate airflow to a zone, in response to zone temperature requirements. The Titus DESV is unique as it incorporates many design features that increase performance, decrease service and installation costs, and offer increased value, over and above this basic function.

There were several Titus diffusers selected and featured throughout this project. The R-OMNI diffuser is a steel adjustable plaque diffuser designed for architectural ceilings and facilities with exposed ductwork. The smooth face is adjustable in three positions for horizontal or vertical airflow. It can also be used effectively in heating or cooling applications and is an excellent choice to operate in a VAV system.

THE END RESULT

The recipient of the 2019 Lab of the Year Special Mention by R & D Magazine, the University of Texas at Dallas Engineering and Science West Building is a clear achievement in blending research, design, engineering and the student/teacher experience into one location. The sustainable design elements fused throughout the facility not only aid in saving energy, but also help to foster a tremendous learning environment for the new engineering and science students to grow and develop.





605 Shiloh Road
Plano TX 75074
ofc: 972.212.4800
fax: 972.212.4884

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