

Small workshop dust extraction

My workshop is a single garage that also houses the CH boiler and HW tank as well as a cycle maintenance bench/tool-board and storage of 3 bicycles.

The simple and effective system was created from 40mm waste pipe and push fittings connected to a Henry vacuum cleaner, with home-made blast gates and 38mm flexible pond hose - with various connectors.

The waste pipe run is attached to the wall with plastic pipe clips about 40cm above the bench-top level, above the electrical conduit run and power sockets. Waste pipe T-connectors are positioned at appropriate points on the pipe run with blast-gates - these were made from polycarbonate sheet and glued to the T connectors (with the flange cut off) For stability the T-connectors are fixed onto the waste pipe with a small self-tapping screw.

One end of the run is blanked off - the other end connects with flexible pond hose to a cyclone fixed to a bin made from OSB approx 40 cm cube, with all the joints on the inside caulked and a cased lid, with an all-round seal of draught excluder rubber, held closed with over-centre clamps. *[I did experiment with a plastic drum but the suction caused it to collapse]*

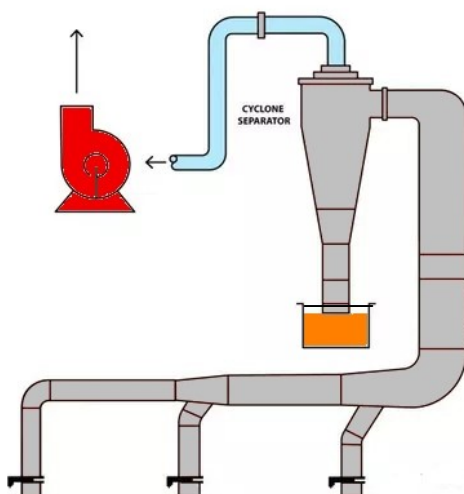
The cyclone is connected, with the same pond hose, to the Henry vacuum cleaner which, for convenience is connected to a remote control plug/socket with a fob to activate it.

Each of my machines has a hose connected to it (the ports all vary in size!) and either remain connected to the extraction system semi-permanently or are connected when the machine is in use - e.g. the mitre, track and band saws are connected all the time - the table saw is on wheels, stored under the bench with the router table and they are only connected when in use. A few hand machines (router, jigsaw, circular saw, sander) have dust-ports that can be connected to the system with a hose when in use.

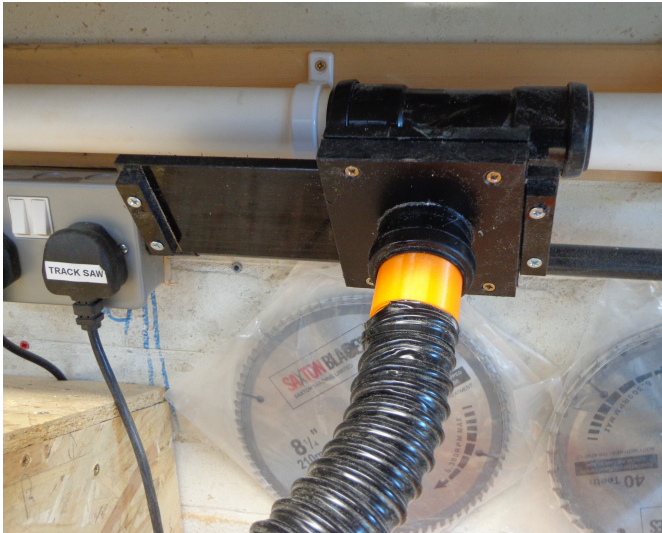
I also have a separate hose with the Henry's furniture crevice tool attached to it for cleaning up benches, machines etc. - it plugs into one of the blast gates *(Easier and quicker than disconnecting the Henry's hose from the system)*

The dust separation is excellent with very little getting past the cyclone to the Henry's bag - using the planer/thicknesser machine isn't so successful as the waste is significantly larger. The only issue is remembering to open the appropriate blast gate and switch on the suction before using each tool!

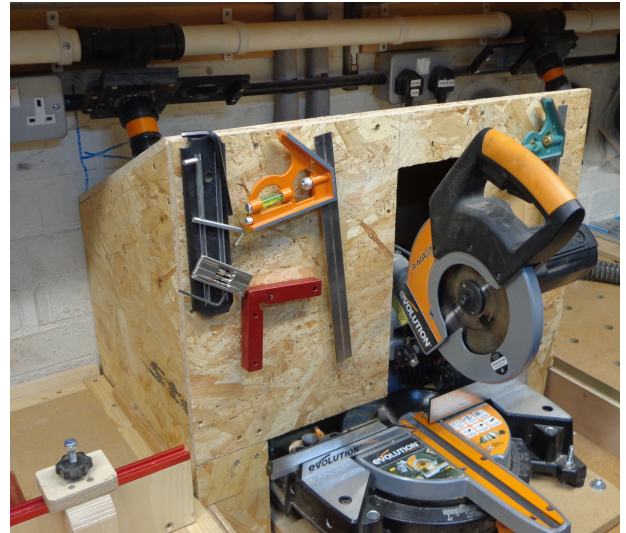
I also have a Record AC400 air-cleaner/filter attached to the ceiling - that significantly reduces the dust in the atmosphere.



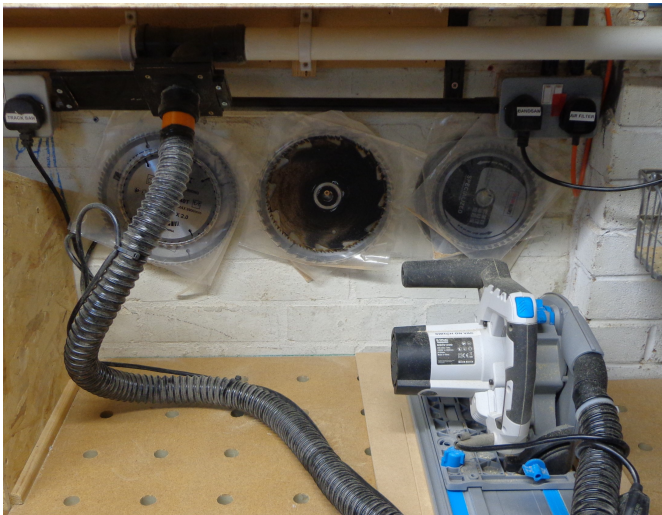
The diagram illustrates the principles of the dust extraction system - the inlets/blast gates at the bottom and the fan (vacuum cleaner) pulling the air through the ducting into the cyclone which rotates the sawdust particles to drop into the collecting bin below.



Blast gate (open)



The mitre saw enclosed in a hood to improve dust collection, connected to a blast gate



Track saw connected to a blast gate



Cyclone, sealed collection bin & Henry



Record air cleaner fixed to the ceiling (the extraction & air cleaner remotes are in their storage "pockets")

Details/suppliers

Waste pipe and fittings : Screwfix, 40mm push-fit

Blast gates : YouTube <https://www.youtube.com/watch?v=fdNuJxecQ2Q>

Cyclone, pond hose and connectors: ebay or Amazon

(The orange connectors in the pictures were 3d printed by my brother)

Total cost (excluding the Henry which we already had) for pipes, fittings, cyclone, hose etc was approx £100 (Record air cleaner was about £170)