David Beneke Consulting

Finite Element Analysis for Engineering

SYDNEY INTERNATIONAL AIRPORT DEPATURES HALL
Carbon Fibre Strengthening of Existing Concrete T-Beams

Date: October 2017

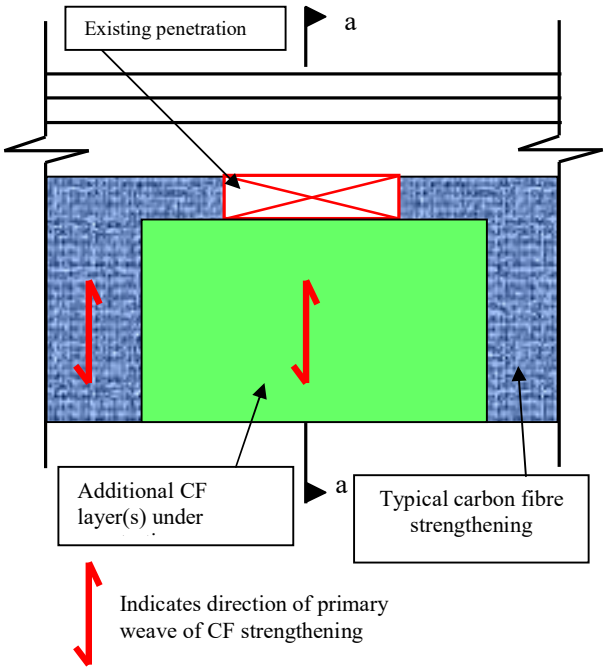
Client: Freyssinet Australia

Project Description:

As part of the extension works to the current Emigration and Security Entrance area on the Departures Hall level of Sydney International Airport, David Beneke Consulting was commissioned by Freyssinet Australia to undertake the Carbon Fibre shear reinforcement design for existing beams precast concrete single and double T-beams.

The existing structure spacing over the departures hall consists of single and double T-beams spanning up to 12 metres. The carbon fibre shear reinforcement is designed based on the relevant sections of the American ACI 440.2R-08 using the in-house developed spreadsheet. Special attention was given to the existing penetrations at specific locations of the beams. In addition, at specific locations the beams had access limitations to the beam soffit due to the presence of services ducts and as such special design and detailing requirements were necessary.

Sika Wrap Hex 230C – 600 type carbon fibre was used in both U-wrap and 2-sides wrapping schemes with a maximum of 4 multi layers at typical locations. Additional layers were used in locations with penetration and/or ducts if required.



Elevation of Typical Carbon Fibre Strengthening Reinforcement around Existing Penetrations

Contact:
dbconsulting@live.com.au
davidbenekeconsulting.com
Ph +614 1257 5693