



Case Study - Buildings

Airport Terminal Roof SHM

Singapore, 2005





Aim	To monitor strain in the McAlloy bars, I-beams and Junctions of the large unsupported roof structure of Singapore Changi International Airport's new third terminal.
Location	Singapore
System Integrator	Smart Fibres, Ltd
End Customer	CPG Laboratories Pte Ltd
Date	2005
Instrumentation	(1) Micron Optics, sm125 Optical Sensing Interrogator (Smart Fibres, W4)
Sensors	SmartPatch strain and temperature sensors and SmartPatch rosettes
Software	Smart Fibres' SmartSoft
FBG Technology Benefit	Long-term stability, ease of deployment.



Typical instrumented joint section.





Three SmartPatch rosettes at joint.



SmartPatch sensors on McAlloy bars. The installation was quicker compared to conventional sensors.





- Results
 - § Multiple sensor arrays were attached to the roof structure sections prior to lifting in place. The client is carrying out a long-term health monitoring campaign, taking periodic measurements with a sm125 interrogation system (Smart Fibres W4) and doing statistical analysis on the data collected.
 - § The information was useful to the customer because of the verification of the roof structural design, assessment on long-term health.

- Acknowledgements
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