

Energy and Space Efficient Radiant Skirting Heating

M&E Technical & Design Data for ..

NHS, Care Homes and Mental Health

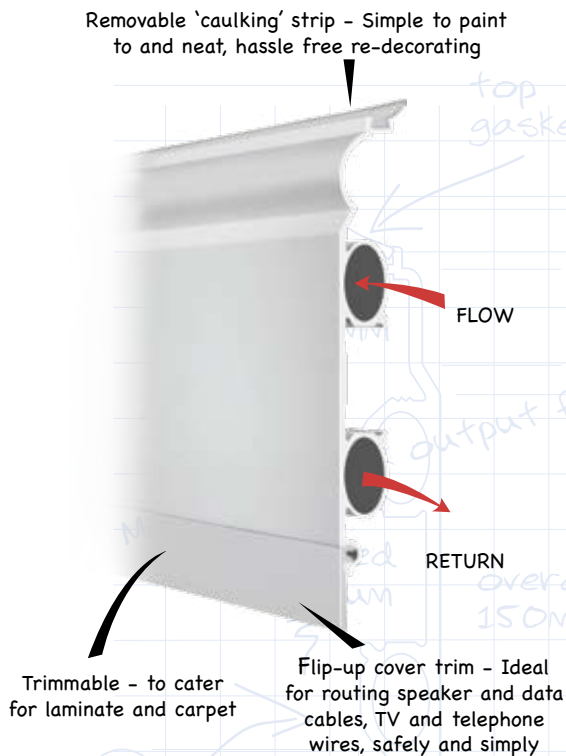


Commercial, Retail and Social Housing

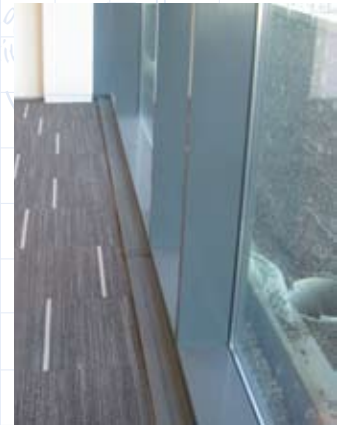
Schools, Nurseries and Student Living



What is ThermaSkirt?



ThermaSkirt is an aluminium polymer radiant panel, extruded to replicate a skirting board trim, and available in a range of profiles and colours. Patented integral oval tubes carry the water from the space heating source - conventional boiler or renewable- which heats the front of the skirting. Acting like a radiant panel, ThermaSkirt distributes the heat quickly and evenly all around the room at low level - just like under floor heating, but with the response times of a radiator. Suitable for renovation as well as new build, ThermaSkirt performs equally well with all forms of construction and floor finish.



How ThermaSkirt can solve your heating problems

Consider ThermaSkirt's Unique Features and Benefits

- Versatile
- 'Above Ground' Installation
- Proven Energy Efficiency
- Hygienic Heat
- Anti-ligature
- Health & Safety
- Rapid Response Times
- Future Proof
- Frees up wall space
- Even, all around radiant heat
- Built in cable duct
- Proven Technology
- ✓ Suitable for residential, commercial, NHS, Care Homes, Schools and Nurseries
- ✓ Renovation and new build with minimal disturbance
- ✓ Independently tested by BSRIA and the Swedish Institute of Climate Technology
- ✓ Simple wipe down during normal cleaning cycles
- ✓ No exposed pipes or valves and anti-tamper fixings available
- ✓ No grilles, slots or fins to harbour and spread infection
- ✓ On & Off in minutes to cater for varying uses & occupancy
- ✓ Works with renewables such as heat pumps as well as conventional boilers
- ✓ Flexible room layout to suit room requirements
- ✓ Improved comfort and no cold or hot spots
- ✓ AV & Data cables simply and safely routed around the room
- ✓ More than 10,000 systems successfully installed

