RHCS
RADIANT HEATING & COOLING SOLUTIONS
Capability statement
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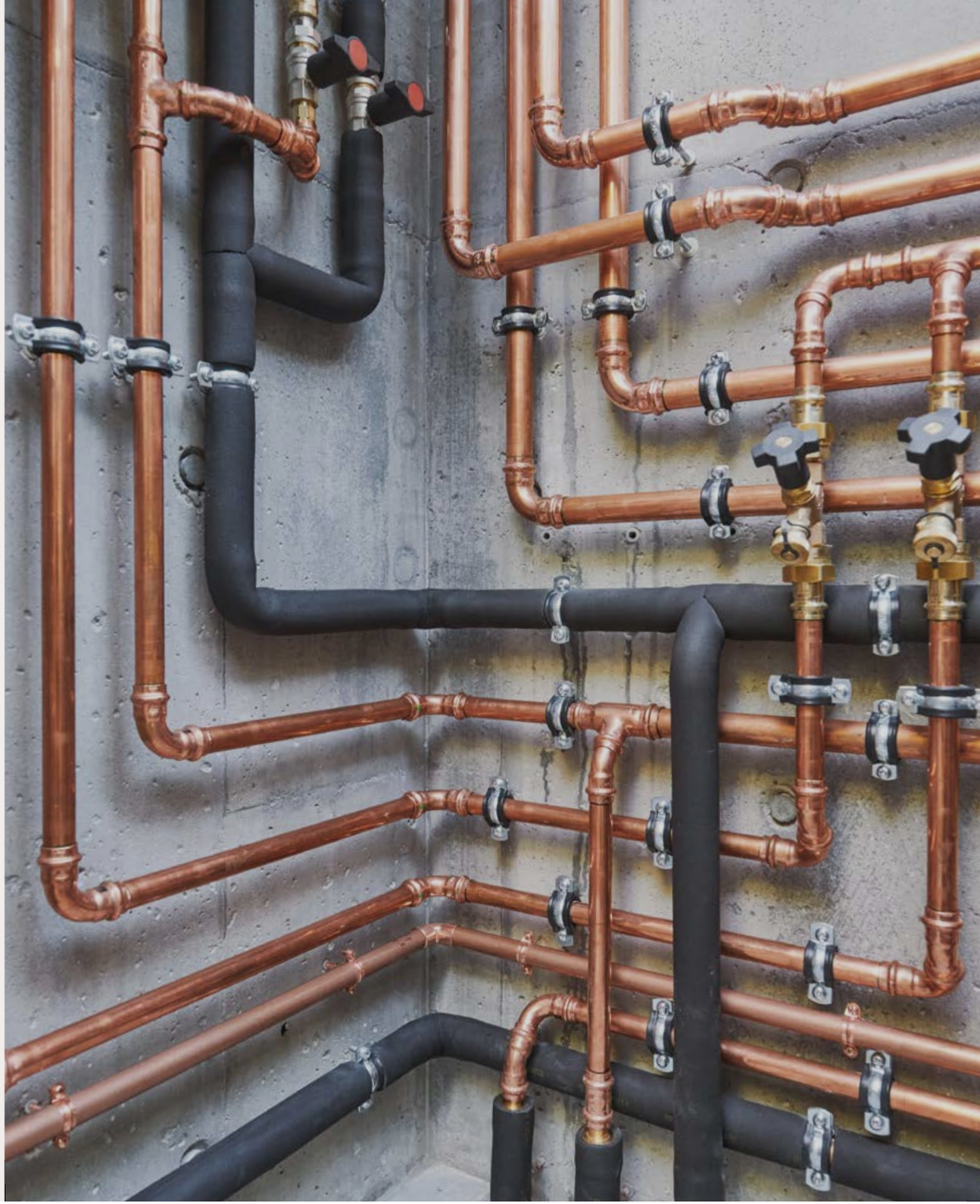


Acknowledgment of Country

RHCS acknowledges the connection of First Nations people with the land and communities in which we work.

We pay our respects to Elders past, present and emerging.

Our story

Create, Innovate, Deliver

Above
Nundle Residence

Left
Bondi Boot Factory

At RHCS, we lead the way in sustainable heating and cooling solutions, offering unparalleled expertise in partnership with industry giants like Caleffi.

