www.saveatvaportec.com

Email: save@vaportec.co.nz

Spirex™ and Vaportec Ltd is a privately-owned New Zealand manufacturing company. It has been operating since 1997 and provides many environmentally and economically sensitive heat exchangers. Spirex™ and Vaportec Ltd focusses heavily on the green environment, affordability and being socially responsible.

While operating locally, Spirex™ and Vaportec Ltd also has international coverage. It has a high-volume joint venture in Pudong, Shanghai, China, manufacturing titanium swimming pool heat pump heat exchangers for a Global Corporation OEM under License from Vaportec Ltd, NZ. It has Patented New Zealand and Chinese Intellectual Property for various processes and designs. It currently trades under the brands, Vaportec and Spirex.

Efficiently Forward into the Future with Vaportec's S.A.V.E. Tubes

SPIREX. AND. VAPORTEC. ECONOMIZER. TUBES

- **Save Money**
- **Save Energy**
- **Save Our Planet**
- **Save Hot Water**
- **Save our Council's Resources**
- **Save on National Electricity Grid**
- **Save on Rural pumps**
- **Save on Gas Heated Water**
- **Save on Solar Hot Water**
- **Save on Wood Fire Hot Water**
- **Save on maintenance parts**

Basically, wherever there is a shower used there is savings with S.A.V.E.

Currently, Vaportec / Spirex has several products under its flagship category: **S.A.V.E.**

The Spirex form is used in all the various models of heat exchangers that Vaportec manufacture and enhances the Coefficient of Thermal Transfer by approximately 300% over straight tubing (Ref: Auckland University Tests).

Vaportec Limited now supplies Vaportec Spirex Heat Exchangers Worldwide through its Global Licensed Partners and its New Zealand Factory. The success of Vaportec cutting edge technology is due to intensive ongoing R & D and has gained a high respect Worldwide for reliability, efficiency and competitiveness. Global Corporations through to local refrigeration Companies and Plumbers are using Vaportec Heat Exchangers daily somewhere in the world!

Heat Transfer Tubes

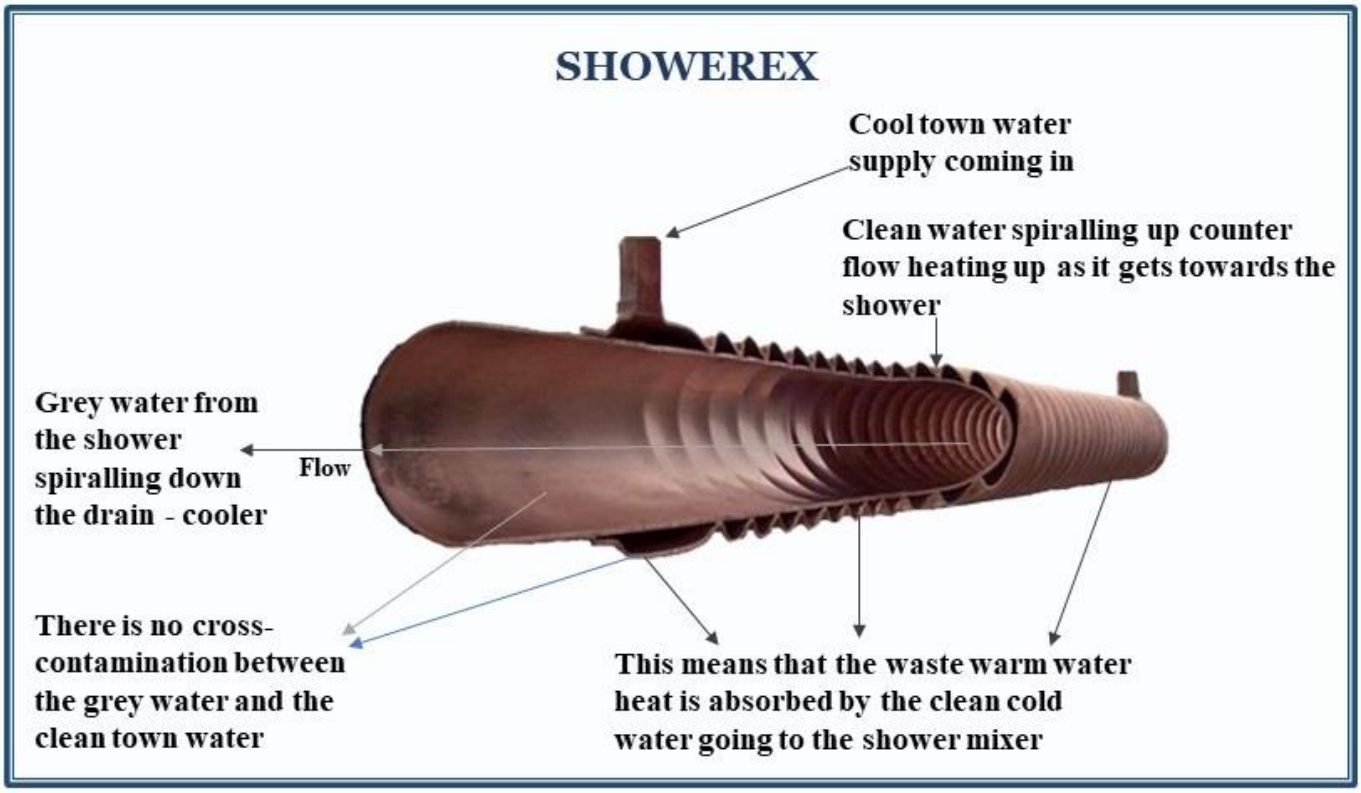
Enhanced heat transfer tubes, otherwise known as enhanced surface tubes are characterized by changes in shape to effect improvements in heat transfer performance compared with orthodox heat exchanger tubes of circular cross section. In this regard, enhanced heat transfer tubes are different from extended surface tubes. This is achieved by superimposing fins on the inside or outside surfaces, and using additional sections inserted inside the tubes or grooves.