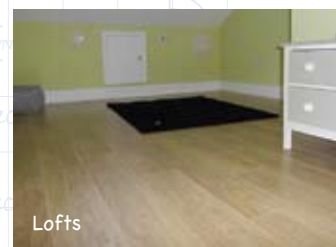
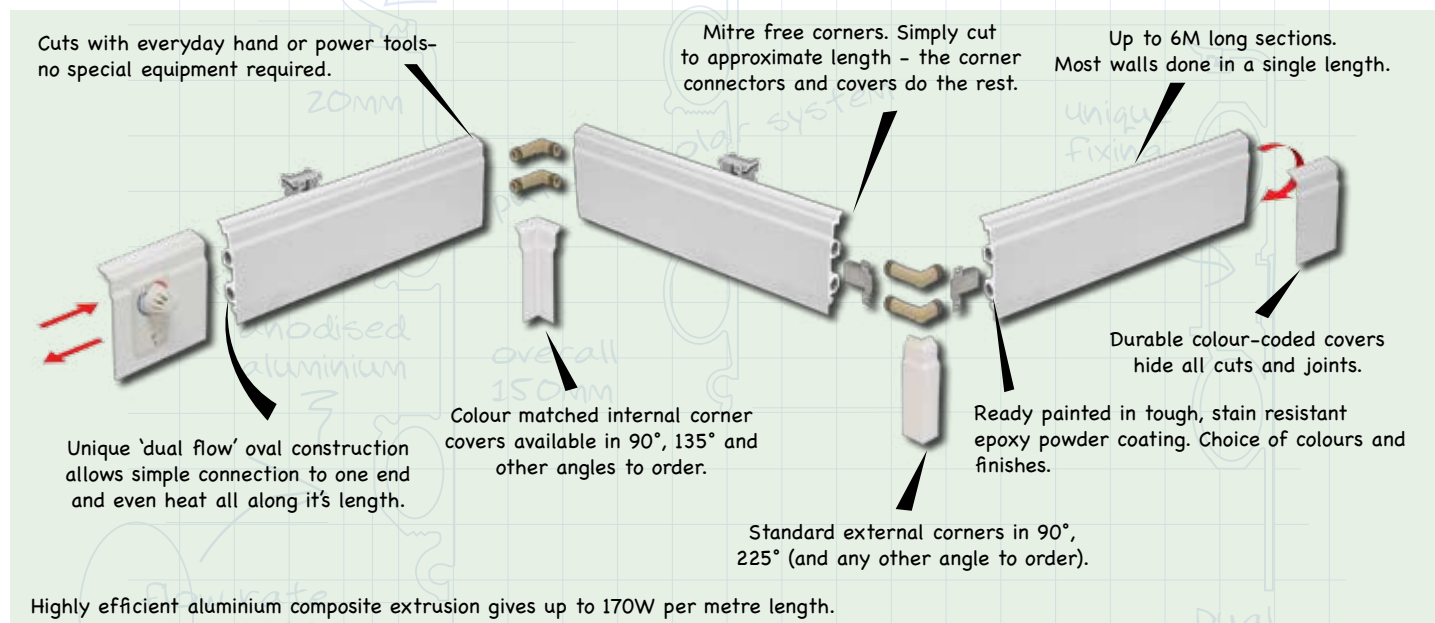
Why Oval?

The patented oval pipes not only enables ThermaSkirt to provide a slim and discreet profile for superb aesthetics, it also improves performance. By presenting a greater area of contact to the radiant face, and with greater turbulence, more effective heat is transferred, even at low flow temperatures and low flow rates. The ovality means that despite only being 19mm in section, the integral pipeway performs like an 18mm Ø pipe. This effectively reduces frictional resistance, meaning that longer runs can be achieved from a single feed and return point for simpler installation and shorter 1st fix pipework. As ThermaSkirt can be supplied in lengths up to 6m, most walls can be done with a single panel, with no joints for speed of installation and a great finished look. End-to-end oval connectors are available even in the unlikely event of walls of length greater than 6m, and suitable expansion joints can be accommodated. Oval to round (15mm or 16mm Ø) adaptor connectors ensure ThermaSkirt can be connected onto existing conventional heating feed & return circuits.



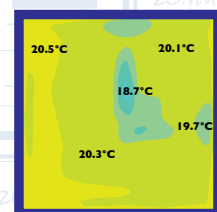
Simple On-Site Assembly

ThermaSkirt® comes ready cut to size or in standard lengths to be cut and assembled on-site. Special solutions including curved wall sections, crossing thresholds, heating across bi-fold sun room doors and even up and over doors are all available with ThermaSkirt. Simply connect onto standard radiator style plumbing with the patented connectors (radiator replacement kits available) and in a matter of hours the room or even the whole project can be radiator free, and with the added benefit of new, freshly painted skirting boards. Matching MDF in all profiles is available for non-heated areas or where conventional radiators are retained.

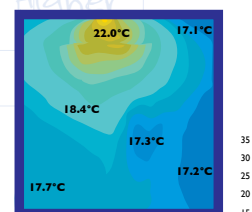


Greater Comfort = Greater Energy Efficiency

As ThermaSkirt heats the room from all directions at low level, you eliminate drafts or hot spots created by the convection that radiators need to heat the room. ThermaSkirt has been independently tested and proven to be both more energy efficient and provide a more comfortable environment for occupants. (Source BSRIA Test 51397/1). Test results show that the unique thermal distribution pattern of ThermaSkirt® is practically identical to under-floor heating. ThermaSkirt has been independently evaluated by the Swedish Institute of Climate Technology Stockholm, and demonstrated an effective heating output up to 50% better than a double panel, double finned radiator.



ThermaSkirt® Comfort Temperature



Radiator Comfort Temperature

Source: "Performance evaluation of radiant baseboards for room heating - an analytical and experimental approach" by Adnan Ploskić & Sture Holmberg.



St. Vincent's Housing Association

The larger surface area, and lower water content make ThermaSkirt ideally suitable for renewable heat sources such as Heat Pumps, pellet boilers and Solar Thermal as well as conventional boilers using gas, oil or electric.

ThermaSkirt has been awarded 'Product of the Year' at the recent National Heat Pump Awards. ThermaSkirt can be installed into both new build and refurbishment projects - often utilising the existing pipework layouts. As it is installed 'above ground', there is minimal disturbance to the existing property, and there is no restriction on the final choice of carpet or floor finish as there often is with Underfloor heating.

