



## HISTORIC COURTHOUSE RENOVATION PROJECT PROFILE

# BEXAR COUNTY COURTHOUSE

– SAN ANTONIO, TEXAS

### CHALLENGE

In 1896, the citizens of Bexar County, Texas built a magnificent courthouse in the heart of San Antonio. Now listed on the National Registry of Historic Places, this imposing structure boasts a stunning sandstone, granite and terra cotta exterior. One of the largest historic courthouses in the state, Bexar County Courthouse features a courtroom with 25-foot tall coffered ceilings graced by gilded moldings and millwork and decorative windows placed high on the walls, which illuminate the courtroom and its balcony. Over the years, the ravages of time, expedient repairs and multiple additions, including a conventional air conditioning system, degraded the appearance of the courthouse and its featured courtroom. While the conventional air conditioning system brought welcome relief to the people who worked there, the extensive ductwork and drop ceiling required by this system blocked the windows and balcony and hid the ornate ceiling.

Fortunately, the State of Texas recognized the value of the Bexar County Courthouse, which had significantly deteriorated over time. The Texas Historic Courthouse Preservation Program provided matching funds for a \$9 million renovation project, which was completed in 2015. The goal of this renovation was to restore the structure to its original 1896 appearance without sacrificing the need for modern comfort.



## CRITERIA

Not surprisingly, renovating the large, ornate courtroom was a major challenge. It had to be air conditioned, but without the bulky ductwork and drop ceiling required to hide the existing conventional system. The steeply sloped decorative roof of the building prohibited the installation of any mechanical equipment on the roof, and there was no room for equipment on the ground. The new HVAC system had to be inconspicuous and extremely quiet to avoid interfering with courtroom proceedings.

Additionally, a central chiller plant supplied chilled water to the previously installed, conventional HVAC system and to several other buildings in the area, so changing the chilled water source was not an option. Instead, the team got creative, and designed a solution that allowed the new system to operate with the existing water loop.

## SOLUTIONS

LG Applied rep, Texas Air Systems, utilized LG Electronics' Variable Refrigerant Flow (VRF) technology to create a solution to maintain the integrity of the historic building, while ensuring air conditioning for those who work in the building. Texas Air Systems solved the challenge with 84 tons of LG water-cooled source units and 47 indoor units that matched the aesthetics of the courthouse. The compact LG VRF systems were installed to work around the unique ceiling structure and meet the project's design and architectural challenges. Additionally, pre-construction testing with a custom-built model unit proved this design would provide the quiet operation needed in the courtroom.

To combat the technological challenges the project presented, the design engineer, controls contractor, mechanical contractor and Texas Air Systems worked together to

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redesign the water loop to supply water to the LG water source units and allow the existing system to continue to function as originally designed. An LG BACnet Gateway integrated the LG controls into an existing wide-area automation network so Bexar County officials could monitor the system from a remote location that controls multiple buildings in the area. With careful coordination, training and plenty of communication, the first water cooled system in the city of San Antonio was successfully installed at the Bexar County Courthouse.

#### RESULTS

The Texas Historical Commission was so impressed by the project that during the ribbon cutting ceremony they presented their Distinguished Service Award to the Bexar County Historical Commission. Due to the success of this installation, other projects across the region and beyond are looking to

LG’s VRF technology as a clear solution to their toughest air conditioning needs.

“LG’s innovative, high-efficiency products proved to be exactly what we needed to complete the Bexar County Courthouse renovation,” said Bruce Smith, the lead mechanical engineer for this project. “While working to creatively address challenges that this unique building had, we quickly discovered that LG’s VRF technology was the only solution on the market that would both respect the historical integrity of the courthouse and usher it into the modern day.” ■