



COMPLETION DATE

September 2014

PROJECT TEAM

Owner

Instituto de Cultura de Mazatlán,
Mazatlán, Mexico

Distributor, Contractor, Engineer

Caurus Eco Ingeniería, Culiacán,
Sinaloa, Mexico

CHALLENGE

Selecting a quiet, efficient and reliable HVAC system that could be installed without compromising the interior décor of a historic theater

SOLUTION

M- and Y-Series VRF from
Mitsubishi Electric

RESULT

Quiet operation, even temperatures
and a 30 percent reduction in
electricity consumption

Teatro Angela Peralta first opened its doors in 1881, offering the city of Mazatlán, Mexico, a 21,000-square-foot, 1,366-seat theater for performances and cultural events. The theater hosted operas, dramas, civic events and circus performances. Its popularity only grew over the years, and the theater began hosting large events like the Sinaloa Cultural Festival. In 1990, the theater was declared a Historical Heritage of the Nation, and visitors flocked to admire its beautiful façade and classic lobby. Behind the scenes, however, **the theater was troubled by high operating costs and subpar patron comfort.** The theater's music school also faced a challenge: its location next to the loud chilled water HVAC system meant students had a hard time hearing themselves singing and playing. The theater wondered if a new HVAC system could solve all three problems, and was met with a resounding yes thanks to Variable Refrigerant Flow (VRF) zoning technology from Mitsubishi Electric US, Inc. Cooling & Heating Division (Mitsubishi Electric).

Raul Rico directs the Instituto de Cultura de Mazatlán, which owns the theater. Rico spoke about the group's concerns regarding patron comfort – both in the sense of thermal comfort and general experience. "The comfort level was not optimal. There were hot and cold spots and the old HVAC system was noisy. In the music school area, the old chilled water system was so noisy it disrupted the music lessons."

To find a solution, the theater asked around. When selecting any sort of mechanical system or service, Rico said, "We rely on the testimonies from other facilities in the area. **We were told that Mitsubishi Electric VRF meant an easy and quick installation, advanced technology and a seven-year warranty on all parts.**"

Rico spoke with Marco Torrontegui, director, Caurus Eco Ingeniería (Caurus), Culiacán, Sinaloa, Mexico. **Torrontegui recommended Mitsubishi Electric VRF for its "energy savings, low operational noise, reduced installation time and fast delivery from the United States to Mexico."** Torrontegui also said his team could get the equipment and complete the job in 30 days, and assured the theater that its historic structure would go undamaged.

"Caurus kept their promise," said Rico. The installation took 30 days – "very quick, and there was no structural damage to the building. Great care was taken to not damage the ancient walls and ceilings." Torrontegui explained that the facility went undamaged because of the minimal piping of the Mitsubishi Electric system: "We made just three small holes in the roof to pass the piping through."

Rico said, "Beyond just the quality of the installation itself, the equipment has proven to be very efficient. **We estimate a payback period of**

five years, and now the theater has both a great history and the latest technology.”

That technology is helping the theater to meet its original needs of comfort and savings. Rico said, “We have no noise problem now, and the comfort is the same in all areas of the theater – there is an even temperature in all corners. **We’ve also lowered our electricity consumption by 30 percent in just six months, and we expect to save**

up to 60 percent compared to last year.”

Torrontegui said, “Another positive aspect of the theater’s experience has been the ability to control the air-conditioning system from anywhere.” As Rico explained it: “Before we had to be on-site to monitor and operate the air-conditioning system; now we enjoy remote monitoring and control. The days of forgetting to turn off the a/c at night and wasting energy and money are over.”



“The new HVAC system reduces our carbon footprint and helps us to be socially responsible.”

- Raul Rico, director del Instituto de Cultura de Mazatlán



MITSUBISHI ELECTRIC EQUIPMENT INSTALLED:

3 PUHY-P100TSHM-A-BS Y-Series Outdoor Units, **2** PUHY-P300THM-A-BS Y-Series Outdoor Units, **2** MUY-GE18NA M-Series Outdoor Units, **3** MUY-GE24NA M-Series Outdoor Units, **3** MUY-D36NA M-Series Outdoor Units, **14** PEFY-P96NMHSU-E Ceiling-concealed Indoor Units, **1** PKFY-P30NKMU-E Wall-mounted Indoor Unit, **4** PKFY-P32VHM-E Wall-mounted Indoor Units, **3** PKFY-06NBMU-E Wall-mounted Indoor Units, **2** MSY-GE18NA Wall-mounted Indoor Units, **3** MSY-GE24NA Wall-mounted Indoor Units, **3** MSY-D36NA Wall-mounted Indoor Units, **19** PAC-YT53CRAU-J Remote Controllers, **1** PAR-U01MEDU-J Remote Controller, **1** EB-50GU-A Centralized Controller