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Customer Success Story

Trane's Innovative Solution Enhances Air Quality and Passenger Experience at MTR Stations

Project Highlights

Customer	MTR Corporation Limited
Industry	Public Transport Operation and Property Development
Products	Trane® Smart DC Fan Coil Unit and NCCO Air Treatment Unit
Location	Washrooms at 9 MTR stations, e.g., Hung Hom and East Tsim Sha Tsui

The Challenge

MTR Corporation Limited (MTRC), the operator of Hong Kong's urban metro system, has a purpose to "Keep Cities Moving". MTRC provides passengers with more comfortable and convenient railway services through continuously enhancing its station facilities. To better serve the needs for comfort of passengers, MTRC introduced a mandate that from July 2022, all interchange stations along its railway lines shall be equipped with washrooms.

However, in washrooms at older MTR stations, there was a lack of air-conditioning and ventilation systems, leading to passenger complaints about odors and discomfort in their search for an escape from the summer heat. MTRC recognized the need to retrofit these older station washrooms to create a hygienic and comfortable air-conditioned indoor environment for the public. MTRC would also increase energy efficiency by utilizing smart temperature controls at the major stations in its network.

Trane's Solution

MTRC approached Trane Hong Kong and engaged it to carry out a series of retrofit works in nine of its station washrooms, in order to adopt an advanced temperature-controlled air-conditioning solution in its station washrooms while adhering to its green energy-saving principles. Trane provided the latest Smart DC Fan Coil Unit powered by a direct-current motor, which achieves energy savings of up to 70% when compared to those using traditional alternating-current motors. Additionally, Trane used a Nano Confined Catalytic Oxidation (NCCO) unit, which leverages an innovative air purification technology combining catalytic oxidation and filtration, to remove harmful pollutants and odors from the air and to ultimately provide the optimum results in air quality.

Trane's Smart DC Fan Coil Unit offers energy-saving features and low noise levels, while ensuring optimal comfort. In the automatic wind speed mode, the fan motor can operate at a speed as low as 350 RPM, which is the key to controlling both noise and power consumption. Moreover, the Trane Fan Coil Unit can achieve rapid cooling by quickly adjusting the environmental temperature to a comfortable level, maintaining control of the temperature within +/- 0.5 degrees Celsius under stable conditions.

Trane's fan coil air-conditioning unit and NCCO air treatment unit first underwent a successful pilot run at Hung Hom station's washroom. It was found that the levels of airborne particles and germs were dramatically reduced, and the MTRC was pleased with the results. After that, another pilot run was performed at the East Tsim Sha Tsui station, following which MTRC adopted the same design and equipment for washrooms at seven more stations, namely Austin, Prince Edward, Yau Tong, Tseung Kwan O, Fo Tan, Tai Wai, and Lo Wu, to improve the air quality there.

Key Outcomes

Trane's advanced air-conditioning and air treatment technology has enabled these washrooms to offer passengers a hygienic and comfortable indoor environment, complete with smart temperature controls for superior energy efficiency. The Smart DC fan coil units and NCCO air treatment units provided by Trane have contributed to energy savings by up to 70% when compared to traditional AC motors. The retrofits have also resulted in a notable reduction in airborne particles and pathogens in the air, successfully lowering health risks for users of the washrooms. Ever since the retrofits were completed, MTRC has received significantly fewer complaints regarding hygiene and air quality issues.

"We are very impressed with the energy-saving performance and reliability of Trane's Smart DC Fan Coil Unit. Trane Hong Kong has contributed significantly to improving indoor air quality and energy efficiency in our stations. We are grateful for their expertise and support," said Mr. Ki Sun Wong, Design Support Engineer of Integrated Facility Engineering Dept at MTRC.

Trane's dedication to providing energy-efficient solutions and cutting-edge air treatment technology supported MTRC in achieving its green energy-saving objectives, while enhancing the comfort and experience of passengers. The project's success has laid a solid foundation for future collaboration between MTRC and Trane in enhancing air-conditioning and air quality across various MTR facilities.

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