Spirex (IPR: Intellectual Property Right)

The inherent advantages of Spirex tube began with the formation of the spirals. This method increases the surface area over a shorter lineal length, and combined with the induced turbulence, culminates in an enormous increase in overall heat transfer coefficient. Improvements over plain tubing include substantial increase in collapsing strength, reduction in size of heat exchangers and increased heat transfer coefficients.

The new Spirex is a helically corrugated heat transfer tubing system that lies at the heart of every Vaportec tubular heat exchanger. This new technology was developed in 2000 and is the result of ongoing development in heat exchanger manufacturing. These heat exchangers are available in a variety of materials such as copper, stainless steel and Titanium; to name a few. The dynamic properties encouraged by the helical form of **SPIREX** tube offer new and effective alternatives in:

- Heating
- Cooling
- Expansion
- Vibration
- Emission Control
- Noise Suppression
- Dryers and Aerators
- Tubes Heat Exchange
- Mixing and Separating



https://vaportec.co.nz/products/energy-drain/
https://vaportec.co.nz/

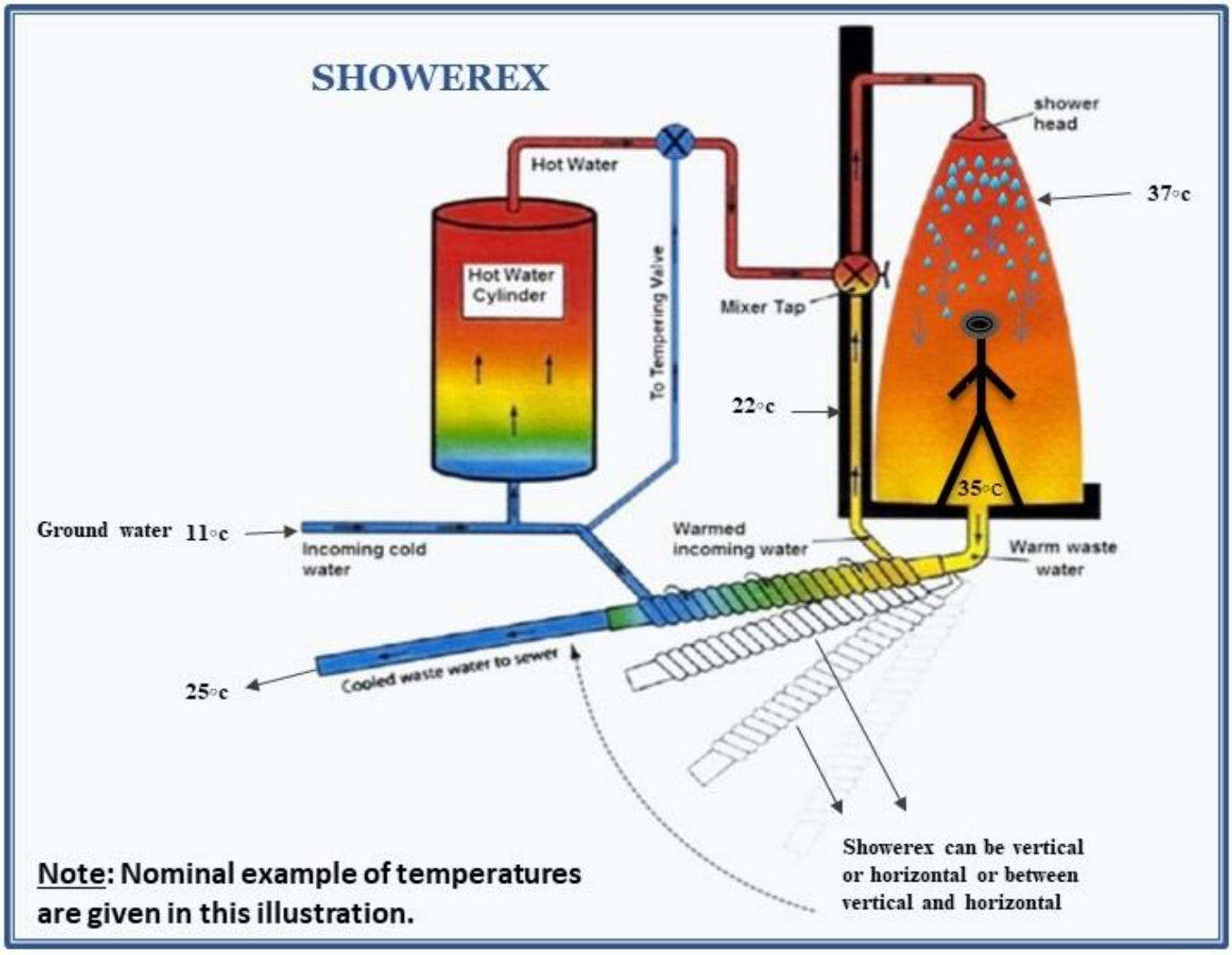
And Now -

The Showerex Tube (IPR)

Spirex Patented Tube Form - Shower Hot Water Saver

The **Showerex's** system is a unique design that utilises the patented tube form known as Spirex tubing. It is a double pipe heat exchanger. The inner tube is a standard copper drain pipe for the waste water. As the shower waste clings to the inside, turbulating as it goes, the heat is transferred through the space between the inner and outer tubes. This means that the waste hot water (grey water) and the potable incoming pre-heating cold water never touch and at the same time cools the grey water down.

The Showerex Tube (IPR)



(https://vaportec.co.nz/products/energy-drain/)

There are two lengths of Showerex available:

- Showerex 900mm, and
- Showerex 1400mm.

The lengths of the two **Showerex** allows for the incoming cold water to start heating immediately and so starts paying for itself almost instantly. Being designed and manufactured in New Zealand we ensure all materials used are compliant to New Zealand and Australia's high standards.

Showerex Pricing

Sale Price Plus GST:

NZ$420 for the 900mm & NZ$532 for the 1400mm

Off Shore Pricing:

This will entail GST/VAT, Freight, etc.

Discounts:

Discounting will be considered on the volume ordered.

There will be an offer of NZ$50 discount for the NZ Green Building Council (NZGBC) members as we all have similar environmental focus towards ensuring green building solutions.

(NZ Green Building Council - NZGBC:

Vaportec Spirex Ltd is a member of The NZGBC which provides green building certification programmes. In response to the rising interest in sustainable building practices, organisations around the world have developed standards, codes and rating systems that allow regulators, building professionals and consumers to embrace green building with confidence. In New Zealand this is facilitated by the New Zealand Green Building Council. NCGBC is a broad-based industry organisation, formed to provide leadership in green building practices in NZ. It was established in July 2005 and in 2006 became a member of the World Green Building Council (WGBC). Today NZGBC is comprised of 440 members including engineers, architects, property owners and investors who are committed to accelerating the development and adoption of market-based green building solutions that help deliver efficient, healthy, innovative buildings for NZ. These solutions are implemented through the NZGBC's Green Star rating tools, education and training for all areas of the building industry value chain, and by providing access to networks, information and resources for its members to actively lead the market.)