As a part-owned subsidiary, we leverage their cutting-edge technologies and global experience to deliver innovative solutions tailored to our clients' needs. With our team of highly trained installers, we ensure the seamless integration of our climate systems, guaranteeing optimal performance and energy efficiency.

Our dedication to excellence is showcased through our dedicated air source and ground source experience centre, where clients can witness firsthand how we redefine comfort and sustainability. Collaborating with some of Sydney's premier builders and architects, we take pride in the quality of our designs and installations, setting new standards in the industry.

Moreover, our commitment to excellence extends beyond our team, as we work closely with a network of trusted delivery partners to ensure every project is executed flawlessly, from conception to completion. At RHCS, we don't just install systems; we create lasting solutions that exceed expectations.

Our vision is to be recognised as your HVAC contractor of choice. We want you, the decision maker, to have absolute comfort in knowing we can apply our knowledge, skills and processes to your specific needs, and to develop the solution that is right for your situation.

Our difference

Design first, don't pay later

Energy systems are complex by their nature and need to be designed carefully to ensure they work at an optimal efficiency. Although most manufacturers provide basic designs to get their equipment working, RHCS will exceed these basic designs and ensure the equipment is designed to work optimally with the overall system.

By having our own in-house design team, RHCS are able to bring the full force of our installation experience to bear on projects and will always tailor the solution to meet the particular needs of your site. The main benefit of our custom designs can be seen in the system's long-term efficiency.

Your Installation partners

By choosing RHCS as your installation partner for your heating and cooling system project you are choosing one of the most experienced teams in Australia.
Over the last ten years we have gathered invaluable experience from over 1,000 installations. This knowledge is employed on every installation we complete.

By directly employing our own teams we can assure quality and have tighter control on how the installation progresses. We do not use sub-contractors except where they bring specialist skills to the project such as borehole drilling.

In addition to our experienced installation teams, we have dedicated project managers who will ensure your installation project runs as smoothly as possible whilst keeping you updated every step of the way.

A common point of reference

There are of course other advantages to each project having a clear set of designs such as allowing us and other contractors to manage the work on site.

This way the trenches are dug in the right place, boreholes are drilled as needed, and the contractor doing the Domestic plumbing knows how their work fits with ours. This helps you manage costs as all stake holders in the project will have a common point of reference.

Our trusted partners

CALEFFI Hydronic Solutions
ekinex
DAIKIN
Genius Energy Lab
OLIMPIA SPLENDID HOME OF COMFORT
STIEBEL ELTRON
reece
MITSUBISHI ELECTRIC

Our difference

We feel fortunate to be a company that people want to work for, who are proud to wear the shirt and share common goals. This allows us to get the best people for the job with the right technical skills, right attitude and right approach to service delivery. We are dedicated to building a team from diverse backgrounds that complement each other, creating opportunities for career growth and allowing individuals strengths to shine through. Whether that is through mentoring, formal or informal training or new additions to the team, we stay focused on building the expertise as a team.

10 Years of excellence

Our team brings a strong track record of excellence - proudly designing, constructing, integrating and maintaining Machanical HVAC systems across Australia since 2014.

Design

We engineer high-efficiency geothermal systems tailored to your site's unique thermal properties, leveraging advanced modeling from Genius energy lab (UK). Our designs maximise energy extraction while minimizing environmental impact—ensuring your system operates at peak performance for decades.

Installation

Our expert team delivers precision installations with minimal disruption, whether for high-end homes, commercial spaces, or industrial sites.

We adhere to strict quality standards to ensure long-term reliability and efficiency.

Asset protection

Geothermal systems are a long-term investment. We integrate protective measures—from corrosion-resistant materials to system redundancy—to safeguard your infrastructure against wear, extreme weather, and fluctuating energy demands.

24/7 monitoring

Proactive care is key. Our smart monitoring systems track performance in real-time, allowing remote adjustments and early fault detection.

This reduces downtime, optimizes efficiency, and extends system life.

Retrofits

Upgrading older buildings? We specialise in seamless geothermal retrofits, adapting our solutions to existing structures without compromising efficiency. Lower carbon emissions and energy costs—without the need for a full rebuild.

