# Bespoke engineering solution to control of dust


**Company Profile**

RecyCo provides waste processing and recycling services to businesses and local authorities in Northern Ireland. Employing approximately 50 employees, RecyCo operates two specialised recycling plants, one for processing dry recyclables and another which processes waste collected from commercial and domestic clients.

**Background**

The processing of mixed dry recyclables and construction and demolition wastes in a confined building can create an unhealthy working environment for employees caused by airborne dust. The company found that changes in processing methods alone were not enough to adequately control the health risks caused by dust. Existing control measures were heavily reliant on disposable respiratory protective equipment. Many staff found the masks uncomfortable to wear despite all staff being appropriately face fit tested.

Due to the unique design of the plant and variance in the waste streams presented for processing, the company required a bespoke engineering solution to minimise the dust hazard and improve the working environment for operatives on site.

**Implementing an effective control strategy**

The initial focus of the management team was to identify the main sources of dust within the building. The company operates from an old sand and gravel quarry meaning the general location of the site was already quite dusty. Consequently the daily movement of heavy vehicles to and from the site meant increasing amounts of dust were being carried into the internal processing areas. Exhaust and air emissions from vehicles further agitated settled dust. In addition many of the waste streams generated dust plumes particularly during handling and further processing.

Trials were undertaken to carry out wetting of the floor to the processing area and of the access roads, particularly during dry weather conditions. The action of floor wetting did result in some minor improvement to the general air quality. Wetting of floor areas did however result in floors becoming slippery particularly for mobile plant such as fork lift trucks. Dust generation from the processing of waste streams remained a problem.

The main areas within the plant identified as creating higher levels of dust were as follows:

- Processing lines and trommel
- Loading area
- Feed bunker
- Ballistic separator
- Screeners
- Baler area

Misting systems were considered as a further control strategy with several types of system being available on the market. Senior management visited other sites throughout the UK where similar systems were already being used. This proved a useful exercise in coming to a final decision regarding future investment in a suitable misting system.

It was noted that for such a system to be effective it would have to operate within the building without a detrimental effect on stock, floors, machinery or personnel.

The company approached a UK supplier and ultimately a misting system was installed that now creates very fine fog particles which are immediately separated and blown out by silent stainless steel fans. As the fog floats in the air, without dropping to the floor, it attracts airborne dust without unnecessarily wetting any waste material, machinery or personnel. The system has proved effective at keeping dust supressed within the internal work areas.

A further advantage of such a system is that it can be split into separate zones, with each zone capable of operating independently.

With the introduction of the mist air system, employees have noted significant improvements in the air quality within the internal processing area making the work area a healthier environment in which to work.