



Langdon
Elementary School
CGC Group
SpaceKeeper

Strathmore, AB





The Project

The Langdon Elementary School in Alberta required a complete retrofit of their heating and cooling system. The school wanted the benefits of cost savings without the higher up-front expenditure usually associated with putting in an energy efficient system.



Horizontal SpaceKeeper

The Solution

The project consisted of 41 horizontal SpaceKeeper units with a two pipe heat recovery loop utilizing a dry type fluid cooler for heat rejection and a hot water gas fired boiler for heat injection. All systems are controlled by a computerized building management system. A small school with big savings!

Annual hours unit cooling operation – 478 Electricity at 11.7 cents/kWh
Annual hours unit heating operation – 2,725 Cost of Gas at \$9.00/MCF

Canadian IYP Heat Pumps – Heating is at the cost of gas less any recovered heat from cooling.

1 MCF*0.87% EFF/3413 Btu per kW= 255 KW
At \$9/255 = 3.5 cents per kW output.

Vs

WSHP heats with 75% from boiler and 25% from electric compressor
 $(75\% * 3.5) + (25\% * 11.68) = (2.63) + (2.92) = 5.55$ cents per kW output
58.6% increased cost!

Annual savings projected at \$22,000 (over \$536 per unit per year)!

Additional savings came from a 25% reduction in the required horsepower/pump flow. The compressor also does not operate during heating, reducing service and maintenance costs. The result is the first energy efficient system without major installation cost incursions.

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