Flexibility

Every project has unique challenges. Our systems are modular and scalable, designed to fit space constraints, budget requirements, and evolving energy needs—future-proofing your property.

Why we're different

While others focus solely on installation, we deliver end-to-end green energy solutions. From design to monitoring, we prioritise sustainability, cost savings, and cutting-edge technology—ensuring your geothermal system outperforms conventional alternatives.

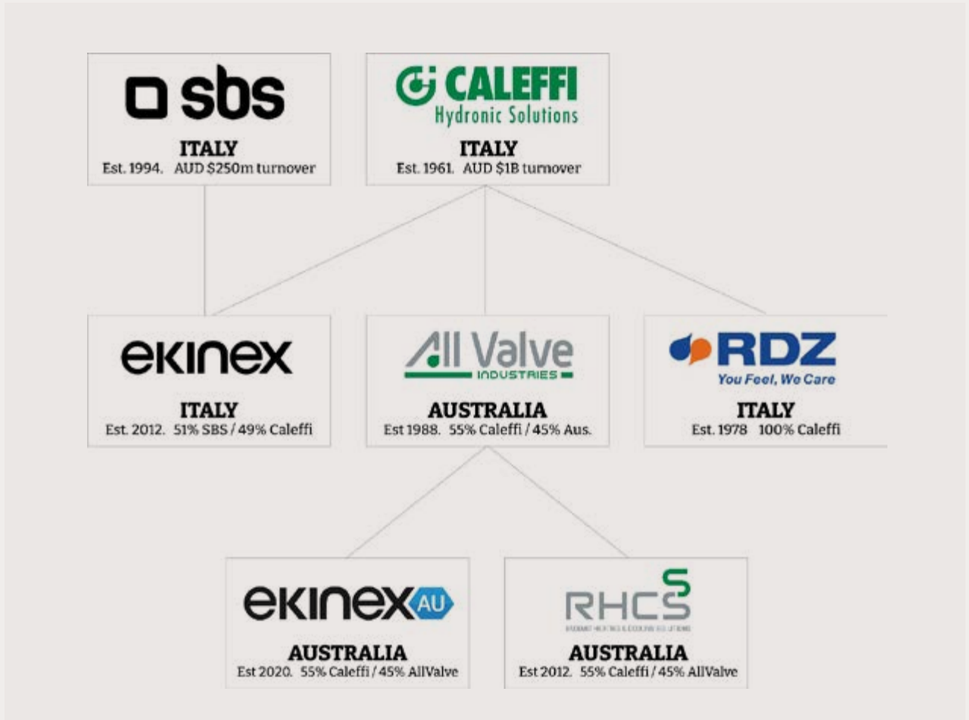
Our General Manager - James, has drawn on 25 years of industry experience in the UK, USA and Australia, and a plethora of qualifications to help shape a company with a solid reputation of excellence in service delivery and safety. He has surrounded himself with talented long-term staff who hold complementary skills and qualifications, which in turn, has created a business that has become renowned for technical accuracy and a deep understanding of how to integrate technologies to provide high quality results. Out staff are encouraged to foster innovation and are empowered to make decisions and think on their feet, in order to maintain or accelerate momentum and resolve challenges for our clients.

Company structure

Our company is part owned by the Caleffi Group, which also encompasses RDZ – a specialist Italian manufacturer of underfloor heating and cooling systems. With Caleffi and RDZ providing resources and training on the latest products, technology and standards, RHCS has been able to incorporate these developments into systems designed for local conditions to provide superior heating and cooling solutions for the Australian market.

In 2019, Ekinex became a part of the Caleffi Group, thereby providing extensive controls functionality and integration into Caleffi and RDZ's hydronic heating solutions. Ekinex's complimentary range of controls is not only a natural extension for climate control, but also has the ability to be integrated into a full home automation system, thanks to it being built on the KNX Standard.

To take advantage of Ekinex's improved capabilities, RHCS was quick to adopt the technology and employed the services of a qualified and competent specialist programmer to support the range.



