# Texas Roadhouse®

*Restaurant • Austin, Texas*

## About Texas Roadhouse

Texas Roadhouse® is a casual, moderately priced, award-winning full service restaurant chain that first opened in 1993 and today is one of the fastest growing restaurant concepts in the U.S. With almost 300 locations in 44 states, and plans to open many new locations, Texas Roadhouse is famous for its steaks, ribs and chicken.

## Project Summary

- Improved guest and employee comfort
- Improved productivity
- Significant monthly energy savings

*All newly-built Texas Roadhouse® restaurants will feature the Total Kitchen HVAC® system developed by Trane and LCSystems.*

**Systems Installed**

The Total Kitchen HVAC® system combines heating, cooling and ventilation into a single unit to effectively control kitchen temperature and humidity while reducing energy costs. Installation costs are also reduced due to minimal ductwork requirements.

## Challenge

One reason for Texas Roadhouse® restaurants' fast-growing success is customer and kitchen staff comfort. Several years ago Texas Roadhouse restaurants began using LCSystem's backshelf hood system. The change from canopy to backshelf hoods improved kitchen comfort levels and reduced exhaust airflow as much as 50 percent. However, like canopy hoods, backshelf hoods included conventional make-up air (MUA) that was heated in winter but not conditioned in summer. A July, 2007, ASHRAE Journal article by LCSystem's Steve Brown demonstrates "the negative impact conventional MUA has on kitchen comfort." Conventional MUA was definitely driving temperature and humidity in Texas Roadhouse kitchens to intolerable levels. Mike Laur, Director of Construction for Texas Roadhouse, challenged Trane and LCSystems to improve kitchen comfort levels.

## Solution

Working with LCSystems, Trane proposed installing its new Dedicated Outdoor Air Rooftop (DOAR) unit that is based on Trane's popular Voyager™ rooftop and packaged Precedent™ units. This new Total Kitchen HVAC® system integrates traditional restaurant heating and cooling systems with kitchen ventilation systems by supplying 100 percent outside air to condition the space and replace exhaust air. The new unit features fully modulated direct gas-fired heating and modulating cooling to deliver better temperature and humidity control. The Total Kitchen HVAC system requires 35 percent less airflow than old systems to deliver effective kitchen exhaust.

## Results

After reviewing Total Kitchen HVAC® system data from other restaurants, Laur agreed to a test installation in Austin, Texas. This and two other test sites worked so well that Total Kitchen HVAC and Trane DOAR are now the standard design for new Texas Roadhouse restaurants nationwide! The test kitchens improved temperature (78 F) and humidity control, providing significant monthly energy savings and significantly reduced maintenance costs. Marty Cusick, Trane account manager, says that Mike Laur is thrilled with the improved comfort and efficiency of the new systems. "Mike called to ask if Trane could fix his other restaurant. We had to tell him that the other restaurant wasn't broken! It simply didn't have the Total Kitchen HVAC system!" Another ASHRAE Journal article, from 2003, "Solving the MUA Dilemma: Keeping Cooks in the Kitchen," suggests that a good way to improve kitchen comfort is often to simply eliminate makeup air. The Total Kitchen HVAC system does exactly that!

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CASE-SLX181-EN November 25, 2009

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