

ÖkoFEN Pellematic

Case study and user feedback
from NZ install



Netherton School, Paeroa

- ÖkoFEN Pellematic 64kW boiler
- 8.5 tonne (42.5MWh) Flexilo pellet fuel storage hopper
- Vacuum fuel supply system
- Weather compensated heating control with mixing valve
- PWM low energy circulation pumps
- 1,000L buffer for peak heat load
- HX for separation of pressurised boiler and existing low pressure radiator system
- Automatic burner plate cleaning and ash removal system
- Online monitoring & controls

Low carbon, renewable pellet fuel

- Netherton school previously emitted 9,810kg CO₂e per year from burning coal to heat the school
 - Equated to 73kg CO₂e per pupil or an average modern car travelling over 44,590km. More than once around the world
 - Coal boiler was labour intensive for caretaker, being lit every day, and created an unhealthy working environment with coal dust and high particulate emissions, plus local sulphurous emissions for children
- ✓ OkoFEN Pellematic boiler system will emit around 110kg CO₂e per year to heat the school
 - ✓ **99% reduction in carbon emissions**
 - ✓ Equates to less than 1kg CO₂e per pupil per year or a journey of 500km, for example from Netherton School to Wellington, one way
 - ✓ Particulate emissions extremely low, no sulphur
 - ✓ New Zealand made wood pellets are used as fuel
 - ✓ Wood pellets in NZ are manufactured from wood waste – sawdust and wood shavings from the wood processing industry, diverted from landfill

Feedback from pellet boiler customer

- Netherton School received 100% from Ministry of Education Sustainability Contestable Fund to replace their aging coal boiler with an ÖkoFEN Pellematic boiler and bulk pellet fuel storage hopper
- The system was installed during July 2020 school holidays and has been working very well since. Feedback from the Principal:

The new boiler system is great. Our classrooms are beautiful and warm every morning with a consistent heat. Previously, the old boiler did take hours to warm up and by 10.00am most mornings the heat would start to disappear.

Our caretaker has described it as "boring" (in a good way) as he was always having to shovel coal each morning. The time would be set from 6.00am-10.00am where as with the new system it is automated and has a pre-set temperature. The boiler system will keep working until the outside sensor reaches 18 degrees.

Our caretaker has learnt to empty the ash box and is learning to troubleshoot as he learns more about the system.

We have found the environment to be much cleaner and obviously economical.

I showed the whole school at assembly the journey of the wood pellets and how it works- they thought this was really interesting.

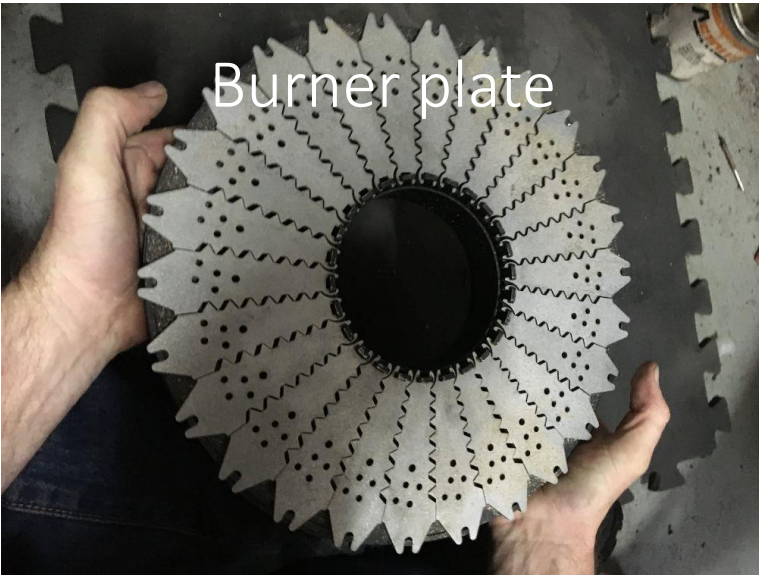
The new boiler system fits perfectly within our Enviroschools kaupapa. Sustainability is always our overarching theme and we feel very fortunate to be able to do our bit for the planet and teach the children about sustainable practices.

We have found the correspondence and support from all agencies involved with us getting the new boiler system extremely helpful.

