

Addressing musculoskeletal disorders in sawmilling
Case Study 2: Using rolling packet risers at
Pacific Wood Products, Napier



Rolling packet risers (springers) in remanufacturing

Summary

To maximise quality and throughput, a Hawkes Bay remanufacturing plant installed rolling packet risers (known locally as springers). These have assisted in achieving a high standard of quality control and also reduced both the manual handling demands and the downtime between packets.

Acknowledgements

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The Problem

A new remanufacturing plant in Napier was being set up by Pacific Wood Products, a subsidiary of Pan Pac Forest Products Limited. The operation receives kiln dried material for converting into finished products. As with other remanufacturing plants the throughput of the mill was important, but the quality of work by staff was also vital.

Checking and stacking of product leaving the planers was found to be a demanding job to do consistently well, and those best at it were not necessarily strong young males. Females were found to be generally better at it - more interested in working to given standards and values - but the staff were 90% male. The physical demands of the job needed to be kept at a minimum so that those staff found to be best at checking for quality were not ruled out by not being strong enough.

Manager Glenn Allison had overseen filleting operations at their Kopu mill near Thames prior to coming to the new PWP plant and had experience of developing improvements with the filleting staff.

Intervention – what was done

Packet risers designed and manufactured by Mohawk Ltd in Thames were introduced. There are two key aspects to these devices; firstly the vertical component in the manual handling demands is reduced by the springer scissor lifts. The springs adjust under weight, keeping the layer being worked on at a comfortable level. Secondly, the pairs of springers are movable - either fore-aft or side to side. This enables them to be wheeled out of the way a few metres once loaded. The work flow is uninterrupted as a new packet on a second set of springers can be started without having to wait for the forklift truck to remove the finished one. The forklift driver is also not pulled away mid-way through other tasks and so makes more efficient use of their time too.



Springers in use



Two sets of wheeled springers are used so that completed packets can be pushed out of the way to await collection, and work is not held up.



To assist accuracy of packing, side bars (shown in these two photos) have been added that help keep the packets square. Side bars help achieve accuracy and a high quality finished packet

The spring resistance is not adjustable, but PWP have two different weight settings - a pair designed for one tonne completed packets, and another for two tonnes.

Other changes

Apart from making the job as effortless as possible, the management also see feedback on quality as important, "we also tell them (those performing well) that they are good ... continuously".

Results

Glenn's experience at Kopu with springers had been very positive. Having done the job himself, both he and the filleting boss knew how hard it was on the body, especially for the growing number of older Filleters. They also felt it was critical to get supply to kilns satisfied by Friday as the Filleters needed a full weekend off to recover.

The average time taken per packet by the Filleters had reduced from 38-40 minutes down to 18 minutes. As a result, these piecework rate staff who started at 6am were earning the same money by 10am as they previously had by 4-5pm at night. A weekly quota had to be set as the Filleters could produce more packets than the kilns could handle. Apart from the improved morale, this provided the mill with a pool of skilled and experienced staff who could be asked to help out on other jobs in the afternoon. The forklift driver spent less time waiting for packets to be completed and so was found to have 2/3 of the day freed up for other duties.

Other filleting system changes that had proved helpful at Kopu included the introduction of a new design of filleting box. A floating headboard allowed varying lengths of packet to be built with similar efficiency and lack of obstruction. Staff were also able to work from either the left or right side, avoiding asymmetrical loading of the body during the day.

The greatly increased speed of the Filleters allowed a just-in-time system to be operated for the kilns. This improved overall quality as there were less cases of internal checking/cracking from packets standing too long in the yard losing moisture before being kiln dried.

PWP

Glenn Allison reports that having learned of the advantages of using springers at Kopu, they were ordered immediately at PWP, and production started picking up once the springers went in. The advantages at their planer are as follows:

- The vertical range of the manual handling work was reduced to just 220mm, giving a very smooth transfer and keeping the product a more consistent and comfortable distance from the eye - assisting quality checks.
- This ease of transfer works well for all staff and keeps demands well within the capabilities of even the staff with the slightest builds. This is critical as standards must be maintained for the full working week. As Glenn says "we know the importance of having that team coming in every day and doing an equally good job".
- Time savings are substantial. Each set of springers reduces downtime by 80-90 minutes per shift, as the ability to roll away the completed packet and roll in new springers to begin the next one takes away the need to wait for the forklift to come free. Previously they had to go and find the driver each time they finished a packet - disrupting their routine and his. The time saved provides 14-15% additional production time at each station using the springers.

Key points

- Reducing physical demands of the task allows staff to be selected primarily on the basis of their consistent quality of performance rather than size and strength.
- Mechanisation can be in the form of cheap mechanical assistance - as opposed to expensive full automation which replaces staff entirely. Where quality checking of the finish is also required as part of the task, the costs of full-automation can rise substantially in comparison to employing vigilant staff.
- It is possible to make gains in both productivity and in health and safety at the same time.

Further reading

Tappin, D., Moore, D., & Ashby, L. (2003). *COHFE Report, 4(3): Filleting - good practice principles to help prevent musculoskeletal disorders.*

Tappin, D., Edwin, M., & Bentley, T. (2003). *COHFE Report, 4(6): Musculoskeletal Disorders in Sawmilling: ergonomics work system assessments and suggested interventions.*

Both of these reports are downloadable from:
<http://www.scionresearch.com/cohfe.aspx>

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