In new build, ThermaSkirt can reduce and simplify pipework runs as large spaces can be evenly heated from a single feed and return point, rather than multiple connections to several radiators.

Special solutions, including beneath glazed walls or full height patio doors, crossing door thresholds (under or up & over) and even curved wall sections can all be achieved with ThermaSkirt.



Pytchley Hall, Northampton



Radiator Related Injuries

Contrary to common concern, the majority of radiator related injuries are impact and fall related, and not scalds & burns. Whilst hot surfaces are a concern for persons with restricted movement or sensory disability, a far greater hazard is presented by the hard edge and surfaces of bulky radiators in the event of a trip or fall. ThermaSkirt's smooth lines and soft edges does not present a trip or fall hazard, and by itself would eliminate over 85% of all radiator related injuries. See the table below extracted from data provided by The Royal Society for the Prevention of Accidents (ROSPA).

Falls, Trips, Impacts	25,936	86.66%
Grab injury burns to hands & arms*	1,847	6.10%
Burns to other part of body	583	1.90%
Other Causes	1,543	5.16%
Total Radiator Accidents	29,909	99.82%

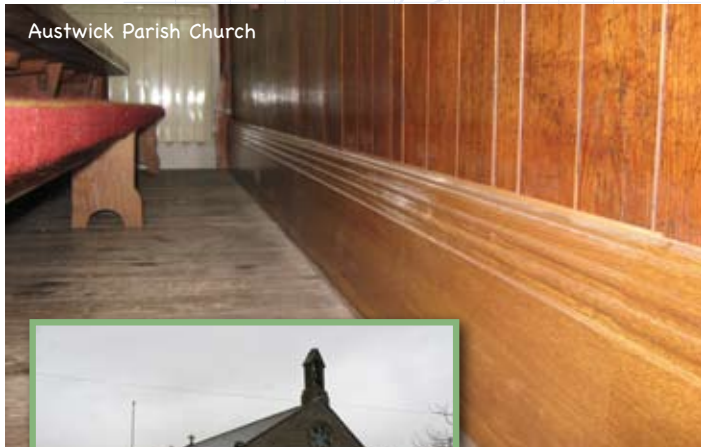
* The majority of burns to the hands and arms were reported in the under 5s and over 65's (73% of all scald injuries) and are listed as 'grab' injuries incurred when trying to prevent a fall. This is not a factor with the ThermaSkirt system.

Source: ROSPA HaSS & Lass Accident Statistics 2000 - 2002.



Commercial, Retail and Social Housing

Combining the heating and skirting in one not only saves capital cost and installation time, it also saves valuable wall and operating space. Walls that otherwise would be dedicated to clumsy radiators are now free for display purposes or for positioning furniture and equipment where ever its needed. As well as saving energy and running costs, ThermaSkirt also can reduce 1st fix pipework, water contents and even weight loading in a building. Please see the comparison table below for a typical example of savings in recent office block development.



Typical Project Savings Example of ThermaSkirt Vs Radiators

	THERMASKIRT	RADIATORS	SAVINGS
Quantity:	320 meters	172 pieces	
Material price:	€11.900,00	€31.820,00	Saving; 63% (~€20,000)
Weight:	400kg	6,000kg	Saving; 93% (>5,400kg)
Connections:	12 x feed and return	172 x feed and return	Saving; 93% (>200m pipework)
Installation time:	128 hours (€ 5,120)	430 hours (€17,200)	Saving; 70% (>60 Man days)
Water Content:	160L	2,064L	Saving; 92% (>1,800L)

For more case studies, go to www.thermaskirt.com/casestudies.aspx

Schools, Nurseries and Student Accommodation

ThermaSkirt® can heat a classroom in minutes from cold and more importantly cool down quickly when required; an essential feature if a comfortable classroom is to be maintained with a fluctuating class size and uses. ThermaSkirt® has been installed in many schools, both refurbishment & new-build. It can be connected onto conventional existing pipework, whether overhead or in the wall or floor. Replacing old and inefficient radiators with ThermaSkirt® reduces running costs and increases comfort levels for students.



Grange Primary School, Ealing



Giant Leap Nursery



Surface Temperature Controls

Special low surface temperature controls are available for use in Nurseries, Care Homes and all sensitive areas as well as integration into BMS (Building Management Systems). (See page 9)



Osterburg High School, Germany



200 Student Apartments at Cripps Court, Cambridge University

NHS, Care Homes and Mental Health

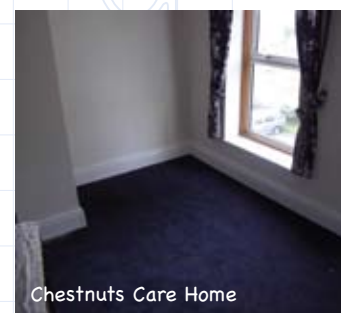
As ThermaSkirt® is a completely sealed radiant unit it does not have any grilles, gaps or exposed pipe work. This means that it does not collect dust and grime that harbour infectious spores and bacteria and can be easily and quickly cleaned when the floors are being cleaned with disinfectant. As the heating is radiant it does not create convection currents that would otherwise circulate dust and other particles that can aggravate respiratory afflictions and spread hospital acquired infections (HAI).



