MiTek
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AUTOMATED TOOLING LIMITATIONS

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A surplus of second hand truss equipment post-GFC and a strong Aussie dollar have resulted in a recent flurry of both new and used roller gantry style table press installations in Australia.

Many of these systems come with, or are retro-fitted with, automated tooling rails that have moving locator 'pucks' that form the profile of the truss automatically, greatly reducing set-up times and increasing the productivity of the system.

Such tooling is not a recent invention but the affordability and reliability of these systems has improved in recent times to the point where it is 'the norm' for a new roller gantry press system to include an automated puck system.

But every automated system has its limitations and when purchasing or operating automated tooling consideration should be given to the extent of the manual tool setting that remains.

Clearly the spacing of the puck rails on the table top determines the density of the tooling and therefore how regularly the chords of the truss are constrained by the pucks.

This is important because this 'envelope' holds the camber in the truss, dictates the chord joint locations, and in general prevents the truss from moving out of shape during rolling.

This is particularly important for roller presses, as compared to hydraulic platen presses, because they tend to 'squeeze' the truss sideways during rolling.

The spacing of the rails also directly affects the system cost, e.g. halve rail spacing for a tighter truss envelope and the system cost doubles.

For new systems the rail spacings are typically offered at 600, 900, or 1200 centres, although retro-fit options to existing tables may be more flexible depending on the type of tabletop.

As rail centre spacing increases to 900 or 1200mm the likelihood of requiring additional manually set tooling at the heel and apex locations also increases. Consider a system with rails on 1200mm centres.

If the closest pucks fall 1150mm from the end of the bottom chord (Figure A) they may not adequately restrain the heel joint or provide dimensional consistency between trusses.

Likewise, if the truss apex falls in the middle of two rails (Figure B) the pucks closest to the Apex point could be over 600mm from the apex, again allowing too much variation in the location of the truss apex.

In these cases, extra tooling can be added to ensure dimensional accuracy of the first truss, and consistency of subsequent ones.

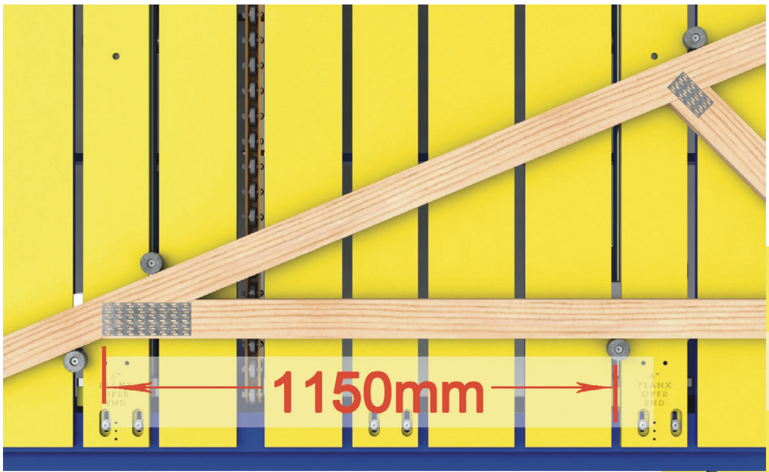
Also, in some cases additional manual tooling may decrease overall production time, such as when setting a locator for the end of overhangs to eliminate measuring and marking the overhang distance on each truss.

Even with automated tooling at 600mm spaces, certain truss shapes will have unrestrained components.

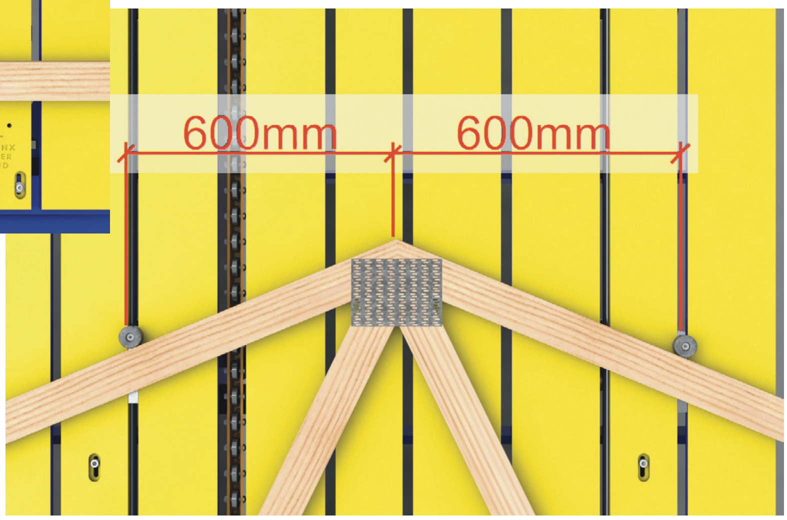
The vertical member in a cut-off truss is an example where there are only really two practical options: rely on the stapled joints to hold the truss during the rolling process, or set-up some manual tooling to ensure the cut-off remains 'square'.

These examples of manual tooling are not intended to water-down the benefits of an automated puck system; there is no denying the productivity benefits.

Rather they highlight that jig setters may still need manual tooling and adequate training to produce a quality product, even on the smartest automated tooling system. TTN



■ *Figure A: Inadequate heel restraint.*



■ *Figure B: Floating apex.*