

DUST CONTROL

Presentation by **Warren Murphy**
March 2013 FWWA meeting.



Fine Wood Work Association
Western Australia

Setting up a new Workshop with effective dust abatement

In this brief presentation I want to:

- **C**over some of the lessons learnt in my previous (leased) workshop;
- **L**ook at the challenges presented in setting up a new (owned) unit;
- **E**xpound on my research into dust abatement, and what that did to my original budget;
- **A**pprise of the new dust control system; and finally
- **N**ote what has yet to be done.



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The old workshop

- 170 m² floor space
- Large hobby equipment
- Two Jet cartridge units
- Festo vacuum units

The old workshop served me well for maybe 8 years. It was big, but somehow had shrunk over the years.

It housed about all you could want in a purely hobby workshop

- Felder saw/spindle moulder combination
- Felder thicknesser/planer combination
- two band saws
- thicknesser sander
- belt sander
- routers, power tools and so on.



The task of dust abatement was shouldered by two Jet cartridge extractors – one double and one single cartridge unit – plus two Festo vacuums.



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The old workshop (cont'd)



There was lots of flexible piping – 100mm and 150mm hose.

The twin Jet serviced the saw, the planer, the thicknesser sander and the Hitachi bandsaw.



The single Jet serviced the sander, the router, and the small bandsaw via a 100mm dia metal duct.



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Challenges in setting up anew

The first challenge was that Bob Loss came along!

Bob was a bit of an embarrassment. He discovered the Jet units were reasonable brooms, but contributed most effectively in stirring and distributing fine dust. I had a cloth bag on the single Jet which behaved badly. All the Jet seals were less than helpful, even the Festos were wanting.

- ❖ Jet units were brooms – collecting chips, disbursing dust
- ❖ Cloth collection bags a disaster – replaced with polythene
- ❖ All bag collector seals leaked – all replaced
- ❖ Festo filters (original) were poor at best - renewed
- ❖ Maintenance poor, results poor – an unsurprising result

In short the extractors had been bought and then neglected – other than the periodic emptying of the bags.

Bob Loss is a member of the Association and until recently was an Associate Professor in the Physics Department at Curtin University. He has been involved with designing and building dust free laboratories for over 30 years.

Bob gave a talk on dust control to the February meeting, which can be read in *Art005*.

The new workshop presented an opportunity.

I had become more concerned about dust toxicity. The workshop was mine, a greenfield site, and about the same size.

However, a few small complications. I had to share with the wife in her new dollhouse making hobby, so I built a 15m² workroom. And we had to store a caravan.

The Strata limitation precluded siting dust units outside, and banned external venting.

Suddenly there was a lot more pressure to control dust!

So the new workshop presented some opportunities, and some limitations:

- ✓ Setup opportunity
- ✓ Same size
- ✓ Share with wife
- ✓ Store caravan
- ✓ Strata limitations
- ✓ Dust abatement important



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Research causes budget blowout

Have you ever read the works of Bill Pentz? You should, and it is sobering.

I needed an indoor unit performing to high standards. I wanted user friendly arrangements of equipment, including dust abatement.

From Bill Pentz - "Of all the dust collectors I reviewed prior to 2005 only the Felder RL-160 Series Clean Air dust collector actually moved ample air and provided the filtering to make it a good indoor fine dust collection system. I presume their newer even larger RL-200 would perform even better."

- ❖ Bill Pentz (www.billpentz.com) - sobering reading
- ❖ Felder 200 is the only unit getting a Pentz tick for indoor service

Felder introduced the RL series dust collection system in 2002. The development came about as a result of much stricter standards for emissions in woodworking shops in Germany.

OK that was about as good an independent recommendation as I could get.

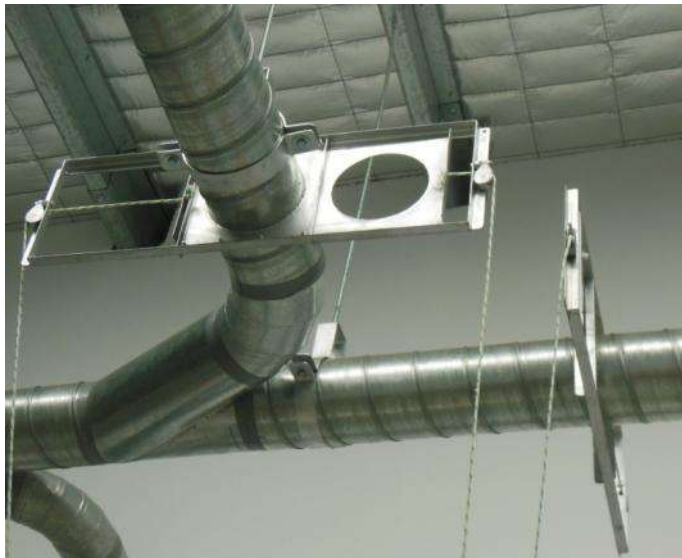
Once that decision had been made, reticulation became the issue.

The reticulation – I did not want the floor cluttered with piping, and I wanted minimum effort in connections.

The objective was to have permanent connections which are easy to service.

I decided on metal ducting.

- ❖ Metal ducting
- ❖ Big diameters
- ❖ Large radius bends



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The new dust control system

This is the Felder RL-200, supplied by KR Engineering.

Big motor, heavy; with a single 200mm diameter outlet (or inlet), flat bed filters, and a manual cleaning rod.

Good air flows; in fact with every machine connected I had better end vacuum than with the Jets.

It is reasonably quiet due to it's inbuilt muffler and has big, easy to access chip and dust collectors.



FELDER-200

K R Engineering

5.5 HP, 380 kg, 200mm connector

Anti-static filter, 20 m²

Max air flow 4,000m³/h

Nominal at 20m/sec is 2,300m³/h

With sound absorber 70dB

Two 200l chip receptacles

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The new dust control system (cont'd)

The ducting was supplied by a firm that gave great service. Highly recommend this firm.

Big pipes, excellent shutters – and I have left room for future connections to a router table, saw blade cap and small power tools.



Ducting

Elldon Metal Industries

200mm mains,

150 and 100 tributaries

Excellent shutters

Provision for future



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A work in progress

There is still a lot to be done.

- ❖ The saw is a problem.
- ❖ The bandsaw needs to be sealed.
- ❖ I am looking at how to design the sanding table and the router table with more effective dust control.
- ❖ Maintenance is higher on my list.

I finish with a suggestion. Members should regularly review their dust collection measures, say every quarter.

Ideas for small workshop dust collection, control and maintenance should be shared, and discussed with other members. It is a serious matter.



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