A Safety Testing & Research Centre

D.I.Y. And Save $100,000

Vince Higginbotham, Manager Testing Services, TestSafe Australia

TestSafe utilises a very large fire gallery located at the eastern end of the Londonderry site for undertaking a variety of fire testing scenarios, burns tests for underground coal mine conveyor belts are regularly carried out.

Airflow through the gallery is controlled by either of two large centrifugal fan assemblies with the airflow being adjusted to suit specific test requirements by adjustable outlet dampers on each fan housing.

Paul welding in the replacement sections in the base

The smaller of the two fan assemblies was used much more often than the large fan assembly due to its ability to control lower airflows more accurately. Over a period of many years this smaller fan assembly and associated ductwork became very corroded with gaping holes in many panels. This corrosion was mostly caused by the corrosive by-products of combustion from the various tests. Due to the very high cost to replace this fan assembly, $130,000 quoted by one Engineering Company, TestSafe decided to revert to utilising the larger fan assembly for all work and postponed any immediate plans to replace the corroded small fan assembly.

Work demands for the fire gallery were steadily increasing and heavy corrosion was now starting to appear in the large fan assembly. We estimated that this large fan assembly would last only 2-3 years before it also became too corroded for practical use.

Paul, Dave & Stephen fitting the intermediate section of the fan assembly

During this time we employed a contract metal tradesman (David Wood) to assist our permanent tradesman (Paul Tilbury) due to an overall increase in work demands for the site. It was now clear that we had to refurbish the badly corroded small fan assembly because of the worsening condition of the remaining large fan assembly. Having two metal tradesmen on site now made it feasible to refurbish the corroded fan assembly in house at a much reduced cost.

Stephen Hall (from the Core Library) operating the mobile crane during assembly of the fan housing

Work commenced at the end of 2004 by dismantling most of the assembly for gradual refurbishment. Due to commercial pressures from a variety of other projects the refurbishment of the fan assembly was progressed when time permitted. The fan assembly consisted of three basic sections, the top damper airflow section, the intermediate housing and the main base incorporating the fan impeller and drive system.

Dismantling required the use of a large crane which we did not have, however because of a good working relationship with the Department of Primary Industries Core Library adjacent to TestSafe, Steven Hall from the Core Library provided their mobile crane whenever we needed to remove and replace sections of the fan assembly, this was both convenient and a substantial cost saving.

The top damper section was removed from the assembly first and repairs consisted of removing and replacing all of the flat steel panels. The intermediate section was next and finally the base, which had to be refurbished in situ due to it being part of the fan impeller and motor drive system.

During the repairs it was necessary to have a number of rolled and shaped steel metal panels supplied by a sheet metal contractor at a cost of $9000.

The refurbishment of the fan assembly was completed and successfully reassembled during December 2005 thanks to the dedicated work of Paul Tilbury, David Wood and much appreciated assistance from Stephen Hall from the Core Library of the Department of Primary Industries/ Minerals.

Refurbished fire gallery fan assembly

It is estimated that TestSafe was able to save approximately $100,000 by refurbishing the small fan assembly with existing staff rather than having a complete new fan assembly manufactured supplied and installed by an outside Engineering company.