Supporting Singapore's Transportation Infrastructure

Singapore Mass Rapid Transit (MRT) Thomson-East Coast Line Stage 3 (TEL3)

Completed: November 2022
General description:
The total length of 13.2 km with 11 stations
Facilities usage:
Subway train stations and tunnels

Singapore

Gardens by the Bay Station exterior

Entrance to Gardens by the Bay Station

Tunnel ventilation system

About Singapore TEL3

Singapore aims to develop a convenient, safe and universally user-friendly land transport system. In its Land Transport Master Plan 2040 (LTMP 2040), Singapore had held up the plan of developing a transportation infrastructure aiming to enable passengers to reach their neighborhood centre within 20 minutes and the city within 45 minutes. In this plan, the government has, in particular, worked on the establishment of new subway lines and stations as well as the extension of existing lines to provide easy access to as many places as possible; presently, a total of six lines has been opened.

The Thomson-East Coast Line runs from Woodlands North Station in northern Singapore to Sungei Bedok Station in the eastern area, serving 32 stations over a total of 43 km. The Thomson-East Coast Line Stage 3 (TEL3) passes through Gardens by the Bay Station with an extensive botanical garden adjacent to Marina Bay Sands, via Orchard Station in the shopping and entertainment district, serving a total of 11 stations over a total length of 13.2 km.

Singapore MRT Network Map
* Shinryo Corporation has installed Air Conditioning and Mechanical Ventilation Systems at approximately 70% of MRT stations.

Our Work

Air-Conditioning and Mechanical Ventilation Systems for Train Stations/Tunnels

After taking charge of the construction of air-conditioning systems for train stations of the Hong Kong subway line in 1979, Shinryo Corporation has built a track record in the field of subway construction in various countries in Southeast Asia, such as Singapore, Thailand and Indonesia. Particularly in Singapore, after taking charge of the construction of air-conditioning systems for train stations and ventilation systems for tunnels on the North–South Line and the East-West Line, the first subway lines in the country, in 1987, Shinryo Corporation has continued to be engaged in projects, providing Shinryo Corporation's technologies for about 70% of all subway lines.

With station building air-conditioning, in order to prevent the exhaust heat from the driving devices of trains from entering the platform, which is an air-conditioned area, we install screen doors to separate the platform and the tracks, which makes it possible to reduce the capacity (burden) of air-conditioners and refrigerators, leading to energy conservation. Also, natural ventilation is normally used for ventilation in tunnels between train stations; however, in preparation for unpredictable events such as a temperature increase in a railway resulting from a sudden stop of a train in a tunnel, we take measures to promote air circulation, such as by operating large ventilation fans with a diameter of about two meters and a capacity of about 270,000 CMH installed at both ends of the train station in combination with pneumatic dampers for rapid ventilation as well as by activating booster fans installed at the intersections of the inbound and outbound lines. In addition, with safety in mind, these ventilation fans are provided with a function that can change the wind direction in either direction as a measure for smoke elimination in case of a fire in a tunnel.

In the construction of a subway line, process control must be carried out in a rigorous manner. According to underground depth, the presence or absence of a transfer line, and the type of platform, the construction method for a train station varies. However, since a subway line cannot be opened until all the train stations and the tunnels have been completed, it is important to integrally control the progress of construction work for all stations. Therefore, in addition to bringing in materials and equipment and securing workers in a planned manner, we engaged in timely exchange of information among persons in charge of each station using an app, and cooperated with many companies such as engineering companies, construction companies and facility management companies, with the aim of advancing construction work effectively and accurately.

VOICE

Project Completed by Valuing Communication

Hironao Koshikawa
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TEL3 was a large-scale project involving the 11 newly established stations and improvement of four stations connected to existing lines, and the work was difficult, requiring 11 site leaders and integrated management of 15 construction sites.

To manage all of the station building and tunnel construction works with the same quality and processes, we made sure to maintain close contact by arranging online meetings with each construction site every morning. With construction work suspended during the COVID-19 pandemic, this became a long-term project lasting seven and a half years, but the approximately 60 site staff worked unitedly to complete the project without any problems. Every time I use the newly launched subway, I feel a great sense of satisfaction.