Testimonials

When we moved into our house last year, just as winter was setting in, we realised we needed to retrofit 2x 30yr old gas boilers for our underfloor heating system. After trying to get quotes, install times from other vendors, Radiant were able to come out on short notice and inspect our system / requirements. Sizing the system was quite complex given the type of piping used in original build, the layout of our house, expected usage of each section and the potential heat loss from single pane windows.

Within a few weeks, Radiant were on on site installing 2x new electric heat pumps including the relocation of DHW units / buffer tanks to make better use of our internal space. Once installed, our house was nice and warm throughout the depths of a Southern Highlands winter and the efficiency of the unit was much better, and I continue to gain efficiencies through minor adjustments (timer settings, buffer tank temperatures etc) which I discuss with the Radiant team. Been a pleasure to work with Jimmy and Josh.

Ben McCallum

Stop before you do anything with your home heating or cooling, or specifically geothermal or with heat pumps, talk to these guys. We've had a very complicated geothermal heating system, multiple heat exchangers, underfloor heating, pumps and also water cooled AC.

Jimmy and the team were the only ones who knew absolutely everything that needed to be done to get it working properly, efficiently. Not only that they explained everything along the way and made sure the system and us as the users were operating it and it was properly setup. My only wish is that we'd engaged Radian Heating and Cooling earlier in the process it would have saved so much time and effort.

These guys solved lots of problems others couldn't and set the system up much better and with more reliability. They are always ready to answer a quick question and very responsive. I rarely write reviews but these guys really deserve the review and you'll be very happy you engaged them. Thanks Jimmy and team !

James Spenceley

Schiavello Construction (NSW) was engaged by Waverley Council to finalise the construction of the Bondi Boot Factory Adaptive Reuse Project at Bondi Junction. Schiavello Construction (NSW) contracted the Geothermal ground heat exchanger header pipework scope works to RHCS, whom provided specialist input into the design of the pipework system to allow for an efficient and defect free installation.

The team at RHCS was a pleasure to deal with during construction & would recommend them for any future projects.

Graeme Ingram – Construction Manager

Our capabilities

End-to-end geothermal solutions

We specialise in delivering cutting-edge geothermal heating and cooling systems, providing full turnkey solutions for high-end residential, commercial, and industrial projects. Our expertise ensures energy-efficient, sustainable, and cost-effective climate control, tailored to meet the demands of any scale or complexity.

Ground Heat Exchanger Design

In collaboration with Genius energy lab (UK), we design precision-engineered ground source heat exchange systems, optimizing thermal performance for any site conditions.

Hydronic Underfloor Heating (UFH)

Luxury comfort and energy efficiency for high-end residential properties, paired with smart zoning and control.

Advanced Control & Automation

Intelligent monitoring and control systems for seamless integration, remote management, and peak performance optimization.

Mechanical System Design

Customized HVAC and geothermal mechanical systems that maximize efficiency, reliability, and long-term savings.

Commercial & Industrial District Heating (DHE)

Scalable geothermal solutions for offices, retail spaces, warehouses, and industrial facilities—reducing carbon emissions and operational costs.

From bespoke luxury homes to large-scale commercial and industrial developments, RHCS delivers sustainable, future-proof geothermal energy solutions. Let us harness the Earth's natural energy to meet your project's unique needs.

Case studies.

Ellerston residence

We are proud to have completed the installation of the world's largest privately owned residential geothermal system. Stage 1, with an initial capacity of 300kW, has been successfully commissioned and is operating as planned. Designed to scale up to nearly 1MW over multiple stages, the system efficiently provides heating, cooling, pool heating, and domestic hot water (DHW) for several buildings. This innovative system utilizes STIEBEL ELTRON heat pumps connected to 80 geothermal probes, to be extended to 90 in stage2, each measuring 120 meters in depth. The system significantly outperforms the previous fossil fuel-based setup in both efficiency and sustainability.

Air Conditioning | Pool Heating | Home Automation | Vertical Ground Heat Exchanger

Environmental Impact and Emissions Reduction

The former LPG-based heating system consumed 4,500 MJ per hour, equivalent to around 44.6 US gallons of LPG, each gallon emitting 5.6 kg of CO2. Over a typical 6-month heating season, with the pool maintained for 14 hours daily, this system emitted 14,268 kg of CO2 annually.

