Alberta medical center needed duct cleaning before opening

Three years of construction at an Edmonton, Alberta, diabetes research facility had left the building's HVAC and closed-loop high-efficiency air filtration systems full of dust.

Before the HVAC was to be turned on for the first time, the architect demanded it be cleaned up. The project wouldn't be easy. The problem wasn't just getting to the ductwork — the filtration systems for each laboratory were made of TIG-welded stainless steel tubing with limited access. The system used multiple branch lines up to 60 feet long. Most ducts were installed behind painted gypsum wallboard and concrete.

That made use of traditional techniques such as manual brushes, whips and contact vacuuming impossible. One contractor tried a video-guided air-whip system, but it didn't work very well on the smooth, shiny stainless steel.

A look at the stainless steel ductwork from the floor. Much of the ductwork was hidden behind concrete.

The inside of the ductwork in the medical facility before Lloyds Systems' was able to clean it. Note the whip marks in the remaining dirt.

Lloyds Systems of Rapid City, S.D., was contacted to see if it could help. The company is well known for using robotics to tackle difficult commercial and industrial indoor-air-quality problems. Its engineering team decided the best approach was to use a compressed-air-driven axial-rotating remote control robotic brush, which would ensure the entire duct surface was cleaned. It delivers ½ horsepower at 90 pounds per square inch — enough to remove the debris.

As the cleaning was under way, an on-board digital video system recorded the procedure. A handheld version of the robotic system was used to clean the smaller chases.

Thanks in part to Lloyds' efforts, the project was completed on time and under budget.

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