Case Study

Dublin Airport Terminal 2

Airport Waiting Area

Project Outline

Contractor	Mercury Engineering
Location	Dublin, Ireland
Sector	Transport
Disciplines Covered	• Fire Alarm • Aspirating Fire Detection • Smoke Damper Control System
Key Points of Interest	• 120 Aspirating Detector Units • 10,000+ 6000PLUS Multi-Sensor Detector • 61 Addressable Fire Alarm Panels

Project Overview

Construction of Terminal 2 at Dublin Airport began in 2007 and opened in November 2010, The terminal is home to 19 departure gates and sees on average of 15 million passengers annually. Terminal 2 has around 9000 m2 of retail and catering outlets, 58 check-in desks and provision for self-service and online check-in and baggage drop.

The Challenge

The challenge set to Protec from consultants ARUP was to design develop, supply, install and commission a fire detection system to meet BS5839. The system would have to be free of false alarms which at the time plagued the Terminal One building, while also finding cost-saving solutions when tailoring a package to suit Dublin Airport Authority's needs.

The experience of Protec at other airports such as Manchester International secured the approval of the system from consulting engineers Arup.

The Solution

Fire alarm - In total, 61 Protec Algo-Tec digital addressable panels provided the new fire detection and alarm system at the airport, with 53 acting as loop nodes and eight used for display purposes. The fire alarm panels manage and control over 10,000 6000PLUS multi-sensor detector/alert head units, 2,300 interfaces, and 500 manual call points.

The shops and catering units, offices, storerooms, and back of house areas all use 6000PLUS multi-sensor detector heads for fire detection and alert indication. The devices include software to check for smoke, heat or carbon monoxide; the sensitivity pattern can be matched and adjusted at the panel to eliminate false alarms.

The installation of an air sampling system in the second terminal at Dublin Airport avoided the numerous false alarms that the existing T1 suffered. The fire alarm system proposed by Protec was put on trial for a month in the old terminal and the sensitivity of the equipment adjusted over that period, the technology then was applied to the Terminal 2 building.

The trial of the Cirrus air sampling detector system led to the installation of 120 units in the baggage handling areas and the loft above public areas.

Protec also used to prioritise innovative cost-saving interfaces. The most significant cost saver for the project came from using some intelligent integrated smoke damper control interfaces to use the wiring loop of the fire detection and alarm system for other purposes. The system controlled all the cold smoke dampers for the terminal and removed the need to provide a separate control circuit for smoke dampers. The cost-saving was around €200,000.

Other interfaces link the fire detection and alarm system to the travellators, doors, escalators and lifts, air handling plant, sprinkler system, and smoke extractors, to close or shut them down in case of a fire.

The order for Dublin Airport Protec secured against fierce competition from other companies. John Elam, Major Projects Director, commented, "One of the decisive factors to appoint Protec as fire safety

provider was the impressive demonstration of the cloud chamber technology used in the Cirrus air sampling detectors that reduced the false alarm potential plaguing T1's existing baggage handling area, as this is a challenging environment to protect. The system allowed the airport authority to prioritise increased efficiency for the new terminal, and with increased efficiency, look toward less time wasted and more satisfied passengers as the goal."

The Aftercare

As the airport terminal is in Ireland, the client wanted a local contractor to service and maintain the site. Protec provided the fire alarm system with an open protocol installed; this gave the client the ability to employ their chosen maintenance team who continue to maintain and service the system as and when required.