ThermaSkirt has recently been installed in several NHS hospitals, and many more care and nursing homes, both refurbishment & new-build. ThermaSkirt can be connected onto conventional existing pipeworks, whether overhead or in the wall or floor. Replacing old and inefficient radiators with ThermaSkirt has reduced running costs and increases comfort levels for clients.

Infection Control and Health & Safety are two major concerns in the Health & Care Service; ThermaSkirt addresses these 2 main concerns far better than the current norm of LST radiators.

With the recent rise in the awareness of so called 'Superbugs' such as E.coli, C.Diff, & MRSA, the problem of Healthcare Acquired Infection (HAI) has never been more acute. The risk of bacteria cross-contamination and contracting an infection is particularly high in the healthcare sector, where there are a large number of people with reduced immunity levels, in close proximity and an abundance of bacteria and infections.



ThermaSkirt Vs LST Radiators

- | | |
|--|---|
| ✓ ThermaSkirt can be cleaned as part of the floor cleaning process - any time of night or day. | ✗ LST radiators obstruct gangways and are often the cause of impact injuries and falls. |
| ✓ Can be cleaned whether or not heating is on or off - no special handling required. | ✗ Small slots and fins inside are impossible to keep clean and free from bacteria & material. |
| ✓ No dismantling covers - simple mop down with 1% bleach solution. | ✗ Protective covers are difficult to remove and deter thorough cleaning. |
| ✓ Most wards (20m²) done in under 2 minutes - labour and cost saving. | ✗ Cold air drawn in from the floor carrying spores and microbes. |
| ✓ No specialist tools or equipment required - no retraining required. | ✗ Warm air carries infection around the ward or room. |
| ✓ No bending, stretching or lifting - reduced risk of injury. | ✗ Grilles and fins trap dust and moisture and provide a perfect breeding ground for infections and bugs. |
| ✓ Lower flow temperatures - improved energy efficiency. | ✗ Heat build up inside covers often pushes surface temp to well over recommended limit - obviating their primary purpose. |
| ✓ No ligature points, sharp corners or exposed valves and pipes. | |



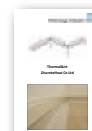
"We selected DiscreteHeat's system of heated alloy skirting for clinic rooms when developing the new children's unit at Trafford General Hospital because we thought it would reduce infection risk. We are proud of our record on preventing health-care associated infections here in Trafford and are always looking for new products that can further cement it by reducing risk.

The DiscreteHeat system keeps the whole children's unit at a comfortable temperature and it is easy to keep it clean because, unlike a radiator, there are no nooks and crannies where airborne particles can hide.

The new system is also proving more efficient and my estate colleagues tell me that it is saving energy and running costs."

Dr Barzo Faris, Infection Prevention & Control lead at Trafford Healthcare NHS Trust

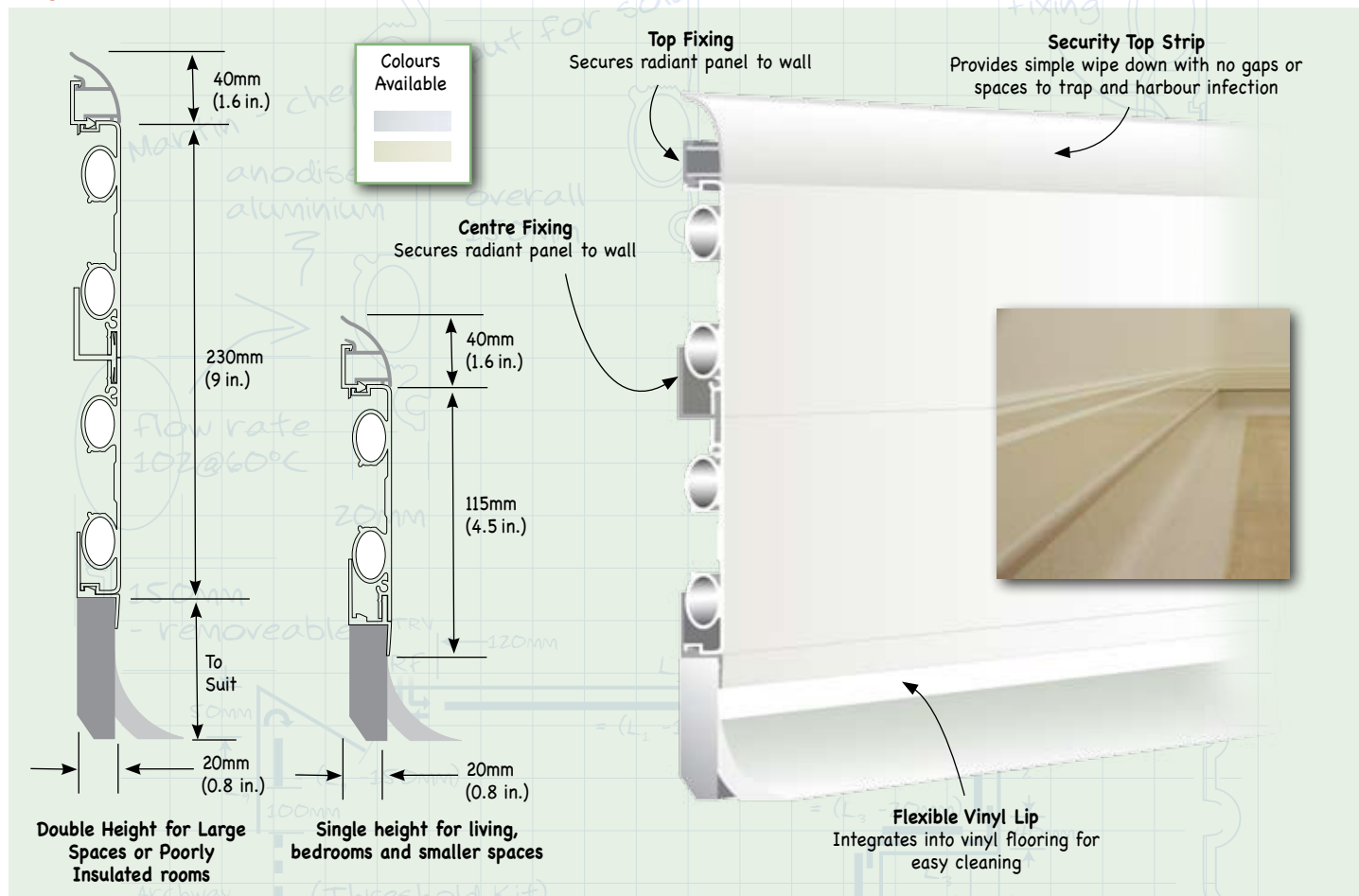
Download the NHS NTAC report into ThermaSkirt at www.thermaskirt.com/CareHomes.aspx



