



# N.R. MURPHY LTD.

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## DUST COLLECTORS

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CONESTOGA  
Connect Life and Learning

### Background

Established in 1967, Conestoga College has established itself as a premier hub for education and hands-on apprenticeship training - servicing over 32,000 students as of 2024. In a significant move to meet the rising demand for skilled trades education, Conestoga College opened its state-of-the-



art Skilled Trades Campus, a 322,000-square-foot facility dedicated to training the next generation of trades professionals. With over 150,000 square feet of shops and labs, including welding, fabrication, and grinding areas, the new campus is designed to provide industry-aligned training in industrial, manufacturing, and construction trades. To ensure a safe, clean environment that meets the rigorous demands of these hands-on training spaces, Conestoga

College entrusted N.R. Murphy Limited to supply four advanced cartridge dust collectors. This custom system is specifically configured to handle the high particulate output from the campus's Fabrication Shop, Grinding Shop, and two Welding Shops, providing superior air quality for students and staff. The project had a tight timeline to ensure that the collectors were ready and installed before the campus opened, and students were to start their semesters, allowing for a smooth and uninterrupted start to their hands-on training.

## Design Criteria

The project aimed to deliver a powerful and reliable dust collection system with several key objectives:

1. Ensure efficient capture and filtration of particulate matter across multiple high-demand shops.
2. Minimize energy and compressed air usage to support sustainability goals.
3. Integrate advanced features for enhanced system performance and user-friendliness.



## Equipment Specifications & Features

N.R. Murphy Limited's dust collection solution features four robust cartridge dust collectors, including a model CP-12-3-3 (rated for 24,476 C.F.M.), a CP-10-3-3 (rated for 19,917 C.F.M.) and two CP-3-3-3 (each rated for 4,500 C.F.M.). Accompanying the four dust collectors, were four fans, the largest of which was our BINOL 3300 fan, paired with a 100 H.P. motor capable of servicing the largest of the welding shops. These dust collector's were equipped with some advanced features including:

- Photohelic Gauges: These gauges are calibrated to optimize compressed air use by adjusting the cleaning cycles only when necessary, significantly reducing overall compressed air requirements and contributing to campus sustainability.
- Fire-Retardant Nanofiber Cartridge Filters: For enhanced safety and durability, the dust collectors are equipped with fire-retardant nanofiber filters, which are engineered to capture fine particulates effectively while adding a layer of fire protection in high-heat environments.

The combination of these features ensures efficient particulate capture while supporting reduced energy consumption and greater operational control, aligning with Conestoga's goals of sustainability and operational efficiency.

## System Quick Facts

- 53,393 total C.F.M.
- MERV-15 filtration efficiency.
- Range from 1.10:1 to 1.50:1 air to filter ratio.
- Up to 1000 H.P. premium efficiency motors
- Photohelic gauges to control pulse sequence for maximum efficiency.
- Soft starter exhauster starters to reduce maximum electrical draw.
- Inlet explosion isolation valves on each collector.
- Each collector fitted with ducting silencers and fire dampers.

## Challenges & Solutions

A key challenge of the project was to design a dust collection system that could effectively service the expansive workspace while fitting within a compact footprint in a dedicated utilities enclosure. To meet this requirement, N.R. Murphy Limited engineered two of the collectors with top-mounted exhaust fans, optimizing vertical space to minimize their overall footprint. Additionally, the systems utilized stackable cartridge filters arranged in a three-high configuration, further reducing the square footage needed without compromising airflow or filtration capacity.



## Results & Takeaways

With the installation of the four collectors, Conestoga College's fabrication, grinding and welding shops have created a safe, clean learning environment for both students and staff. N.R. Murphy Limited is proud to have contributed a high-quality system to a school renowned for their development of next generations of industry and trades people.