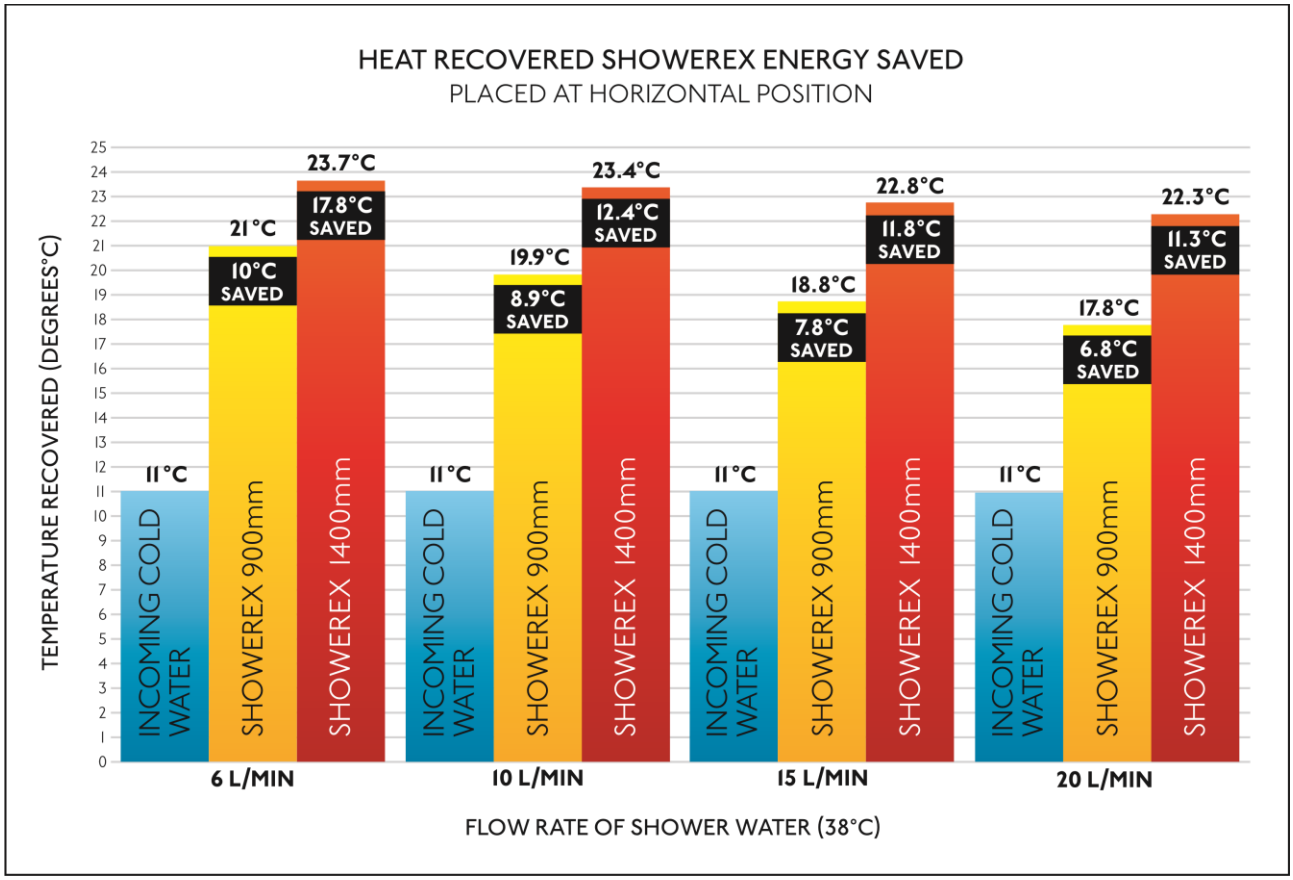
The discount is to help get more points towards your Star Rates Efficient or Credit points.

