

## Problem Solving gets **Buildex** out of a Jam!

When the team in the Heading Plating Line (HPL) at Buildex kicked off a **Frontline Problem Solving** activity earlier this year, they did not anticipate the benefits they would receive.

As a manufacturer of roof fasteners for the Australian and International markets, Buildex are recognised throughout Australia as the product of choice by roofing professionals. To be the product of choice the roof fastener (screw) needs to perform four main functions very well.

1. It needs to go into the roofing material easily (have fast drilling time);
2. It needs to fasten the roof securely;
3. It needs to last for a very long time; and
4. The head of the screw needs to be available in a variety of colours.

A process that is critical for the appearance of the screw is the head painting process where the head of the screw is coated with powder, heated to a high temperature to bake the powder on, then cooled and cured. This process enables Buildex to offer their product in over 100 different varieties of head colour.

The HPL team was experiencing a number of issues with the process:

- Output was below what was expected for the line (HPL Line 4);
- Frequent line jam-ups were occurring;
- Powder usage was abnormally high; and
- Cleaning of the plates on the conveyor due to powder build-up was taking progressively more time to do leading to increased physical burden for the Operators and increasing down-time.

Due to these issues a team was formed in the area with the purpose of prioritising and tackling these problems using the 7 step Frontline Problem Solving Process (FLPS).

**Figure 1 – Buildex FLPS Team**



**L to R:** Gurnett Vincent (Leading Hand), Peter Hendrie (Maintenance Leading Hand), Brian D'Silva (Process Engineer) and Santhosh Balakrishnan (Team Coordinator)

During the initial one-day FLPS workshop, the team worked through the steps of problem definition, containment and problem analysis.

The first and most important step of the FLPS process is 'define the problem'. The HPL team started off by selecting one key problem to tackle from their list of issues. The problem they selected was 'frequent line jam-ups occurring', as this had two key impacts, it caused reduced output and increased operator frustration.

The line was 'jamming' up to 6 times every hour forcing the operator to stop the line, rectify the problem and restart the line. This took up to 20 seconds each time the jam up occurred which equated to just under 3 hours lost time per week!

Following the initial workshop the HPL team continued with weekly meetings to follow up on root cause analysis and countermeasure implementation. The FLPS investigation process found the team challenging their previously held assumptions regarding the head plating process.

Questions such as:

- Are we applying too much powder to the screw?
- Is the powder build up on the plates acceptable? and
- Is the set-up of the HPL line optimal to produce the best product?

Continuing on with the FLPS process, the next step was to identify the root causes of the 'line jam up' problem. To do this the HPL team went through an exhaustive session of brainstorming all the potential causes of their problem, validating the cause by direct evidence (which would either confirm or rule out the possible cause), and then repeating this process until they were left with the root causes.

The results achieved after a 3 month review were extremely rewarding for the team:

- Line jams **reduced by 83%** saving **2.2 hrs per week** in lost time;
- **Reduction of 50% in cleaning time** per week of the conveyor plates (saving **4hrs per week**);

- Direct increase in OEE for HPL 4 of 8%; and
- Powder usage reduced by 29% saving \$160 per day (**\$39,680 per annum**).

Two of the key countermeasures implemented on HPL 4 line were deployed to HPL lines 1, 2 and 3. This contributed to an **overall increase in OEE for the HPL area of 20.6%** from Quarter 1 2012 to the end of Quarter 2 2012.

Ensuring daily problems are managed and eliminated allows the HPL team (and Buildex) to focus on continually improving so that they remain the product of choice and number 1 in the roof fastener market.

**Figure 2 – The HPL Team presenting their work**



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