

Sydney International Airport

Project Report - New South Wales

In January 2005, the Sydney Airport Corporation Limited (SACL) issued a tender for development of buildings to accommodate commercial car parking and integrated commercial facilities (office and some retail floor space) on a 2 hectare site located in the eastern section of the existing car park serving the International Terminal. Part of this major development proposal was to accommodate the Airbus A380 and provide an extension for the apron of the airport.

Specification requirements

A tender was submitted to supply 10,000m³ of 40mm maximum size aggregate concrete having 40MPa compressive strength and a flexural strength requirement of 4.5MPa at 28 days. The concrete for the project would be tested at high frequency to ensure compliance with the specification.

Problems encountered

The testing requirements for the project were unique and were mainly due to the 40mm aggregate used in the concrete mix (non standard product). Prior to the project commencement, technical services staff worked together with production and sales personnel to discuss the project and identify problems. A major issue identified was that the Australian standard method of testing for flexural strength determination required beams having dimensions of 150mm x 1500mm x 550mm. This was due to the larger aggregate used in the mix design. Sourcing the steel moulds for the project proved difficult to the point of potentially jeopardising the project. Moulds were finally acquired for this project and trial testing took place to ensure that compliance could be consistently achieved.



Solutions developed

The project initially required 48 steel moulds for trial and production assessments generating over 1000 test samples during the 10-12 week project. Not only were the samples large in size but the sample weight was considerable. The laboratory testing the samples for flexure had a testing frequency amounting to the handling of over 500kg in weight daily. This required two staff members to perform the testing and another to remove the samples from the moulds and deliver to the laboratory for curing and testing. Significant work was also done to ensure that the variation of results was within the design requirements.

Results achieved

Field Technical Officers conducted site risk assessments and developed a system with the tendering company to reduce manual handling by using site owned lifting equipment. This step reduced the cost of testing and personal risk and forged great relationships with our customer through establishing a co-operative professional service. The project was completed on time and with great success.

Location	Sydney International Airport, South West Apron (Stage 1), NSW
Client	Sydney Airport Corporation Limited
Contractor	Ward Civil and Environment Engineering Pty Limited
Engineer	Ward Civil and Environment Engineering Pty Limited
Products supplied	40mm maximum size aggregate concrete having 4.5MPa flexural strength at 28 days
Commencement	April 2005
Completion	July 2005