Showerex's Long-Term Benefits and Savings

Typical Household Examples

Showerex 900 Horizontal – 10 min shower at 10L per min

Savings per Shower	$0.15897		
Savings per Week	× 7	$	1.11
Savings per Year	× 365	$	58.02
Savings per Family of 4 per Year	× 4 × 365	**$**	**232.10**
Retail Cost of Showerex 900 (inc GST)		$	483.00
Annual Return on Investment			**48%**



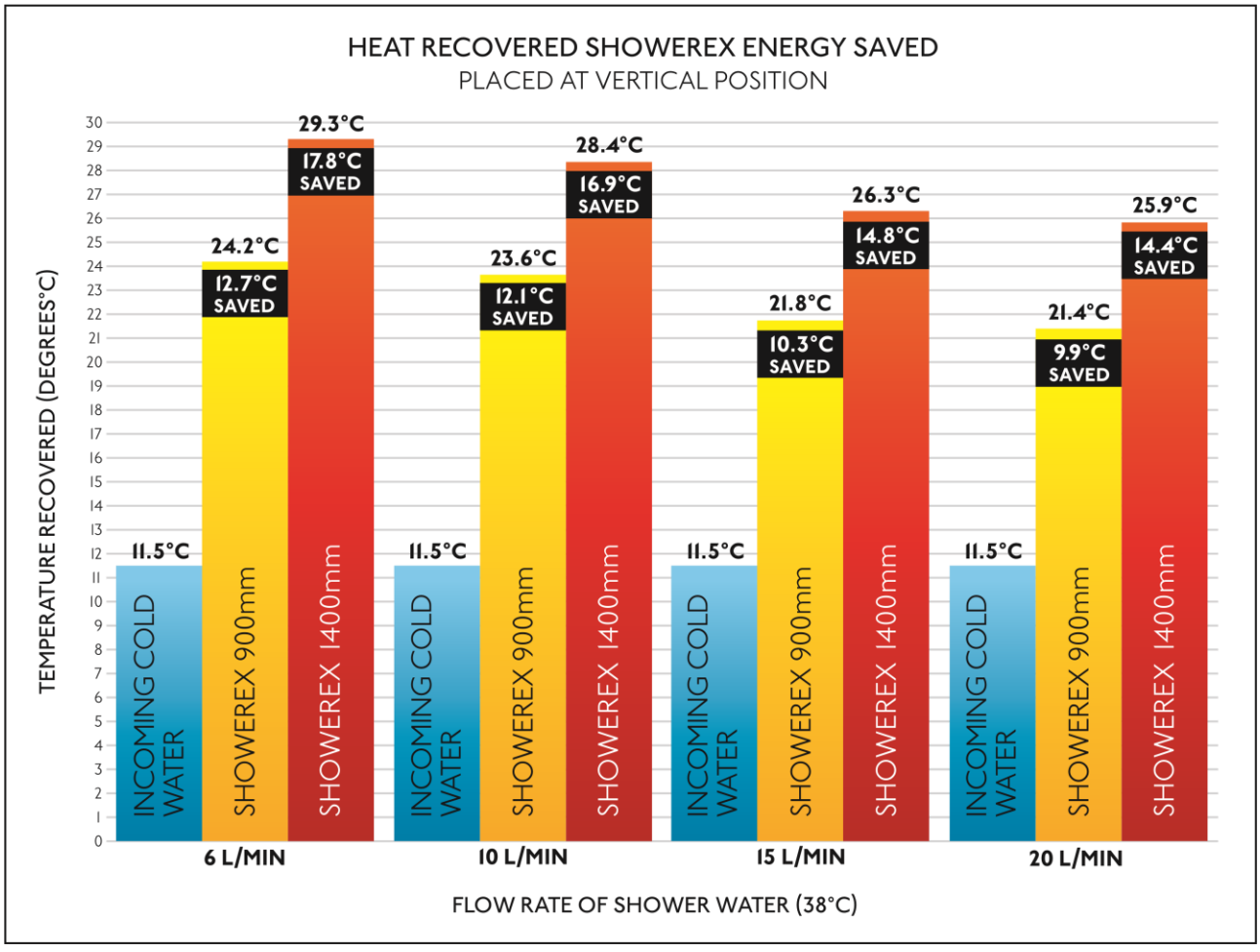
Showerex 1400 Vertical – 10 min shower at 10L per min

Savings per Shower	$0.38307		
Savings per Week	× 7	$	2.68
Savings per Year	× 365	$	139.82
Savings per Family of 4 per Year	× 4 × 365	**$**	**559.28**
Retail Cost of Showerex 1400 (inc GST)		$	611.80
Annual Return on Investment			**91%**

	6 L/m	10 L/m	15 L/m	20 L/m
Horizontal 900	$ 0.11020	$ 0.15897	$ 0.20341	$ 0.23084
Horizontal 1400	$ 0.15036	$ 0.24267	$ 0.34081	$ 0.42938
Vertical 900	$ 0.15246	$ 0.23810	$ 0.28970	$ 0.36741
Vertical 1400	$ 0.24918	$ 0.38307	$ 0.47185	$ 0.60494

