



# ENERGY SYSTEMS LABORATORY

TEXAS A&M ENGINEERING EXPERIMENT STATION



## MISSION

The Energy Systems Laboratory (ESL) conducts applied research and technology development on energy efficiency and renewable energy, and deploys technologies, solutions and training that meet clients' needs worldwide.

## GROUPS

- Comprehensive Energy Efficiency & Capital Improvement Upgrades
- Texas Emissions Reduction Plan (TERP)
- Indoor Environments Lab
- Texas A&M Industrial Training & Assessment Center (TAMU ITAC)
- Texas A&M Building Performance Assessment Center (TAMU BPAC)
- Continuous Commissioning® (CC®)
- Energy & Sustainability Management (ESM)
- Building Performance Analysis
- Smart and Connected Homes Testbed

## IMPACT

World-renowned research and building operation laboratory, focused on energy efficiency in buildings through simulation, data analysis, technology development and outreach. The ESL is instrumental in the development of many international industry standards, protocols and guidelines.

## EXPERTISE & SERVICES

- Comprehensive energy efficiency and mechanical system upgrades for local governments and school districts
- Optimization of commercial, institutional and central plant facilities operation, and comfort enhancement, through the Continuous Commissioning® (CC®) process, developed and trademarked by the ESL-TEES
- Development of cutting edge technology for building operation optimization
- Energy use analysis and implementation of energy efficiency in industrial facilities
- Measurement and Verification (M&V) of energy savings
- Building energy code analysis and training for residential and commercial construction
- Development of building energy code compliance tools
- Calculation of emissions reduction benefits from EE and RE initiatives
- Energy and sustainability management
- Research and testing of HVAC systems and technical support to the air moving industry
- Opportunities for undergraduate and graduate students to gain hands-on practical training in industrial energy assessments, CC®, and in research and testing of HVAC systems

Registered vendor of  *Purchasing Cooperative of America*



## Indoor Environments Lab

75+ years of testing and research for the HVAC industry, helping commercial, industrial and governmental clients.

- Fan airflow and acoustic performance testing.
- HVAC testing and research of components and systems.
- Solar test facility.
- Membrane dehumidifier and air conditioning.
- Certified *ISO 17025 Quality Laboratory*.
- Certified testing facility for: Energy Star, Home Ventilating Institute and CA Energy Commission.



## Texas Emissions Reduction Plan (TERP)

Mandated by the Texas Legislature since 2001 to:

- Help assess the effectiveness of Energy Efficiency (EE) and Renewable Energy (RE) programs by quantifying energy savings and reductions in air pollution, which are used to support emissions reduction credits in the State Implementation Plan (SIP), submitted to the U.S. EPA.
- Support adoption and statewide implementation of building energy codes through code and amendment review, tools, technical assistance & training.
- Provide outreach, education, training and dissemination of information.

Designated by the U.S. Environmental Protection Agency as a *National Center of Excellence on Displaced Emissions Reduction* - one of only two in the nation!

Helped Texas reach more than \$10 billion savings from energy code-compliant residential construction alone!



## Texas A&M Industrial Training and Assessment Center (TAMU ITAC)

U.S. Department of Energy (DOE) funded center since 1977.

Committed to helping manufacturers optimize energy efficiency, minimize waste, and enhance productivity.

Recipient of the DOE's *2017 Center of Excellence Award*.

- No-cost energy audits for over 1,000 industrial clients.
- Provided over 6,500 project energy efficiency recommendations that resulted in over \$400 million verified savings for Texas industries.
- Trained over 450 students to conduct industrial energy audits.



## Continuous Commissioning® (CC®)

Developed, trademarked, and licensed by ESL-TEES, the Continuous Commissioning® (CC®) process has delivered hundreds of millions of dollars in savings since the mid-1990s.

The CC® process is recognized as the gold standard for optimizing comfort and energy performance in existing buildings.

The ESL and licensees deliver cost effective existing building commissioning with a 2-4 year payback and long term Measurement & Verification for sustainable savings.

- Integrates cost-effective measures, including operational strategies/processes, and cutting-edge tools and technologies.



*The Texas A&M Experiment Station (TEES) is a state research agency that solves problems through applied engineering research and development in collaboration with industry, government and academia. As part of The Texas A&M University System, we are connected with world-class researchers and facilities throughout the Texas A&M System.*

TEES is a registered vendor of

