On a Mission to Save Millions

Slimmer and stronger – steel is up for a makeover

Each and every year Australia spends an astonishing $200 billion on the construction of buildings, bridges, wharf structures and the like. With a significant sum of this money going towards the cost of steel, even a slight reduction in the amount of steel needed in these structures could save millions.

We recognise a need to reduce greenhouse gas emissions through more efficient and higher strength materials. In the current business climate, this research is both timely and absolutely necessary to drive technology and significantly improve current practices

In a new ambitious and innovative research project, School researchers want to pave the way for significant steel material savings – possibly up to 33%.

Led by Professor Stephen Foster, in collaboration with Graeme McGregor at OneSteel Reinforcing, this project will build the fundamental knowledge needed to design and construct high-strength concrete columns with high-strength steel reinforcement.

“The reinforced steels currently in use in Australia are limited to a tensile strength of 500 megapascals (MPa). We’re looking at the benefit of increasing the design strength beyond 500 MPa,” says Professor Foster.

The innovation here is what is known as the dematerialisation of structures. “Dematerialisation means developing high performance and stronger materials in order to use less of them. Using less steel has obvious benefits in terms of cost savings but also means considerable savings in carbon emissions,” he continues.

As Australia’s leading manufacturer and distributor of reinforcing bar product, OneSteel Reinforcing’s interest in the research project is obvious. “This project not only has

potential for significant economic benefits to the Australian steel industry but also has significant environmental benefits," says McGregor.