



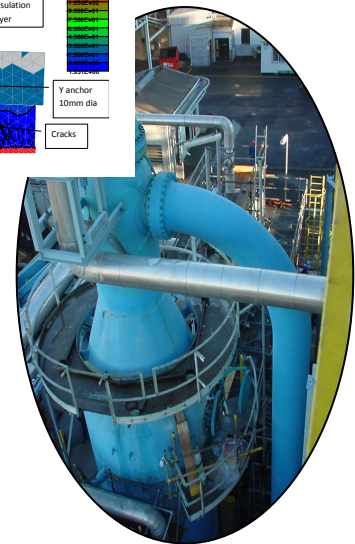
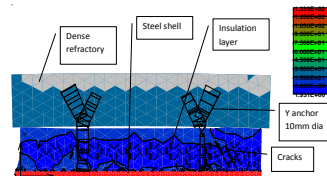
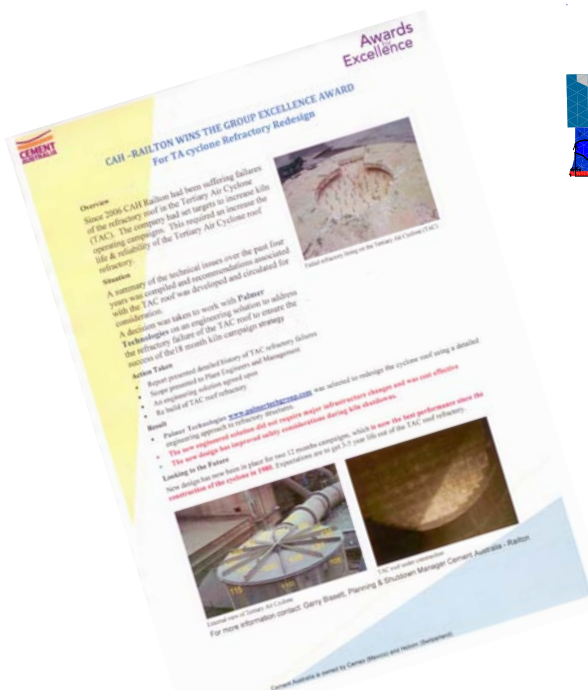
THE NEXT GENERATION REFRACTORY STRUCTURES

The failure of refractory structures in the cement, alumina, power, petroleum and fertilizer industries costs industry millions of dollars each year in downtime and repairs costs. There is no doubt that the design of refractory structures has posed significant engineering challenges and the practice of simply following what may have been done in the past, while important, cannot be considered an engineered design. The understanding of failure mechanisms and the availability of advanced engineering software means refractory structure design can be supported by engineering analysis.

After years of research the engineers at Palmer Technologies have developed an advanced refractory system based on proven engineering principles. The, simple but advanced engineered design has been in service at Cement Australia's Railton plant for 2 consecutive years. In early 2009 the plant won the company's excellence award for the project.

The Plant Shutdown Manager stated:

- **The new engineered solution did not require major infrastructure changes and was cost effective**
- **The new design has improved safety considerations during kiln shutdowns.**
- **New design has now been in place for two 12 months campaigns, which is now the best performance since the construction of the cyclone in 1980.**
- **Expectations are to get 3-5 year life out of the TAC roof refractory.**



In the last year the advanced design system has been used by Ballance Agri-nutrients, NZ in their secondary reformer and BP Refinery's (Brisbane) CDU furnace.

The advanced refractory structure design (patent pending) offers:

- A fast installation procedure
- Greater refractory life (under normal conditions)
- Greater quality control
- Significantly low risk of anchor failure
- Improved safety during vessel entry