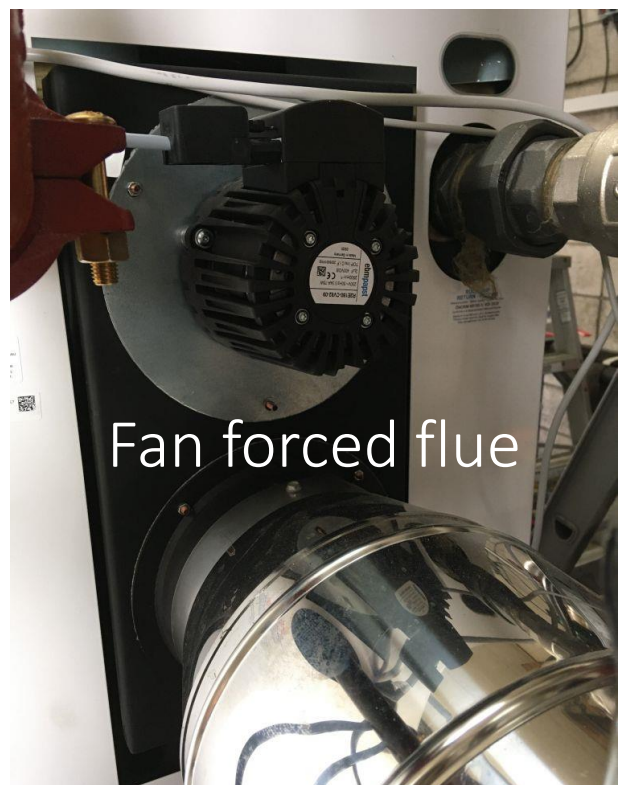
Thanks

Brook Hill, Principal, Netherton School

Pellematic system components in detail



Pellematic system components detail



Pellematic system components detail



Online access to Pellematic system monitoring & controls


ÖkoFEN Logout

SCHOOL HEAT HC1 18/08/2020 11:32

Op. Mode	Room Temp Heating
Auto	22 °C
Room Temp Set Down	Time Selection
18 °C	Time 1
Display name	Time Program
School heat	Time Program
Sol Heating	Party
Vacation	Heating Curve

VALUES

	Act	Set
Outside Temperature	16.9 °C	
ACC1 TPO	75.1 °C	75 °C
ACC1 TPM	74.3 °C	75 °C
ACC1 Pump	0 %	
HC1 Flow Temp	46.5 °C	47.3 °C
HC1 Pump	On	

 **Thames, NZ**
light rain 11 to 15 °C

ÖkoFEN Logout

TIME PROGRAM 18/08/2020 11:32

Mo	Tu	We	Th	Fr	Sa	Su
	03:01	—	12:00	0 K		
	00:00	—	00:00	0 K		
	00:00	—	00:00	0 K		
Mo	Tu	We	Th	Fr	Sa	Su
	02:01	—	12:00	0 K		
	00:00	—	00:00	0 K		
	00:00	—	00:00	0 K		
Mo	Tu	We	Th	Fr	Sa	Su

VALUES

	Act	Set
Outside Temperature	16.9 °C	
ACC1 TPO	75 °C	75 °C
ACC1 TPM	74.2 °C	75 °C
ACC1 Pump	36 %	
HC1 Flow Temp	46.4 °C	47.3 °C
HC1 Pump	On	

 **Thames, NZ**
light rain 11 to 15 °C

Online access to Pellematic advanced boiler and heating system controls



Logout

HEATING CURVE

18/08/2020 12:13

RT set: 22°C

Update graph Heating Curve

Off 2.2

Base Point H Limit Heating

45 °C 18 °C

H Limit Set Back Advanced Run Up

7 °C 180 min

VALUES

	Act	Set
Outside Temperature	17.3 °C	
ACC1 TPO	83.9 °C	75 °C
ACC1 TPM	78.3 °C	75 °C
ACC1 Pump	10 %	
HC1 Flow Temp	47.5 °C	8 °C
HC1 Pump	Off	

Thames, NZ
light rain 13 to 17 °C

Online access to Pellematic advanced boiler and heating system controls



Logout



PELLEMATIC 1
18/08/2020
12:15

Op. Mode
Auto

Values

Blocking Time

OT Reg

Ignition

Full Power

Shutdown

Ash Clean

Boiler Clean

Neg Draft

FRT Control

Filling Level

B Ctrl Pump

Suction Turb

Settings

VALUES

	Act	Set
PE1 Boiler Mode	Run On Time	
PE1 Boiler Temp	83.1 °C	8 °C
PE1 Comb Chamber T	295.5 °C	8 °C

Thames, NZ
light rain 13 to 17 °C

Performance graphs from 27th & 28th July online monitoring from Netherton School