Showerex 1400 Vertical – 10 min shower at 20L per min

Savings per Shower	$0.60494		
Savings per Week	× 7	$	4.23
Savings per Year	× 365	$	220.80
Savings per Family of 4 per Year	× 4 × 365	**$**	**883.21**
Retail Cost of Showerex 1400 (inc GST)		$	611.80
Annual Return on Investment			**144%**

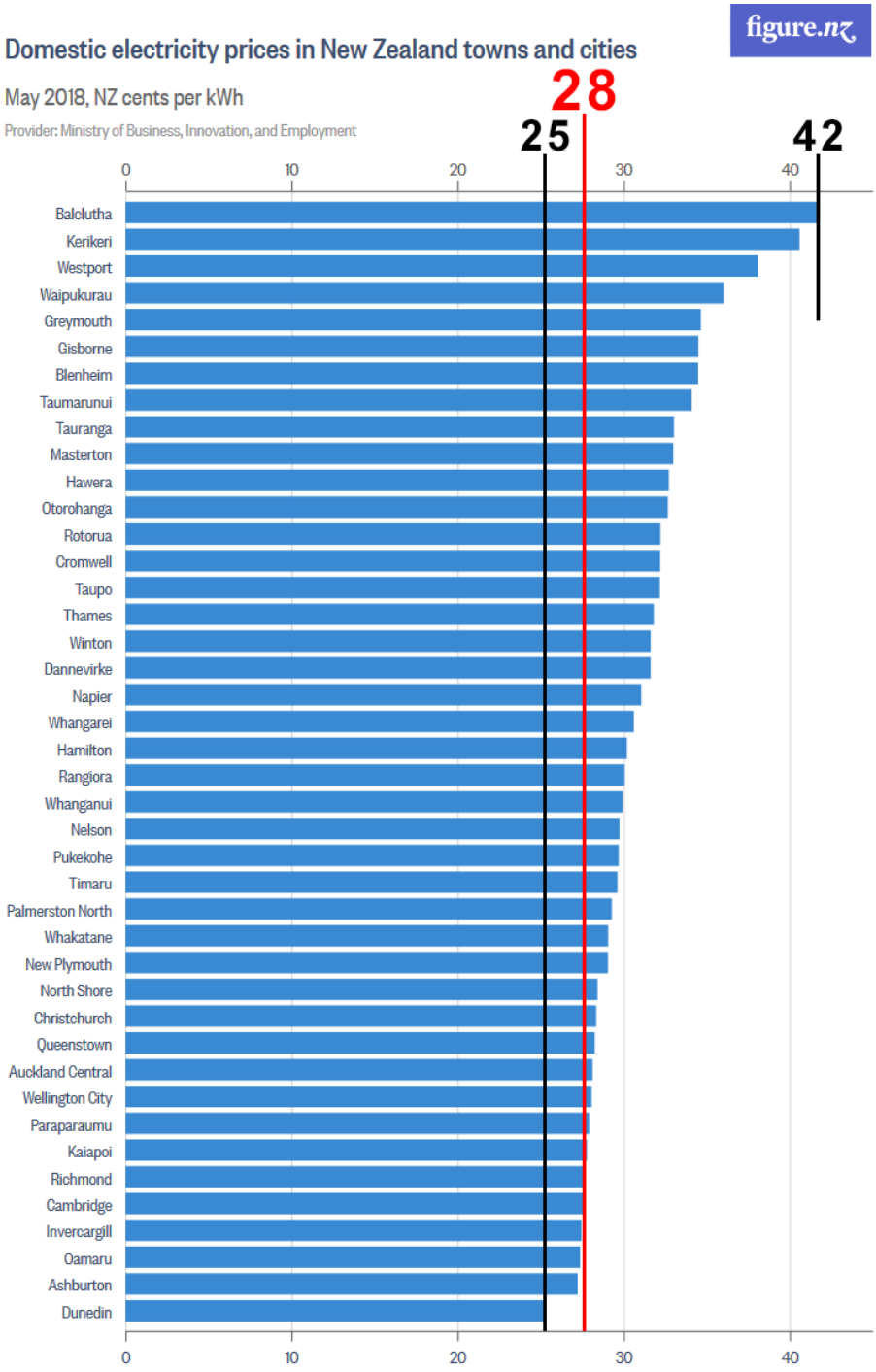


Showerex Savings Per Shower

Conditions:

38 degree C shower temperature.