With the switch to geothermal energy, CO2 emissions are reduced by 70%, eliminating nearly 10,000 kg of emissions each year. This switch not only reduces the property's carbon footprint but also significantly boosts energy efficiency and sustainability.

Key Features of the Project

- 80 geothermal boreholes, each 120 meters deep, provide substantial thermal storage capacity.
- 250mm primary flow and return lines, extending 300 meters to a remote bore field, facilitate efficient heat transfer.
- Duty/standby Grundfos pumps working off differential pressure, fabricated off site.
- 3 WPEI 87 heat pumps, with plans for expansion to 9 units, offer increased capacity.
- 150mm stainless steel pipework in the plant room guarantees durability and efficient heat exchange.
- 300kW pool heating capacity, ensuring sustainable year-round heating.
- 600kW forced air heating and cooling, providing reliable climate control for all buildings.
- 1MW scaling potential, allowing future expansion to meet the needs of additional buildings.
- Installed by Radiant Heating & Cooling Solutions, experts in Geothermal.
- Controlled by the award-winning Ekinex control platform.

Expert Installation by Radiant Heating & Cooling Solutions

As the mechanical contractor for this project, Radiant Heating & Cooling Solutions expertly handled the design and installation of the radiant heating and cooling systems. Our team skillfully installed the geothermal probes (GHEX), ensuring optimal placement for maximum heat extraction. We fabricated large sections of stainless steel piping off-site to streamline the process and ensure precision during installation.

The plant room was meticulously designed and compacted to ensure efficiency while maintaining an aesthetically pleasing look. Our attention to detail and use of top-quality materials helped ensure the system's long-term durability and performance, providing the owner with a reliable, energy-efficient solution for both heating and cooling. Designed in partnership with GeoExchange Australia.