Secure and hygienic design for mental health, custodial and special needs

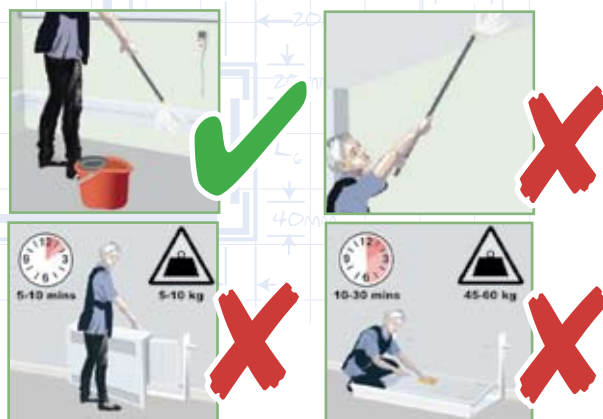
Designed & developed in conjunction with the NHS and mental health providers, ThermaSkirt is now available with a high-security and ultra hygienic mounting system that reduces risk, cleaning and maintenance to an absolute minimum. In the battle against HealthCare Acquired Infections (HAI's) simple and regular cleaning has proven to be the key factor in combating the likes of C.Difficile and MRSA. With no sharp corners or ligature points, the EasyClean top and bottom wall fixing rails integrate perfectly into the vinyl floors and walls to provide a completely sealed and tamper proof heating system at the ideal height, giving a comfortable and energy efficient space heating solution. Available with optional stainless steel covers at the ends and corners, the system allows the radiant panels to be thoroughly cleansed during the normal floor cleaning cycles - no deep cleans, no covers to unlock and remove, no heavy radiators to drop down and no obstructions to corridors or gangways.

EasyClean LST



EasyClean LST - Simple to Clean

- ✓ Simple fitting on new or existing heating circuits - new build or renovation.
- ✓ Simply clean when mopping - no special training or deep clean procedures.
- ✓ No fins, grilles or slots to harbour infections - helps eliminate HAI's.
- ✓ No bulky covers to remove & lift - no strain injuries or gangway obstruction.
- ✓ No Ligature points - practically seamless integration into floors and walls.
- ✓ Robust and Secure - Anti tamper top fixing protects against self harm.
- ✓ Responsive and controllable - On or Off in minutes for patient comfort.
- ✓ Frees up walls - ideal where occupied space is limited.
- ✓ Energy Efficient - low water content and suitable for renewables.
- ✓ Available in a choice of heights and colours.

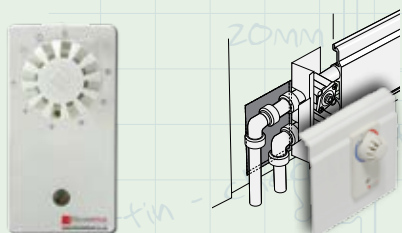


Flow Control Systems

ThermaSkirt connects to conventional heating circuits with either push fittings which enable a rapid & versatile installation with the option to make changes or amendments later, or with crimp fittings for a more permanent installation, depending on project spec. ThermaSkirt can be controlled by a variety of flow control systems - from a simple mechanical TRV (thermostatic radiator valve) which provides cost effective compliance with Building Regulations, to sophisticated touch screen and wireless programmable Thermostats and manifold flow control. Low surface temperature controls for Healthcare installations as well as integration into BMS (Building Management Systems) for larger scale projects are practically and affordably realised with ThermaSkirt.

