

## Belfast International Airport

*Installation speed of ACO Qmax minimises disruption at Belfast International Airport.*



Ease of handling, quick installation and high drainage performance are the reasons for ACO Qmax® being selected to manage surface water run-off from Belfast International Airport's new and refurbished aircraft aprons. All four sizes of ACO Water Management's award-winning slot drainage system have been used across the project which forms a key part of the airport's ambitious development plans to grow passenger volumes to 6.9million per annum by 2015.

With the airport remaining fully operational during the works, the project team from Doran Consulting and civils contractor Whitemountain Quarries needed to develop an installation procedure that could return any new or refurbished pavement area to use

with a minimum down time for the works area. The installation of drainage channel up to 300m in length could be installed in a 5 week period subject to the works area being made available by the Airport Operations team.

**Project:**

Upgrade of aircraft aprons at Belfast International Airport.

**Objective:**

Upgrade drainage system across old and new aircraft aprons with minimum disruption to airport.

**Brief:**

1. High capacity drainage system with maximum Load Class rating.
2. Quick installation.

**Solution:**

The four sizes of ACO Qmax high capacity drainage system.

Working with a specialist team from ACO Water Management's Design Services, trials were conducted that proved that Qmax set in a polycarbonate fibre reinforced concrete mix would minimise the cure time requirements. "Qmax's lightweight one piece design combined with the ease with which it could be set ready for concreting meant that we could keep handling time to an absolute minimum.

#### Value engineered design

The first phase of the project - a 21,000m<sup>2</sup> extension to the airport's East apron - saw a total of 600m of the two largest sizes of ACO Qmax (Qmax 900 and Qmax 600) installed. "Being a new area, we were able to fully exploit the high volume and attenuation characteristics of the larger Qmax sizes in a value engineered design that minimised ground infrastructure and installation time," says Whitemountain.

The follow-up phase, the refurbishment of the existing west apron, had established, smaller catchments which were suited to the lower volume Qmax 350 and Qmax 225 sizes. Runs installed in areas where standing aircraft are reached by passengers on foot are fitted with Heelguard edge rails while those in the cargo area of the apron use concrete edge rails.

Run-off from across all the airport's areas of hardstanding is gravity fed to an artificial holding reservoir adjacent to the western apron. From here, the surface water is carefully dispersed via an automated sprinkler system.

#### The system has received many accolades

Launched by ACO Water Management in 2004, ACO Qmax is a unique lightweight slot drainage system that provides both high performance surface water removal and high capacity storage and attenuation. The system has been used extensively in distribution yards, docks and highways and has received many accolades including Construction Product of the Year and The Queen's Award for Enterprise: Innovation. Fully certified to BS EN 1433:2002 Load Class F900 all sizes in the ACO Qmax range meet the requirements of Specification 33: Pavement Quality Concrete for Airfields.



ACO Qmax 600 and 900 used in the cargo area of the apron.



ACO Qmax 225 and 350 used on the upgrade to the existing west apron.

## ACO Water Management

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