



N.R. MURPHY LTD.

DUST COLLECTORS

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UNI-FAB

Background

Uni-Fab, a global provider in customer fabrication, and one of the largest in Ontario, is renowned for their industry-leading solutions for automotive, aerospace and machine tool manufacturers. With the construction of their brand new state-of-the-art 52,000-square-foot fabrication shop in Leamington, Ontario, they

required a dust collection system that matched the exceptional quality of their products. Specializing in MIG and TIG welding of black iron, aluminum, and stainless steel grade 304, Uni-Fab sought a general ventilation solution that would ensure high air quality standards and a safe environment for its employees. To meet these demands, Uni-Fab chose N.R. Murphy Limited to supply a comprehensive, high-efficiency dust collection system specifically tailored to



handle the heavy particulate load generated by diverse welding processes and materials. The total scope of the project required 6 separate dust collectors, each rated for 25,000 C.F.M. at 3,920 F.P.M. with 10" of static pressure. This project coincided with the supply chain disruptions and labour shortages brought on by the COVID-19 pandemic, and hence N.R. Murphy Limited provided a clear lead time, where the collectors would be delivered in 3 separate times, which coincided with the ramp up of the new facility operations.

Design Criteria

The goal was to design and deliver a dust collection solution that would ensure reliable, high-capacity airflow while maintaining manageable noise levels across Uni-Fab's expansive shop floor and outside their facility. Key project objectives included:

1. Providing robust dust collection to capture fine particulate from both MIG and TIG welding processes.
2. Minimizing noise impact inside and outside the facility.
3. Delivering the system on time to support Uni-Fab's operational schedule.
4. Ensure the dust collection system matches the building's decorative aesthetic.



Equipment Specifications & Features

N.R. Murphy Limited supplied six CP-9-6-1 model dust collectors, each rated for 25,000 CFM, to deliver consistent and high-volume dust collection across Uni-Fab's shop floor. The CP-9-6-1 units featured advanced nanofiber cartridge filters, which were rated MERV 15, meaning it would capture up to 94% of dust particles sized from 0.3 to 1 micron.

In addition, each dust collector featured a 60 H.P. remote mounted exhaust fan, with sound ratings of 66 LpA when fully ducted at 10' distance. Coinciding with the quiet exhaust fan, N.R. Murphy Limited supplied their dissipative duct silencer complete with acoustical quality fibreglass media. These system features, combined with an oversized return line, ensured the concerns around noise impact were satisfied.

The entire dust collection system was painted in a custom light grey to match the façade of the building, ensuring no disturbance to the meticulously planned building aesthetic.



System Quick Facts

- 150,000 Total C.F.M. @ 3,920 F.P.M.
- Each collector rated for 10" static pressure.
- MERV-15 filtration efficiency.
- 1.46 to 1 air to filter ratio.
- 60 H.P. premium efficiency motors
- Dual manifold compressed air storage
- 17,010 sqft. of filter media (per collector).
- Field adjustable time and dwell controls.
- Variable frequency drive starters.
- 9 truck loads to ship.
- 65,322 lbs of steel.

Challenges & Solutions

The project was executed amidst global supply chain disruptions and labour shortages due to the COVID-19 pandemic. Before accepting the project, N.R. Murphy Limited created a clear delivery timeline, that would suffice Uni-Fab's requirements. They also mitigated some of these challenges by:

- Proactively sourcing alternative suppliers for key materials.
- Collaborating with logistics teams to optimize delivery schedules.
- Make concessions on input costs to have some materials pre-cut for fabrication.

Results & Takeaways

Despite the challenges, N.R. Murphy Limited delivered the project on schedule, meeting Uni-Fab's needs without a delay. The dust collection system's high airflow capacity and nanofibre filters have ensured that Uni-Fab's brand new facility maintains a clean and unblemished workspace. N.R. Murphy Limited is proud to have assisted Uni-Fab in creating a world-class fabrication space to support their product excellence.

The successful execution of this project underscores N.R. Murphy Limited's expertise in delivering top-tier dust collection solutions and reaffirms their reputation as a trusted partner in the industry. Through their collaborative efforts, N.R. Murphy Limited has helped to establish a benchmark for outstanding workspace conditions and superior air quality, enabling Uni-Fab to continue excelling in their field.