

BE-CENTRIC

Thrust #1: Integrated design/ construction/ operation paradigm.

Thrust #2: High-performance residential & commercial buildings.



Thrust #3: Performance measurement and assessment methods for energy, indoor environmental quality (IEQ), and water.

Thrust #4: Policy, socioeconomic and behavioral factors, and codes.

Fig. 1. BE-CENTRIC research thrust areas.

BE-CENTRIC (Building Energy—Conservation Efficiency, aNd Technologies Regional Innovation Cluster) has established the goal to reduce energy consumption in existing residential and commercial buildings by 50%, in new residential buildings by 65%, and in new commercial buildings by 50% by 2015. Figure 1 represents an aggressive but agile approach to integrate basic and applied research, technology development and deployment, and community engagement through:

1. Innovative **Processes** for energy conservation, efficiency, and technologies (CENT), such as integrating energy technologies into buildings systems while addressing the economic, policy and behavioral barriers to their deployment.
2. Innovative **Products** for CENT, e.g., new materials, cheap and robust sensors, smart building technologies, and community BIMS (Building Information Modeling Systems).
3. Innovative **Barrier Breakers, Obstacle Removers, and Enablers** for CENT enabled by a coordinated community of stakeholders implementing regional information cluster best practices.

The Texas A&M University System, The University of Texas at Austin, The University of Texas at San Antonio, and Southwest Research Institute (SwRI) have formed a close partnership to lead a major regional effort that was initially formed to respond to the joint federal funding opportunity announcement (FOA), the *Energy Efficient Building Systems Regional Innovation Cluster Initiative (E-ERIC)* program. The Texas effort incorporates a vast network of municipal, state, community, financial, business, builders, education, training, and other partners and stakeholders.

What is the BE-CENTRIC Regional Innovation Cluster?

The BE-CENTRIC Cluster is comprised of the Southern Texas geographic region that encompasses the Bryan/College Station – Austin – San Antonio corridor and the region to the south bordering with Mexico (Fig. 2). This Region has been growing rapidly over the past decade, and the rate of growth is one of the highest in the U.S. It is rich with diverse populations; a spectrum of socio-economic levels; urban, suburban, and rural regions; highly-ranked research universities; a network of other universities, community colleges, and technical schools; a significant concentration of military establishments; a technology commercialization culture; high-tech industries; and a large percentage of small businesses.



Fig. 2. The BE-CENTRIC Cluster (in blue) is comprised of the Bryan/College Station – Austin – San Antonio corridor reaching south to the border with Mexico.

TEXAS CENTER FOR APPLIED TECHNOLOGY

There are many problems that require the careful and proper integration of applied technologies to find solutions. The Texas Center for Applied Technology (TCAT) was created to focus on these specific problems and to develop effective and efficient solutions. TCAT's core competency is the innovative application of existing technologies and advanced research to solve complex real-world problems.

TCAT's primary objective is to apply and test technologies to address targeted problems and engage basic research as required. TCAT has employees in a variety of locations with the ability to perform research that cuts across multiple technologies, disciplines, and cultures. The Center's employees are knowledgeable regarding customers' requirements and are ready to respond effectively to provide the best value for the customers' needs including expertise in technology insertion, technology assessments, and test and evaluation.

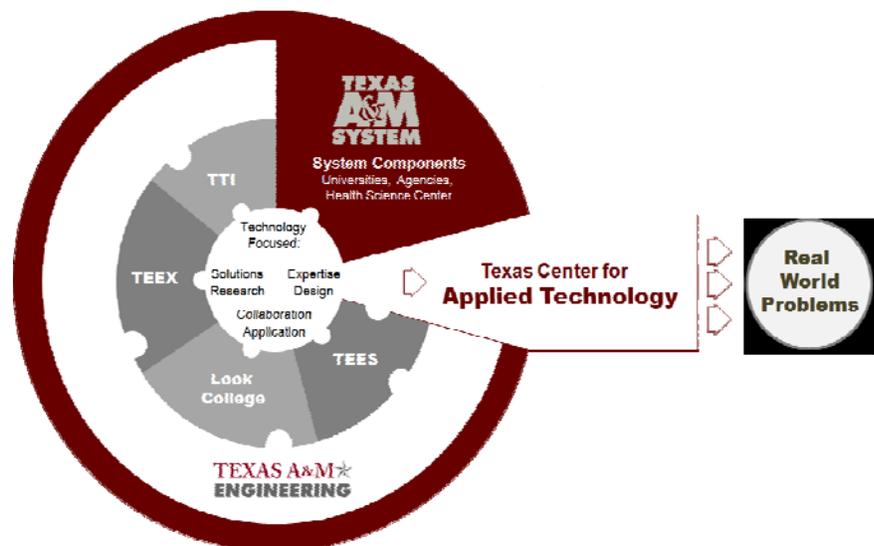
TCAT is part of the Texas A&M Engineering Experiment Station (TEES), a member of The Texas A&M University System. The A&M System is one of the largest and most comprehensive systems of higher education in the United States. Through a statewide network of eleven university campuses, seven state agencies, and a comprehensive health science center, the A&M System educates more than 120,000 students on its university campuses, conducts more than \$780 million in research, and reaches another 22 million people through service each year. TEES is an engineering research agency for the state of Texas and conducts over \$147 million in research annually. Because of the Center's position within the Texas A&M Engineering program, TCAT's expertise can easily be extended by rounding out its team with world class faculty researchers, as appropriate. TCAT is in an excellent position for collaboration not only with The Texas A&M University System components and their customers but with other universities, institutions, centers, and industry.

TCAT'S CORE COMPETENCIES

Energy Sustainability ★ Environmental Sustainability
Manufacturing & Systems Engineering ★ Information Technology ★ Modeling & Simulation
Technology Insertion ★ Test & Evaluation

TEXAS A&M ENGINEERING

Texas A&M Engineering consists of the Dwight Look College of Engineering, and three engineering agencies, including TEES: Texas A&M Transportation Institute (TTI) conducts research and professional education in all modes of transportation. The Texas A&M Engineering Extension Service (TEEX) works to develop a highly skilled and educated workforce and enhances public safety through training, continuing education, and technical assistance.



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