

Dunstan High School 650kW, Alexandra

Dunstan High School is a 560-pupil secondary school serving a large rural catchment in and around Alexandra, Central Otago, New Zealand. The school is in one of the coldest parts of the country, with temperatures regularly plunging well below zero during the winter. The town is also subject to high levels of particulate air pollution from open fires and poor quality combustion in wood and coal burners.



Through the *Renewable Heating in Schools Programme*, an EECA initiative, Living Energy undertook a detailed survey of the existing boiler plant and the actual heat demand at the school. This resulted in the installation of a single, high-efficiency 650kW Binder woodfuel boiler in place of the existing 1.4MW coal boiler. Where a like-for-like replacement would have been the norm, Living Energy's experience in sizing wood fired boilers meant that the school saw a reduction in boiler size of over 50%, with the same level of performance in their heating system. This delivered significant cost savings, greater system efficiencies and lower air emissions.

The project involved the removal of the old boiler, its fuel recovery system and a complete remodeling of the fuel store. The boiler room was refurbished and extended to accommodate a 15,000 litre accumulator tank, an important component in wood-fired installations which smooths the load on the boiler and allows the system to meet peaks in demand without increasing the size of the boiler itself. The highly-automated Binder boiler has a robust underfed grate system which allows it to burn wood fuels with a moisture content of up to 35%. Fully automated ignition, fuel feed, self-cleaning boiler tubes and integration with the existing controls have revolutionised the heating system, freeing up the property manager from the unpleasant daily routine of de-ashing and clinker removal. Living Energy manage the supply of fuel and perform the maintenance and servicing on the system.



Installation Summary	
Client	Dunstan High School
Location	Alexandra, Central Otago
Boiler Type	Binder RRR/RRF 640-850
Rated Output	650kW
Wood Fuel Type	Wood fuels ≤35% MC
Date of Commissioning	April 2009



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