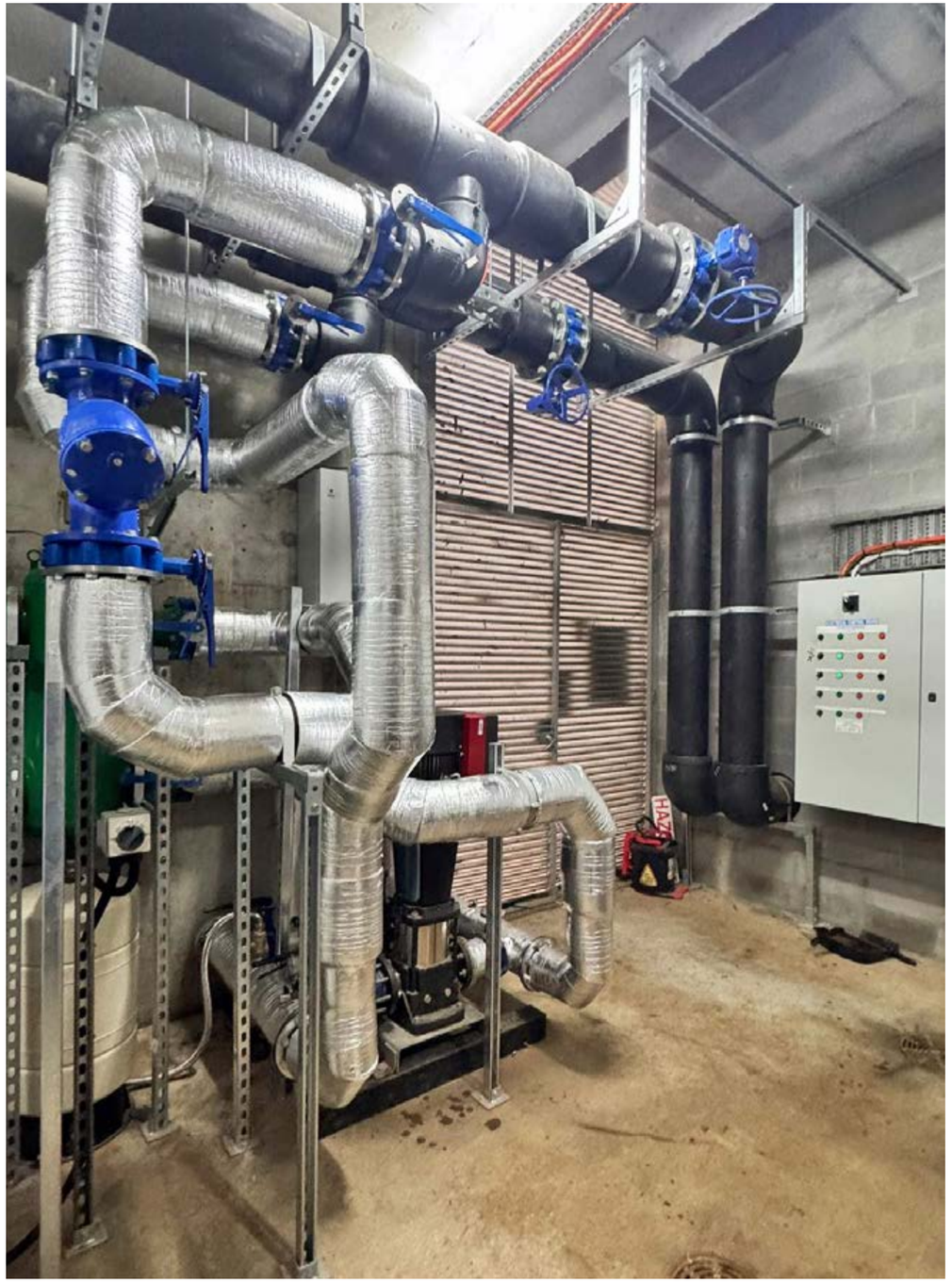
Energy and Cost Savings

The geothermal system is projected to save approximately $300,000 annually, thanks to its superior efficiency compared to traditional fossil fuel-based systems. These savings will benefit the property owner financially while supporting Australia's shift toward renewable energy solutions.

A Model for Sustainable Energy

As the project advances, it will serve as a model for large-scale residential geothermal energy systems. The innovative integration of STIEBEL ELTRON heat pump technology demonstrates the potential for cleaner, more efficient heating and cooling systems in residential applications.

RHCS is proud to be part of this groundbreaking project, underscoring our commitment to sustainability, energy efficiency, and reducing carbon emissions. Together, we are shaping the future of renewable energy in Australia.



Nundle residence

Radiant Heating and Cooling Solutions designed and installed the underfloor heating for this award winning home in rural NSW. Our NewPlus in screed underfloor panel system reduces energy losses and provides a solid base for the polished concrete floor used throughout the home. Hydronic heating is luxurious low energy heating when powered by a high efficiency heat pump and rooftop solar panels. RHCS was contracted by Blue Eco Homes for complete design, supply and installation of the hydronic underfloor system in living areas and bedrooms, as well as electric underfloor heating used in the bathrooms. Digital programmable controls from Heatmiser manage all the daily heating demands with maximum efficiency and convenience.

Underfloor heating | Domestic Hot Water | Hydronic Radiators | Home Automation | Horizontal Ground Heat Exchanger

