



**Client and Application:**

An American Fortune 500 paint company contacted us to add a dust collection system for their electrostatic paint line. This leading paint manufacturer, located in Southern Ontario, has roots in Canada dating back to the 19th Century and is among the largest producers of paints and coatings in the world.

The dust collection system needed to be upgraded to comply with the most current fire and explosion protection systems. Having the stakeholders in mind, the system needed to optimize the dust collection in every part of the process while preserving optimal manufacturing temperature inside the plant. The project goals were:

- Capture airborne particulate generated in all the processes of the plant
- Replace obsolete dust collectors
- Reduce the equipment footprint
- Preserve plant energy and temperature
- Comply with the highest safety standards and comply with the Ontario Ministry of Labour, Ontario Fire Code, and NFPA

**Solution:**

A model DFE 4-48 cartridge dust collector from Donaldson was selected due to its small footprint and high airflow capacity. This unit was able to replace three existing dust collectors handling a total airflow of 39,360 CFM. The engineering design, including ductwork and hoods by AST, allowed for the air to be returned into the plant optimizing the air temperature and producing a wash down effect. This was accomplished by returning the air back into the plant through two main diffusers. One recirculated the air to an adjacent warehouse and the other directly into the production area. This kind of approach creates a constant negative pressure inside the production area. The air returned into the plant is cooled down during the summertime using a high efficiency coil with chilled water. The challenging ductwork design, comprised of more than 60 individual pickup points, was properly balanced by the AST engineering team, achieving proper conveying capture and conveying velocities in each hood. The 250 hp fan on the dust collector is automatically controlled through real time airflow measurement to compensate for the static pressure fluctuation from the filters. After one year in service the dust collector is performing without any filter changes.

- Ductwork has a clamped mechanism that allows for easy future modifications for proper maintenance and access to production equipment
- Dry fire suppression system
- Air cooling coil with HEPA filters
- Textile air return diffuser across the production and warehouse
- Particulate monitoring sensor
- Membrane explosion vents and no return valve
- Rotary airlocks to super sacks
- Cladded 250 HP fan to maintain less than 80dBA noise level at 3 ft and less than 75 dBA on the property line

**Equipment:**

- One (1) DFE 4-48
- Two (2) rotary airlocks
- 250 HP backwardly inclined fan
- Air cooling coil
- VFD control panel with automatic airflow control
- Particulate sensor
- Dry fire suppression system
- Membrane explosion vents
- Monitored no return valve

**Installation pictures:**



**Industry:**

Paint

**Contact:**

For an update on the performance of the system, please contact:

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