

## Project Report

Airfield Reconstruction with Rapid-Hardening Concrete  
Concretum® Q-FLASH 2/20



# Melbourne Airport Tullamarine MEL



Stands



Taxilane



Apron







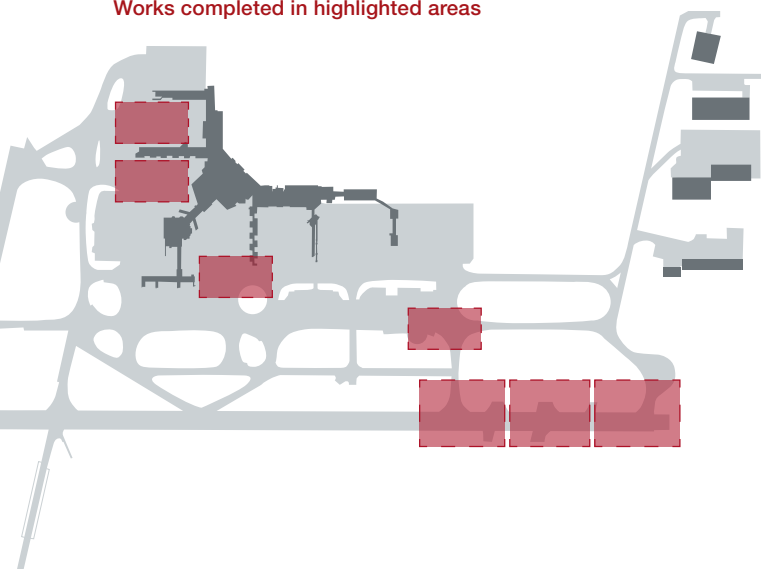
First placement of rapid-hardening concrete in Oceania by Fulton Hogan's Division "Engineered IQ" at Tullamarine Airport, Melbourne

## Project Overview

Concretum's distributor in Australia and New Zealand, Fulton Hogan, entered with their subdivision Engineered IQ a collaborative subcontract with Eifers to deliver MAPM – Melbourne Airport Pavement Maintenance Program. This project involves the replacement of taxiways and aircraft apron slabs. Concretum rapid-hardening concrete Q-FLASH 2/20 was mixed on-site using truck-mounted volumetric mixers to replace a slab overnight – ready for service upon handover.

### MEL Layout

Works completed in highlighted areas



### THE REQUIREMENTS

The slabs to be replaced at Melbourne Airport place complex demands on the concrete. To fill each slab measuring  $7.6 \times 7.6$  meters,  $35 \text{ m}^3$  of concrete are required, delivered simultaneously by six truck mixers. The open times of the various mixers must be precisely coordinated to ensure uniform processing within a single slab. The adjustable open time creates a unique, client-determined parameter and flexibility in production and placement methods. The varying air temperatures throughout the project – ranging from 6 to 30 degrees Celsius – were successfully taken into account.

### RELEVANT SCOPE

For airside operations, the following tasks were carried out:

- Closing area to complete works, including obtaining permits and liaising with airfield operations.
- Demolition of existing concrete slabs, including saw cutting and using excavators with grabs to extract the slab.
- Compacting existing subgrade / crushed rock base using heavy vibrating plates.
- Placing of expedient concrete pavement using roller screeds, curing concrete at the correct time, and providing a textured finish.
- Handover to client.



Project film



# 6 hours

Closure per Night

# 144 slabs

Nights and slabs completed

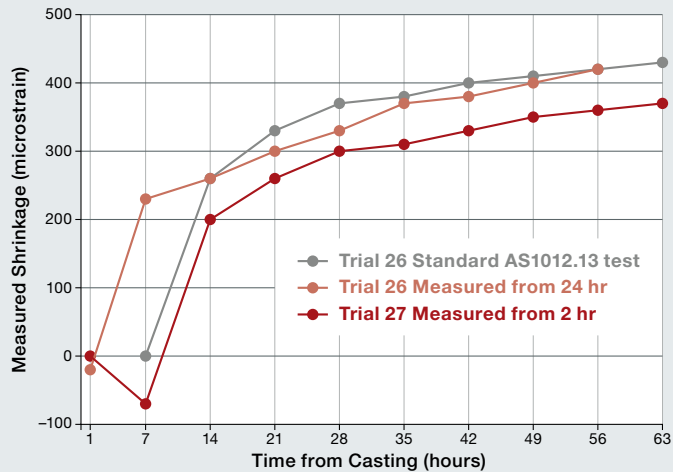
# 4'888 m<sup>3</sup>

Concretum® Q-FLASH 2/20

# 3 MPa

Flexural strength 2h

## SHRINKAGE TESTING RESULTS



## CONCRETE SPECIFICATIONS

|                           |                         |
|---------------------------|-------------------------|
| Product                   | Concretum® Q-FLASH 2/20 |
| Exposure class            | B2 / C2                 |
| Strength class            | 50 MPa – 60 MPa         |
| Slump class (consistency) | S1 to S3                |
| Max. aggregate size       | 40 mm                   |

## CONCRETE PROPERTIES

|  |                               |
|--|-------------------------------|
| Open time                              | 30 – 120 minutes (adjustable) |
| Moisture content 2 h after setting     | ≤ 4 CM-%                      |
| Compressive strength 2 h after setting | 20 MPa                        |
| Flexural strength 2 h after setting    | 3 MPa                         |

With multiple slabs able to be mixed and placed in a single shift, Concretum® Q-FLASH 2/20 is the ideal solution for time-critical infrastructure projects where short closures and rapid return to service are essential. One of its major benefits is the significantly longer maintenance-free service life compared to asphalt. Recent drying shrinkage testing of Concretum® Q-FLASH 2/20 conducted in Australia confirms its durability and resistance to shrinkage cracking.

**Ben Torwick, Airfield Program Manager:**

**“I think the team can be very proud of what we have achieved. 144 slabs replaced with little disruption to our airline partners – this was only possible with tight teamwork across contractors, airfield operations, and our consultants.”**



Demolition of existing slabs (7.6 × 7.6 m)



MEL Airport placement of concrete using roller screeds



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