N. R. MURPHY LIMITED

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# British Columbia Institute of Technology
# Burnaby, B.C.

## Background

BCIT is the largest post secondary technical teaching institution in British Columbia with extensive carpentry and woodworking trade programs, amongst others. These disciplines are taught in two adjacent complexes (NE2 and NE4), housing a varied and growing number of machines. The dust collection equipment consisted of relatively small, and in some cases, dated packaged units ranging from cyclones to cyclones with afterfilters providing approximately 60 hp of capacity on five separate pipe systems.

Increasing complaints regarding work conditions, air quality, inside and outside housekeeping, combined with the acquisition of high-tech high speed machinery brought into focus the need for greater and substantially improved dust collection capacity.

Neat Architectural Appearance in a Picture Postcard Setting

In 1995, NDL Consultants Ltd. Mechanical Engineers, (formerly J. Poon & Associates, Inc.) were engaged to address the problem. Their challenge was to apply industrial systems and solutions to a technical teaching facility; they redesigned the dust collection systems to accommodate two additional baghouses and fans. As part of their review, they surveyed available equipment manufacturers and identified N. R. Murphy Limited as the company providing the most appropriate equipment for BCIT's dust collection requirements. Energy Technology Products Ltd., the exclusive Murphy representative in Western Canada, worked closely with the consultants in selecting equipment responsive to the requirements and scope of the 1995 project. Funding restraints delayed implementation of the project until the early part of 1997 by which time significant additional woodworking machinery was in service or on order for the program.

## Design Criteria

NDL Consultants Ltd., were again commissioned to examine the new requirements for NE2 and NE4. With a broader mandate and appropriate funding, they did a 100% redesign of the dust collection systems and determined that the new requirements dictated that the five existing collectors be replaced by six new units totaling 135 hp of capacity. Existing pipe systems were used whenever possible.


**Minimal Space Requirements for Duty**

The criteria for equipment selection included the following: adequate filtration and attenuation to allow for recirculation of filtered air for energy conservation; compact design to minimize space requirements for outdoor installation; equipment noise not to exceed acceptable levels for the campus; user friendly container removal of accumulated waste; architectural appearance that blended in with BCIT's objective of tidying up the campus. Of course, cost effectiveness was the underlying premise for the entire project.

## Equipment Specifications

- Six Murphy MK Series intermittent shaker style baghouses with efficient top mounted EA-1 backward inclined radial tipped Murphy fans of various sizes driven by 15 to 30 hp motors.

- Shaker mechanisms incorporated into control panels providing for automatic filter reconditioning each time the fan is shut off.

- Custom designed support structures to accommodate existing waste removal bins and in two systems, also the existing support structures.

- Custom designed air-tight bin covers designed and provided by the installing contractor, Pascoe Williams Mechanical Ltd.

**User Friendly Container Removal - Tremendous Suction Power. Note Empty Container Lifted Off Pad.**

## Implementation

The entire project was competitively tendered in late July, 1997 with a target completion date of December, 1997. In late August, the successful contractor, Pascoe Williams Mechanical Ltd., contracted with York Sheet Metal to do the sheet metal work and Energy Technology Products Ltd. to provide the dust collection and fan equipment manufactured by N. R. Murphy Limited. Ian Williams, principal of Pascoe Williams Mechanical Ltd. felt confident that the quality, credibility and reputation of these companies would serve him well in meeting the specifications and tight deadlines inherent in the project.

The initial site meeting was held in early September. Fabrication drawings for the dust collection equipment were prepared, reviewed and cleared for fabrication by the first week of October. The six units were on site by the first week of December. Pascoe Williams Mechanical Ltd. removed the old and installed the new equipment as it arrived and, through superb coordination, managed to facilitate startup of the systems on schedule, despite the fact that classes were being conducted in the two buildings throughout the process. In the words of David Lee, principal of NDL Consultants Ltd., "it took a total cooperative effort by the entire project team, including the Murphy engineering and production departments, to complete this major project with minimal disruption to BCIT".

NE2 and NE4 no longer have the airborne dust and draft problems inside. The outside perimeter of the buildings no longer has telltale evidence of the activity inside the building except for the presence of the dust collectors which have solved the housekeeping problem outside.

The challenge of this project was to provide an industrial system to service a classroom environment using industrial equipment and standards for instructor and student safety. N. R. Murphy Limited is proud to have been part of the solution and of its association with BCIT and all the professionals involved.

- **Quiet**
- **Breathable**
- **Filtered Return Air**

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