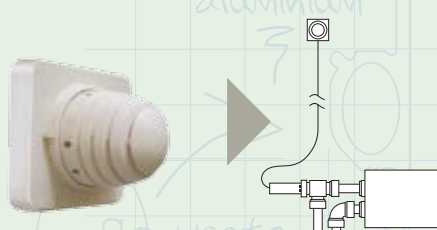
MECHANICAL

MANUAL TRV



- ✓ Simple comfort control TRV
- ✓ 'On-board' design for instant operation
- ✓ Colour coordinated knob and fascia plate
- ✓ Integrated lock shield valve for local isolation
- ✓ Direct connection to standard 15mm pipes

WALL MOUNTED CAPILLARY ACTION TRV

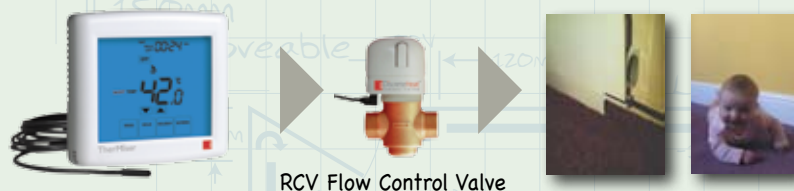


- ✓ Simple room temperature control at accessible height
- ✓ Ideal for care homes or elderly residents
- ✓ Accurate temperature with lockable Min/Max settings
- ✓ Easy to clean and easy to read
- ✓ Miniature capillary tube connects to hidden TRV control valve

ELECTRONIC

THERMISER SINGLE ROOM & LOW SURFACE TEMPERATURE CONTROL SYSTEM

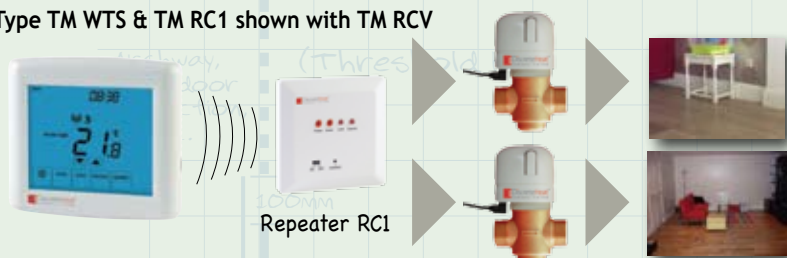
Hard Wired, Type TM- ETS with TM RCV



- ✓ Electronic Touch Screen with 7 day/ 4 period programming
- ✓ Room and ThermaSkirt surface temperature control for LST applications such as hospitals, care homes and nurseries.
- ✓ Standard 35mm Switch back box mounting
- ✓ 230v AC control
- ✓ Eliminates manual TRV control knob on skirting

WIRELESS 2 ROOM / CONTROL SYSTEM

Type TM WTS & TM RC1 shown with TM RCV



- ✓ Wireless Touch Screen with 7 day/4period programming.
- ✓ 2 Zone wireless receiver can control 2 separate zones/room
- ✓ Eliminates manual TRV control knob on skirting
- ✓ Control valve secreted in cupboard or floor/wall/ceiling void
- ✓ Rechargeable battery (Touch Screen)
- ✓ 230v Hard wire supply to TM RC1 and onto TM RCV control valve

WIRELESS MULTI ROOM MANIFOLD CONTROL SYSTEM

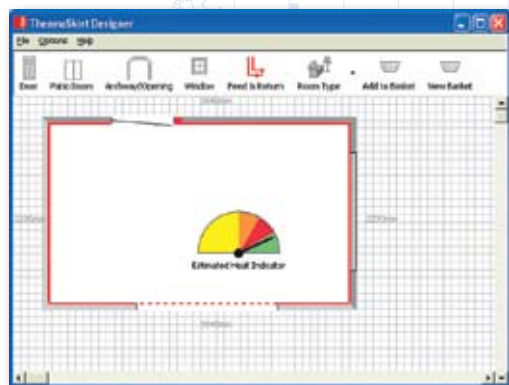
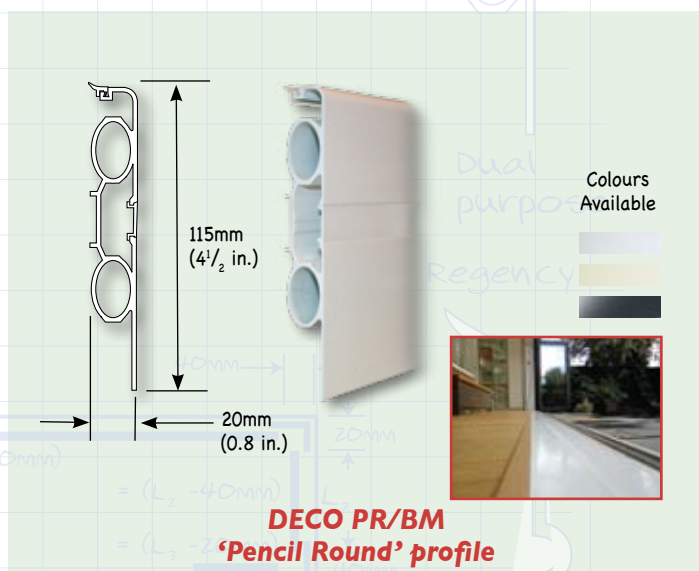
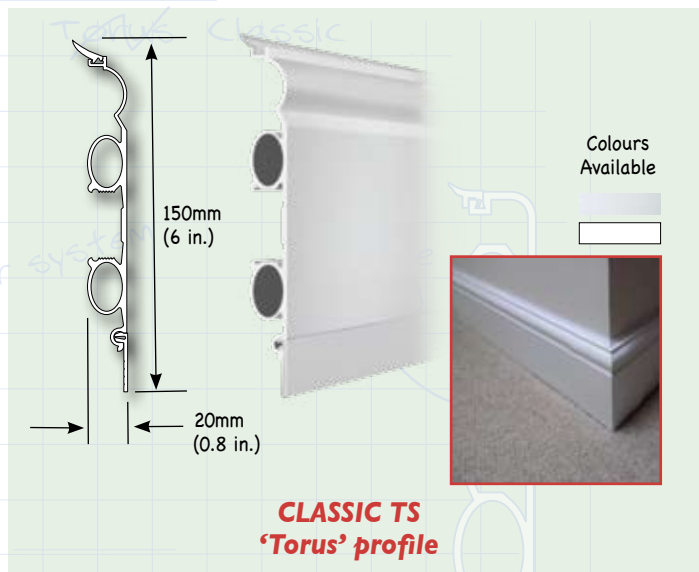
Type TM - WTS