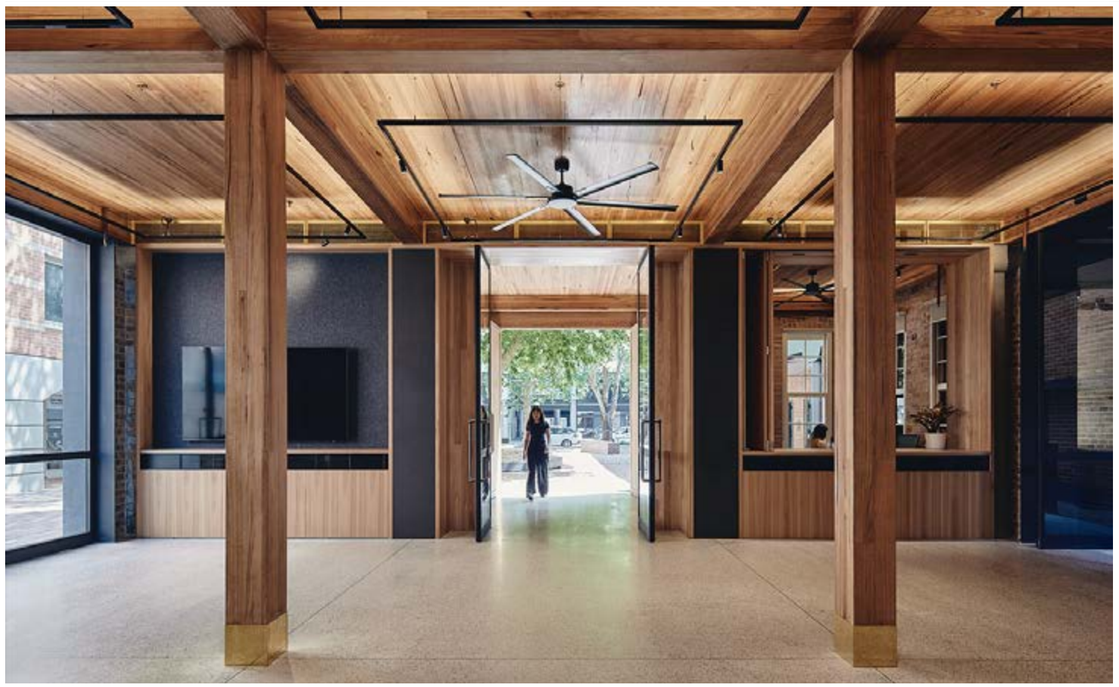
Boot Factory

The project incorporates ground-source heat pumps and high-efficiency water-cooled VRF air conditioning systems into a seamlessly integrated and highly sustainable services design. RHCS was engaged for the geothermal project on this unique development for Waverly Council and was designed in partnership with GeoExchange Australia. The scope included 13 vertical probes extending to 125 meters, along with a complex horizontal reverse return header system and 125mm copper primary flow and return lines. This was all installed within a confined space, alongside other trades, making it one of our most rewarding projects. Despite being mobilized at the eleventh hour, we successfully delivered the system on time and within budget. The ground heat exchanger will supply energy to a large, water-cooled VRF system, providing both heating and cooling to the building.

Air Conditioning

Vertical Ground Heat Exchanger

BOOT



BOOT FACTORY

Esplanade, Mosman

The Esplanade project features design and installation of a cutting-edge, energy-efficient mechanical system for a luxury residential development in Mosman, with geothermal heating, underfloor heating, VRF climate control, and high-capacity DHW storage. RHCS delivered a world-class, energy-efficient mechanical system for the ESPLANADE Mosman project, setting a new standard for sustainable luxury residential design. The integration of geothermal, hydronic, and VRF technologies ensures superior comfort, reduced energy consumption, and exceptional performance.

Pool Heating | Spa Heating | Underfloor Heating | Home Automation | Air Conditioning | Domestic Hot Water | Vertical Ground Hear Exchanger

Esplanade, Mosman

Key Project Highlights:

Geothermal Heating via Vertical Ground Heat Exchanger

- 10 x 120m deep geothermal probes installed, providing sustainable and highly efficient ground-source heat exchange.
- Significantly reduces reliance on traditional energy sources, lowering operational costs and carbon footprint.

Radiant Underfloor Heating (RDZ UFH) Throughout

- A high-performance underfloor heating system ensures even, comfortable warmth across all living spaces.
- Energy-efficient low-temperature operation complements the geothermal system.

Precision Climate Control with Mitsubishi Water-Cooled VRF

- 14 individually zoned Mitsubishi VRF systems provide flexible and efficient heating and cooling.
- Water-cooled technology enhances performance and energy savings in a high-demand residential setting.

Luxury Pool & Spa Heating

- Dedicated hydronic pool heating system ensures optimal temperature control for year-round use.
- Spa heating system delivers rapid warm-up and consistent performance for enhanced comfort.

High-Capacity Domestic Hot Water (DHW) Storage

- 1000-litre DHW storage system meets the high demand of a luxury residence, ensuring uninterrupted hot water supply.
- Energy-efficient design integrates seamlessly with the geothermal and VRF systems.

Project Success

- Innovative & Sustainable Design – Combines geothermal energy, radiant heating, and advanced VRF for maximum efficiency.
- Luxury & Comfort – Tailored solutions for pool, spa, and living spaces elevate the resident experience.
- Reliable Performance – High-capacity systems ensure long-term durability and low maintenance.

Thank you

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