Historical Palaces Fire Protection

Seoul, South Korea

Namdaemun, which is officially known as Sungnyemun (meaning "Gate of Exalted Ceremonies"), is one of the Eight Gates of the Fortress Wall of Seoul, South Korea, which dates back to the 14th century. Following a devastating fire in 2008, it was decided to install AP Sensing's Linear Heat Detection (LHD) solution to protect this national treasure. Together with our local partner, the fire detection system will also be installed in several other Korean historical structures to protect these valuable assets.

Before the fire in 2008, the "Great Southern Gate" Namdaemun was the oldest wooden structure in Seoul. After four years of construction, the old gate was completed in 1398, rebuilt and renovated several times since. It was used to control access to the city and was one of four main gates of Seoul. During the Korean War from 1950-1953, Namdaemun was damaged extensively and was restored in 1961 to its origin status – including a large ceremony where it was given the status of "National Treasure No. 1".

Namdaemun after the fire in 2008

In 2008, as a result of arson, Namdaemun was badly damaged and virtually the entire wooden part of the structure was destroyed. The estimated costs for the restoration were around $14 million. After a comprehensive study of available fire detection systems, the government decided to use the AP Sensing fiber optic LHD system as a key part of the new and enhanced safety solution.

AP Sensing's LHD solution is uniquely suited to protect valuable infrastructures like the Namdaemun Gate. A fiber optic cable acts as the sensor and is installed under the new wooden siding so it remains invisible to visitors. The LHD device is also conveniently located outside the gate itself. If the cable detects hotspots or pre-defined limits are exceeded, an alarm is triggered and counter-measures can be immediately initiated.

AP Sensing utilizes its unique and patented code-correlated Optical Time Domain Reflectometry (OTDR) technology to locate fire events and alarm conditions in real time with virtually no maintenance. With LHD, assets can be continuously monitored for quick and reliable fire detection and location, as well as the detection and location of abnormal temperature changes. AP Sensing's fiber optic solution can monitor thousands of meters within seconds with a precision of one meter. This means extremely valuable cultural assets like Namdaemun remain securely protected.

Namdaemun rebuilt after the fire