



## TRADES TRAINING CENTRE, NORTHERN LIGHTS COLLEGE, DAWSON CREEK



### Building section

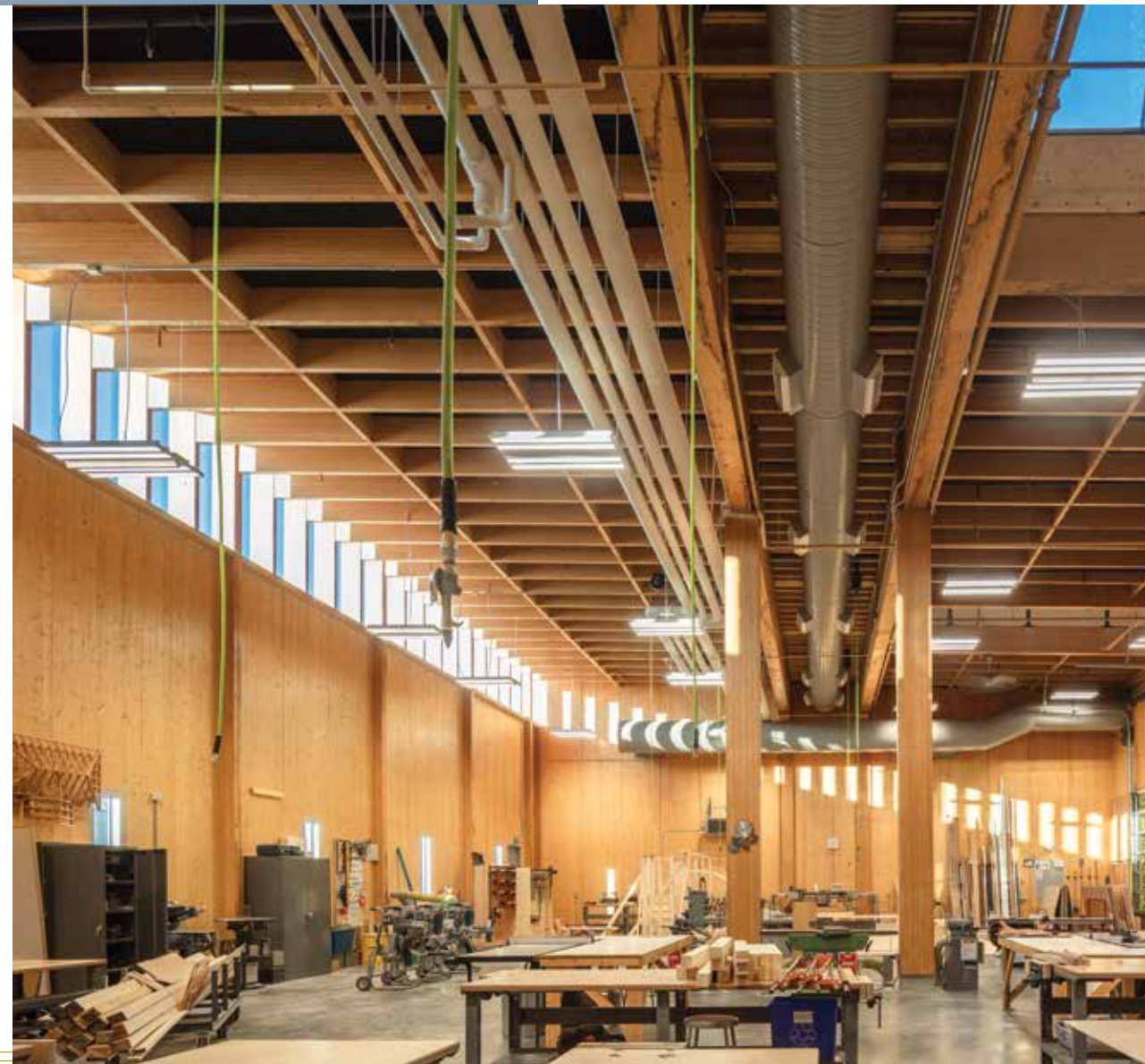
- |                    |                      |                        |
|--------------------|----------------------|------------------------|
| 1. Student commons | 4. 2nd floor commons | 6. New entry courtyard |
| 2. Shop commons    | 5. Service parking   | 7. Existing building   |
| 3. Work yard       |                      |                        |

The Trades Training Centre in Dawson Creek, Canada provides workshops for the instruction of carpentry, welding, plumbing, millwright, and wind turbine technology, as well as student commons, classrooms, and offices. Tailored to the northern climate, the project inverts trades building typology to suit collaborative, multi-disciplinary trades education. Mass timber construction is used for efficiency and is exposed within the building to create practical spaces humanized by wood materials, colour and natural light. The project recently achieved LEED 'Gold' certification.

Dawson Creek is a remote resource town of 13,000 residents in northeast BC, dependent upon the oil and gas industry. It is very cold, with long nights and temperatures that regularly dip to -40°C during the winter.

The project is an addition to Northern Lights College. The new building provides a clear identity for the campus, by fronting the haphazard former military base with a single long façade and addressing the town's main road with a large coloured clerestorey along its full length - animated by LED lights that harken to the aurora borealis. Sheltered courtyards around the new building counter the sprawling pattern of a town that lacks pedestrian amenity.

Demand for heat and shelter is extreme in this northern climate. The design responds by providing a renewable campus energy system centered around a large-scale biomass boiler fueled by waste wood from the region's forest industry. The south-facing elevation of the building was designed as a solar wall to utilise the strong winter sunlight to pre-heat intake air for the building's mechanical ventilation system. Where conventional trade training facilities use large outdoor 'boneyards' for storage and training activities, this space was enclosed at Northern Lights, and the exhaust air from other fully conditioned spaces used to temper the space during cold periods.



This project provides a model for trades college design in a cold climate, working from first principles and using mass timber to create a sustainable, practical, people-oriented environment – and handling the technical requirements of extensive workshop equipment.

Mass timber construction created opportunities for integrating architecture and systems:

- Constructability was enhanced by prefabrication of roof panels and CLT wall panels
- Wood structure reduces the size of the piling foundations required for frost heave
- Exposed mass timber provides a ready surface for fastening equipment and building systems, which must remain exposed to allow flexibility in the workshops
- Wood columns provide lateral support for the clerestorey and mitigate glare
- The wood interior, integrated with acoustic surface treatments, provides exceptional acoustic performance to temper the noise of workshop tools

Reflective of trades work, the design is practical and efficient in its orthogonal form: a carefully calibrated box that responds to functional needs and the human desire for warmth, natural light, and social interaction.

### CREDITS:

- CLIENT** Northern Lights College  
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**MECHANICAL ENGINEER** Rocky Point Engineering  
**ELECTRICAL CONSULTANT** Jarvis Engineering  
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