$0.28 per KWH for power including GST



Every building or structure that has a shower or showers should consider installing Showerex. The benefits may not seem too obvious in the short-term for single showers but when calculated over a long period of time it will make substantial savings.

R&D Information:

On 1st August 2000, Brendon Bourke of SOUTHCORP WATER HEATERS AUSTRALIA, SOUTHCORP AUTRALIA PTY LTD, presented his scientific research findings on "Shower wastewater heat recovery" based on Vaportec's Showerex prototype. The following is an excerpt from his findings:

REFERENCE DOCUMENTS: www.oikos.com

BACKGROUND: A significant amount of heat energy disappears down a shower waste. A heat recovery concept, shown in diagram 1, is available through GFX. On request from Product Development, Vaportec NZ, supplied a wastewater heat recovery prototype, based on their helical tube forming technology, for testing purposes.

RESULTS: Test unit shown in diagram 2, counter flow heat exchange with all water preheated.

Test1/ Vertical with single length

Waste water temp = 39deg c, Inlet water temp -12.8 deg c, Flow -12 litres/min

Primary outlet temp = 20.6 deg c

6kw heat recovery.

Test2/Test conditions as per test 1 except angle varied from 20 deg to horz to 50 deg.

Heat recovery = 4kw.

Test3/Same conditions as 1 except 2 modules connected to series.

Heat recovery = 9kw

Test4/Same as test 1 except flow raised to 161/min

Heat recovery = 7.5kw.

DISCUSSION: When installed in the vertical, the overall heat transfer coefficient was 1200 w/ m/ deg k. This surprisingly good result for a plain bore tube can be explained by the fact that in the vertical position the wastewater tracks down the outside of the bore in a spiral motion.

CONCLUSION: When fitted to a gas heater operating at 80% thermal efficiency, for a heat exchanger with 0.8m2 area, to give a 30% energy saving, is a very useful result. In reality the result will be slightly lower since it's not practical to preheat the heater water as well as the mixing water. For commercial applications this device could complement the Tempest.

Testimonials

Over the years, Vaportec Ltd has received many positively beneficial feedbacks on its S.A.V.E. products. The following are just few of the examples:

1.
To:technical@vaportec.co.nz

Thanks, so much Rod

I will be telling all my friends about this. We have just installed a 1400mm unit and the difference is amazing.
The price is very reasonable. (I assume this is without GST) The plumbing bill to fit it was higher than the unit itself! The reason I didn't know the price was because we got ours from a work colleague who had had it in his garage for over a year and I didn't know if the price had changed since then.

As we have a low-pressure hot water system, this heat exchanger is allowing us to have much more (now prewarmed) cold water in the shower mix. This means not only less hot water is being drawn from the cylinder, but we get more flow, because we are drawing more high-pressure cold water. This has been a benefit we weren't expecting.

Really, every home should have a shower heat exchanger and they probably should be compulsory in new builds (obviously with a solution that works with plumbing installed in a floor slab). This is the cheapest and simplest way that anyone could reduce their energy bills. Without them, energy and money is literally going down the drain.

Are you selling lots of them? I hope so!
Kind regards
Steve

2.
To whom it may concern:

I've been involved with heat transfer for most of my working life. (Over
30yrs) The last 15 years I've been acutely aware of the capabilities of the Vaportec organisation. I'm constantly impressed with their innovation and its application. I've also a major beneficiary or the R&D support they offer to potential customers. I've found the Vaportec products to be efficient & fit for purpose and would recommend them when suited for a particular application.

Regards

Brendan Bourke B.E. (Mech)
Special Technologies Manager
Rheem Australia Ph (612)
96849443
www.Rheem.com.au
[cid:image001.jpg@01CBCF84.3D7372C0][cid:image002.jpg@01CBCF84.3D7372C0]

3.

The two energy Drains I purchased off you last year for my Mt Eden house seem to be working well.

I can feel the temperature change in the shower as the drain pipe warms up and I need to change the position of my mixer. Baillie Eco-Home

https://www.facebook.com/profile.php?id=100009003496445

regards

Russell Baillie | Energy Manager

Property Services

The University of Auckland

Private Bag 92019 |Auckland 1142 | New Zealand

Level 2 | 11 Wynyard Street

Ext: 87877

DDI: + 64 9 923 7877

Mobile: 021 229 4478

4.

design rationale

My family and I live on our rural orchard in Meeanee, Napier. Our shower water pressure was very weak when I was informed about a new product being developed at Vaportec Ltd in Napier.

