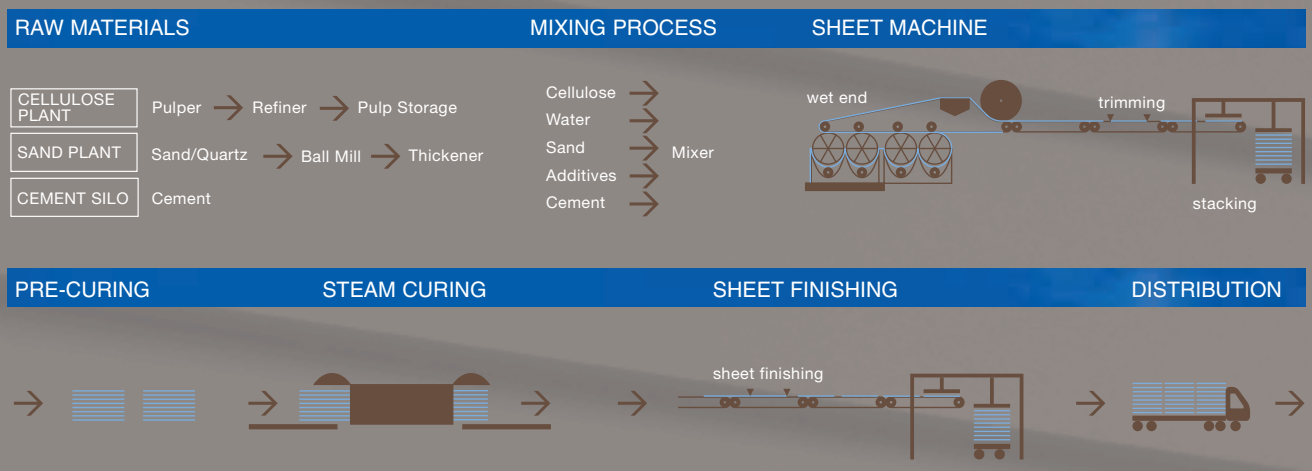


HOW WE MAKE FLAT SHEET PRODUCTS

Research and Development

R&D expenditure in fiscal year 2005 was US$27.1 million

The superior performance of James Hardie's differentiated products is supported by the unique product formulations and production technology.

In fiscal year 2005, we invested US$27.1 million, or 2.2% of our sales, in research and product development. We employ over 130 scientists, engineers and technicians in the areas of Core Research and Product & Process Development. Over 50% of our scientists have advanced degrees and 45% have worked for James Hardie for over five years.

We have Research and Development Centres in Sydney, Australia and Fontana, California, where we:

- conduct core research;
- develop new manufacturing technology platforms; and
- develop products for specific markets and applications.

Through our investment in process technology, we aim to keep reducing our capital and operating costs, and find new ways to make existing products, and new products.

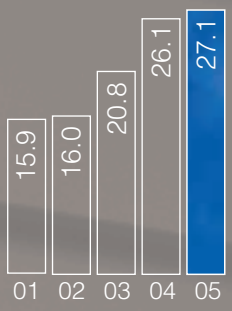
Over the past ten years, advances in process technology have allowed us to reduce the incremental cost of additional capacity at existing sites. At the same time, we have reduced the cost of raw materials:

- through yield improvements in the plants;
- by providing technological support to drive process improvements in our suppliers' operations; and
- from our increased business scale.

We also benefit from superior economies of scale, because we operate plants that are two to three times larger than our fibre cement competitors'.

Our goals are to:

- continue to lower the capital cost of each unit of production at new plants by learning from past projects, and through continuing innovation in engineering; and
- reduce operating costs at each plant by improving manufacturing processes, raw material yields, and machine productivity.



Research and Development Expenditure[1]
(Millions of US dollars)

1 Research and Development expenditure includes US GAAP Research and Development expense and amounts classified as selling, general and administrative expense under US GAAP in the amounts of US$5.5 million, US$3.5 million, US$2.7 million, US$1.9 million and US$1.4 million, for the years ended 31 March 2005, 2004, 2003, 2002 and 2001, respectively.