- ✓ Wireless room control for up to 8 Zones/areas
- ✓ Direct connection from Control unit to Manifold actuators - no intermediate control unit required.
- ✓ Rechargeable, portable touch screen thermostats
- ✓ Programmable for time & temperature.
- ✓ Complete range of manifolds from 2 - 8 ways

Technical Information

ThermaSkirt is uniquely available in 5 distinct profiles and over 6 different finishes to suit any property or development. Special profiles and finishes may be made to order, depending on the size of the project.



ThermaSkirt Design On-line Screen

Design On-line

Log on to our website - www.discreteheat.co.uk and go to the software page. Just follow the simple steps and you can create your own ThermaSkirt® heating system in minutes. It will even work out your heat loss estimate, heat output at various flow temperatures, pressure and temperature drop and provide a costing.

ThermaSkirt® can be supplied in pre-cut ready-to-install room kits, complete with your numbered room plan. Alternatively it can be bought in 6m lengths and follow the step-by-step instructions supplied.

Our unique algorithm program will give you a cutting schedule to minimise waste when you click 'Cut it Yourself' on the checkout page.

Full instructions from: www.discreteheat.co.uk/downloads/technical/instructions.pdf

Performance *

		Typical Radiator Temp.	Typical Heat Pump/Solar Thermal System				Typical Boiler Flow Temps.			
Output/Flow Temp	Profile	$\Delta T50$ (72°C / 160°F flow)	40°C / 104°F	45°C / 113°F	50°C / 122°F	55°C / 131°F	60°C / 140°F	70°C / 158°F	75°C / 167°F	80°C / 176°F
Watts/m @ 56 g/sec flowrate	URBAN LT	148.5	46	59	73	88	104	142	159	172
	CLASSIC TS	150	47	60	74	89	105	144	160	174
	REGENCY OG	171	53	68	84	101	119	163	183	198
	DECO PR / BM (EasyClean Single Height)	134	41.5	53	66	79	94	128	143	153
	EasyClean (Double Height)	268	81	106	132	158	188	256	286	306

$\Delta T50$ is the EN 442-1 norm for comparing radiator outputs

Low flow temperature to maximise annualized COP

Renewables often produce flow temperatures in excess of 45° if required

Reducing flow temperatures ensures condensing boilers operate most efficiently 100% of the time and not just on start-up. (Source: BRE & Energy Saving Trust).

White/Ivory & painted finish only

* DiscreteHeat recommends an allowance of up to 3% to these outputs on exterior walls to allow for back losses. Further precautions may be required depending on the age and/or nature of the construction of the building - please contact DiscreteHeat for advice.

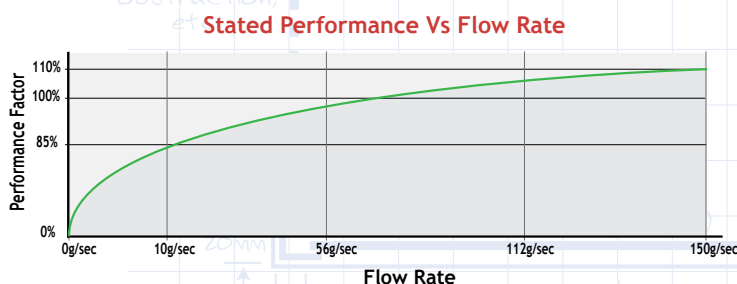
Equivalent length of ThermaSkirt for various connections