I was told that it could save 25% of hot water energy by passing cold incoming water to the shower mixer through a coil around the warm shower outlet drain. Our house uses a low pressure hot water cylinder in combination with pumped bore water. Therefore, by heating the high pressure bore water we required less low pressure hot water, thus reducing our hot water heating bill and producing a higher pressure shower.

Our other option of installing a high pressure hot water system was prohibitively expensive and would only have resulted in higher pressure with no ongoing cost savings.

The Vaportec Eco Drain was easily installed under our existing timber floor and was completed in a couple of hours with no hidden costs and little or no disruption to our family.

We now actively encourage all our clients to install this system. Not only is it easy and relatively inexpensive to install it constantly reduces our hot water heating bills throughout the lifecycle of our building and provides us with very good shower pressure. A pleasure to have!

Kind regards,

Trent Fairey
Director of Design Rationale (Australasia) Ltd

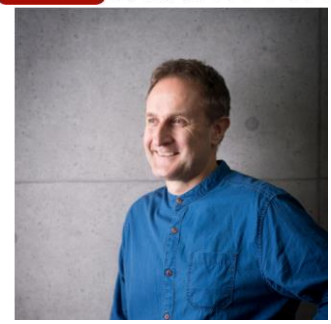
P +64 (0)6 835 5050 F +64 (0)6 835 5057 PO Box 7377 Taradale, Napier, New Zealand 4141 www.designrationale.co.nz

The Way Forward With SHOWEREX:

The following gives insight to the directions homes and buildings are taking and SHOWEREX is a must for the future:

From: Bob Burnett Architecture <bob@bbarc.com>
Date: 25 November 2018 at 7:29:49 PM NZDT
To: <napier@vaportec.co.nz>
Subject: ideas for Superhomes from Bob Burnett
Reply-To: Bob Burnett Architecture <bob@bbarc.com>

bob burnett ARCHITECTURE



Bob Burnett Architecture has championed energy-efficient, environmentally sound architecture for two decades. Designing, funding and managing his own development projects to demonstrate leading international best practice. Bob designed New Zealand's first 7 & 10 Homestar rated homes. His ethos is to create both delightful and high-performance buildings for better livability, health and comfort. He wants to help people understand the link between New Zealand's suboptimal building code standards, that are 20 years behind other OECD countries and alarming health and wellbeing statistics. In 2015 Bob founded the Superhome Movement and recently he received the Sustainability Superstar Award at the 2017 SBN Awards.

BAHNSTADT, GERMANY

I recently visited Bahnstadt, Heidelberg in Germany. A site that was once a marshalling yard for freight trains is now being developed as the largest Passive Haus settlement in the world. The district builds on the tradition of European cities of science, offering a mix of residential life and research, leisure and culture all in the same place. 6,000 jobs are being created here, predominantly in research and science-based companies. On an area covering 116 hectares, this zero-emission district is one of the largest urban development projects in Germany. The total investment here is 2 billion euro.

As a science hub, Bahnstadt projects a unique sense of dynamism, attracting both high-tech companies with their research and development departments, and private universities. Nearby, the Heidelberg Innovation Park (HIP) is a breeding ground for innovation. I can't help thinking that this is the sort of vision Christchurch needed after the earthquakes. But it's not too late, as plenty of the city still looks a bit like a railway shunting yard. Just some vision is required.

SUPERHOME movement

BARRY'S BAY HOUSE, BANKS PENINSULA

Bob Burnett Architecture's award-winning eco-home at Barry's Bay has been featured on Architecture Now and the Spring 2018 edition of Houses Magazine. This high-performance home featured in an article called The Eco-ethical House: Part Two which focussed on natural materials, processes and products for creating more eco-friendly homes.

Consider S.A.V.E.

Vaportec Ltd developed extensive knowledge over the years since 1997, doing extensive research and development; concentrating on the manufacture of Spirex tube and the design, build and installation of various working uses of heat transfer equipment under its S.A.V.E. category.

Vaportec was the first in the world to have the technology and IP to form the helical titanium tube.

Vaportec Ltd's vision is to be socially responsible; to make a difference to our environment and the planet; to save energy; to encourage positively responsible lifestyles; and to achieve all that economically.
