Niagara Research

Niagara College research team helps Abatement Technologies innovate through product re-design

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While you might not notice the hum of your late-model refrigerator during the hustle and bustle of the day, the noise it emits in the quiet of the night can get downright annoying.

The makers of isolation-room equipment from Abatement Technologies faced a similar problem with their portable in-room HEPA filtration systems. The design of the equipment – used to isolate hospital patients with infectious airborne pathogens – had a noise level that affected the comfort of the patients.

To improve their product, Abatement Technologies turned to Niagara Research, the Research and Innovation Division of Niagara College, which works with small and medium-sized businesses to meet their innovation goals, and to keep them competitive.

With funding from various provincial and federal agencies, current students and recent graduates are hired to work alongside faculty to help industry partners leap forward in the marketplace.

Abatement Technologies produces a line of HEPA-Care®portable air filtration units that are widely used in the health-care industry. These units are used to convert hospital rooms into CDC-compliant negative or positive pressure isolation rooms to eliminate the spread of Infectious Airborne Pathogens such as Severe Acute Respiratory Syndrom, or SARS.

The Niagara Research team worked on improving the HC800F model , which had a noise level on par with one of those humming late-model refrigerators. The team initiated the project with goals of reducing the level by 3 dBA, a factor of 2, while maintaining the current airflow performance and operating efficiencies, and keeping the unit cost within 15 per cent of the original.

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Michael Holderney, left, senior research associate, and Andrew Harber, general manager, Abatement Technologies, discuss modifications to one of the company's air filtration units.

"Companies such as Abatement help push the envelope of how we apply technology in industry and in our classrooms," says Costa Aza, researcher and industry liaison. "The partnership has also enabled us to better prepare the students who further their hands-on learning through co-op placements."

In the end, the team offered to Abatement a working prototype that surpassed the initial goals, by reducing noise levels by 5 dBA – or a reduction in the sound power level of 68 per cent, and at a unit cost reduction of seven per cent.

The prototype also maintained the unit's baseline airflow performance.

"Abatement Technologies is already seeing an uptake in sales as a result of our work with Niagara Research," notes Andrew Harber, general manager of Abatement, a company that was recently nominated in the International Trade category of the Niagara Entrepreneur of the Year Awards.

"We are indeed a satisfied client, and thoroughly enjoyed working with both faculty and students to address our engineering challenges."

The Niagara Research team also delivered a production drawing package for Abatement Technologies to implement the new, improved unit design, along with documentation on testing that the company can use to test performance aspects on their other units.

This project was made possible with funding from the Applied Research and Commercialization Initiative through the Federal Economic Development Agency of Southern Ontario.

Niagara College, through its Research and Innovation Division, will continue to support collaborative research projects in various disciplines that may involve product and process applied research, engineering design, technology development, product testing, proof of concept, and piloting and problem solving. Nearby small- and medium-sized businesses can benefit from gaining access to the College's adept faculty, students, and recent graduates and exploring opportunities for innovation.

To learn more about partnership opportunities with Niagara Research, contact research@niagaracollege.ca or visit www.NiagaraCollege.ca/Research