

**ASEC 2008
ABSTRACT**

Title of abstract:	New Structural Blind Bolting Technology- An Australian Innovation
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Abstract:	<p>Steel hollow sections make efficient structural members in terms of stiffness to mass ratio. However, unavailability of an efficient connection method reduces the benefits of hollow steel construction. A simple economical and robust structural connection method that could replace welding would increase the efficacy of hollow member construction.</p> <p>There are some blind bolts available in the market. However, all of these products depend on either friction or a toggle or deformable element to achieve the clamping force. In all of these products, the toggle or deformable element and the bolt are simultaneously passed through the hole to the blind side of the joint. Therefore, if the toggle or deformable element needs to be strengthened by adding material, the bolt has to loose material and hence its strength, and viseversa. Thus, for a given hole size the maximum clamping force achieveable using a common blind bolt will never match that of a structural bolt of the same material. Furthermore, these products are relatively expensive and inherently have a very small or highly variable failure load, thus making the design capacity significantly smaller compared to a structural bolt. All of these factors reduces the attractiveness of Hollow Member Construction.</p> <p>This paper introduces an Australian invention of a truly structural blind bolting method that does not inherit any aforementioned disadvantages. It also presents a complete design method based on AS4100 bolted joint design. This technology is succefully used in many structural engineering applications overseas and has the potential to revolutionize steel construction industry.</p>