

# Woodleigh School Baxter Campus Homestead Project Phase 2 in Langwarrin South, VIC



**aquatherm**  
state of the pipe



*aquatherm blue pipe Ti is a socket fusion and butt welded system, using rigid prefabricated PUR foam insulation sockets.*

Opened in the 1970's, Woodleigh High school, based at Langwarrin South (VIC) on the Mornington Peninsula, is an independent, progressive school with an emphasis on independent thought. The Woodleigh School Baxter Campus engaged a design team for the design of three new Homestead buildings to replace the existing. For the phase 2 works, Cundall in Melbourne was engaged to provide building services design. Phase 2 consisted of the demolition of three existing homesteads and construction of three new modern homestead buildings and associated plant. The works were planned to be carried out in stages.

A central energy plant approach was adopted to provide long term whole of life benefits to the school in terms of operating and replacement costs, as well as the future flexibility to expand to serve the future three Homesteads. Part of the building services design, was the design of a district (in trenches) heating water (HHW) and chilled water (CHW) pipe system.

Some of the services strategies catering to the project objectives were as follows:

- Durable and low-maintenance materials and services.
- Economical construction and

economical operating costs.

- To establish a viable, sustainable, professional and modern technological school operation.
- Design a functional building and inherent flexibility.

For the underground HHW and CHW pipework Cundall specified pre-insulated medium pipes made of Polypropylene pipes, including a Polyurethane type of insulation and a casing pipe made of Polyethylene. An example of an acceptable pipework system was the aquatherm blue pipe Ti system, manufactured by Aquatherm.

Some advantages of the aquatherm blue pipe (Ti) system are:

- aquatherm blue pipe (Ti) is made of a corrosion resistant material, being PP-R (Polypropylene Random Copolymer).

This eliminates future internal or external corrosion issues and provides longevity.

- Less pipe roughness = 0.0070 mm (less friction head loss; smaller pumps).
- Low Thermal Conductivity ( = 0.15 W/mK vs = 384 W/mK for copper or = 50 W/mK for carbon steel). Less insulation required, since the R-value of aquatherm blue pipes contributes to the overall R-value, in accordance to the NCC Section J requirements.
- Recyclable material.
- Light in weight (density = 1,000 kg/m<sup>3</sup>); 8x lighter than steel, 9x lighter than copper.

This might save you hiring a crane to lift the pre-insulated pipes.

- Less linear expansion ( = 0.035 mm/mK).

Since the thermal expansion forces of aquatherm blue pipe Ti are less than for pre-insulated metal pipes, for in ground aquatherm blue pipe Ti pipework, **no thrust blocks are required.**

- Very good chemical resistance.
- High impact strength and ring stiffness.

- Easy processing (socket fusion and butt welding).

No heavy welding gas cylinders or open flame insurance required, as with the welding of steel or copper pipes.

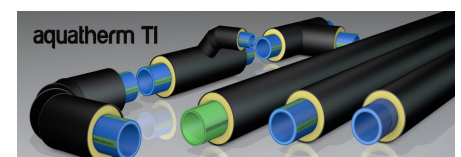
The aquatherm blue pipe Ti system uses aquatherm blue pipe Ti Insulation sockets to join every fitting-pipe and pipe-pipe connection. The Insulated Sockets come with rigid prefabricated PUR foam elements. No on-site mixing of the correct quantities of foam chemicals is required. Mixing the correct foam chemicals can be difficult at high ambient temperatures, especially under Australian weather conditions.

Using the aquatherm blue pipe Ti Insulation sockets saves the contractor labour time.

Aquatherm Australia Pty Limited supplied the approx. 1km of L= 5.8mtr. and L= 11.6 mtr. Ø32-Ø160 aquatherm blue pipe Ti pipes and fittings, via a 40' EX Germany sea freight container, directly on site. Free training, welding tools and site support were provided by Aquatherm technicians.



*Woodleigh School Homestead*



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