1 metre of ThermaSkirt	90° Corner	Return Manifold	TRV Valves	Valve Push fits	Threshold	Architrave	Odd Angles
							
1.00 m	1.32 m	1.28 m	4.99 m	1.42 m	6.15 m	19.2 m	1.41 m

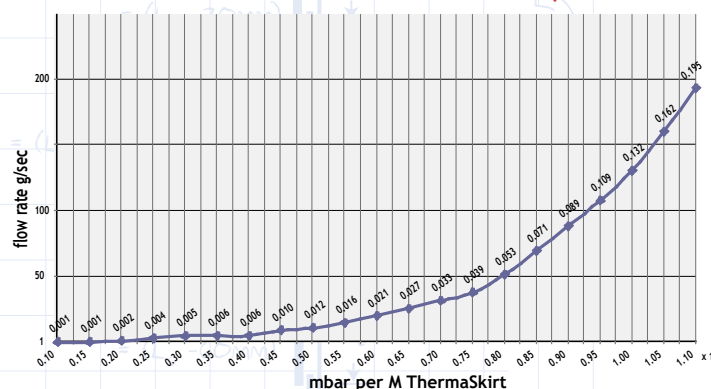
This table can help the heating engineer or M&E consultant calculate the total equivalent length in M of all the components in a system, so that pressure loss in mbar can be calculated. This information is automatically provided when the room is drawn in the ThermaSkirt designer program (see page 10).

Stated Performance Vs Flow Rate

Output in Watts/m (or BTU/ft) is only slightly affected over a wide range of flow rates. Our typical test data is based on 56g/sec in accordance with the BSRIA test BS EN 442-1. Output data is given here for flow rates between 10g/sec & 112g/sec which covers the lower and upper ranges of suitable performance for central heating systems.



ThermaSkirt Flow Resistance mbar per M



For more technical details please visit: www.thermaskirt.com/technicaldata.aspx

Warranty: ThermaSkirt is protected by a unique 10 year parts warranty against failure on all 'wet' components if installed in accordance with our instructions and & BS EN 5793. All other parts are warrantied against failure for 2 years.

Further details at: www.discreteheat.co.uk

NEW

ThermaTwin PV Powered Solar Thermal Panels



ThermaTwin is a unique flat plate solar thermal collector, which uses the power of the sun to heat the water and power the pump and controls. As a result the system is completely 'off-grid', and maximises the total energy available to provide the domestic hot water for the home whilst reducing the carbon consumed during operation to effectively zero. Manufactured in the UK and with more than 3,000 systems installed, ThermaTwin compliments your ThermaSkirt system and offers a robust, practical and affordable solution to your hot water and heating requirements.

Consider the following advantages:

- ✓ Solar 'twin' powered - uses solar thermal to heat the water and solar PV to drive the pump and controls; completely free hot water.
- ✓ Up to 120L of preheated water can be stored from one panel (usually enough for a 2-3 person property).
- ✓ Freeze tolerant - uses no Glycol or anti freeze minimising servicing and maintenance costs.
- ✓ Direct heating - fresh clean water is heated and pumped directly into the hot water storage tank, maximising efficiency.
- ✓ No Drain Back - simple anti-overheating mechanism so no complicated controls.
- ✓ Simple installation - usually half the time of a traditional solar thermal collector.
- ✓ Robust & reliable - twin-wall polycarbonate window is hail, football and vandal proof.
- ✓ 20 year Collector Warranty and 2 years on all indoor parts and components.
- ✓ Hygienic and clean - Fresh water constantly replaced and heated, avoiding infection.
- ✓ Light and manageable - Epoxy powder coated aluminium frame ensures an all in weight of under 30kg easing installation, reducing risk and minimising roof loading.
- ✓ Solar Key Marked to EN 12975 - Eligible for RHI, GreenDeal & SEAI Grants.



For more information on ThermaTwin Solar Panels visit our website thermatwin.com



Other Brochures Available:



As Seen On:

CHANNEL 5



Property Ladder

GRAND DESIGNS

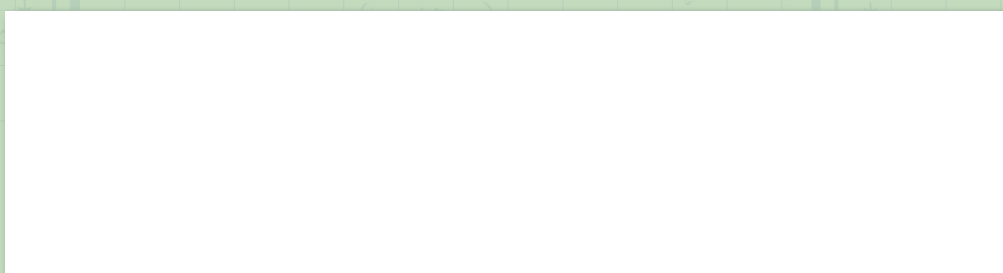


Home of the Future



Homes Under the Hammer

ThermaSkirt is available from:



Contact us for your nearest ThermaTwin distributor



Follow us on:



QR Code



ThermaSkirt is protected by patents, granted and pending in the UK, Europe, Australasia, China & the USA.

www.discreteheat.co.uk