



HVAC Solutions

GlenDimplex 
HEATING & VENTILATION

Innovative | Expert | Proven | Trusted

Glen Dimplex Heating & Ventilation

Our goal at Glen Dimplex Heating & Ventilation is to deliver market-defining heating, cooling and ventilation solutions. These solutions cover a range of technologies, that make best use of our decarbonising grid and focus on a low carbon future. We are the world's largest electric heating manufacturer and are well equipped to help guide you through your projects and highlight the benefits these new innovations can deliver.

The following pages showcase some of our brands, solutions and technologies that can add value to your projects, and help to meet specification requirements for cost, compliance and technical capability.

Market-leading Brands

Operating at the forefront of current developments in heating, cooling, hot water and ventilation, our collective portfolio features many of the best-known industry brands, including Ability, Dimplex, and Xpelair, alongside Burco, Creda, Faber Nobo, Redring, and Valor.



Residential and Commercial Expertise

With commitment to innovation and a focus on tailored specification, we are proud to provide heating, cooling and ventilation solutions manufactured to the highest standards for both commercial and residential projects. We have extensive experience across multiple industry sectors and can offer solutions that include low temperature networks, mechanical ventilation systems and a variety of heat pump technology and water cylinders.



Our Services

CPD

We recognise the importance of keeping current with changes in industry legislation and compliance measures, and the role that Continuing Professional Development plays in enabling you to achieve this. At Glen Dimplex Heating & Ventilation, we have created a number of CPD titles, in association with CIBSE and RIBA, to help keep you up to date with latest industry and technology developments – from [Passing Part L with Electric Heating](#), to [Understanding the Application of Fan Coils](#).

Expert Advice

Our Business Development team has relevant and up-to-date knowledge, supported by hands-on industry experience. Combined, this results in an understanding of what is involved in specifying compliant heating, cooling and ventilation systems. Your regional contact can help you find a route to the most effective solution, taking into account building regulations and any specific project requirements or limitations.

Product Application Support

Our in-house Application Design team are here to support you. We offer free, no obligation advice and assistance in applying products into your designs.

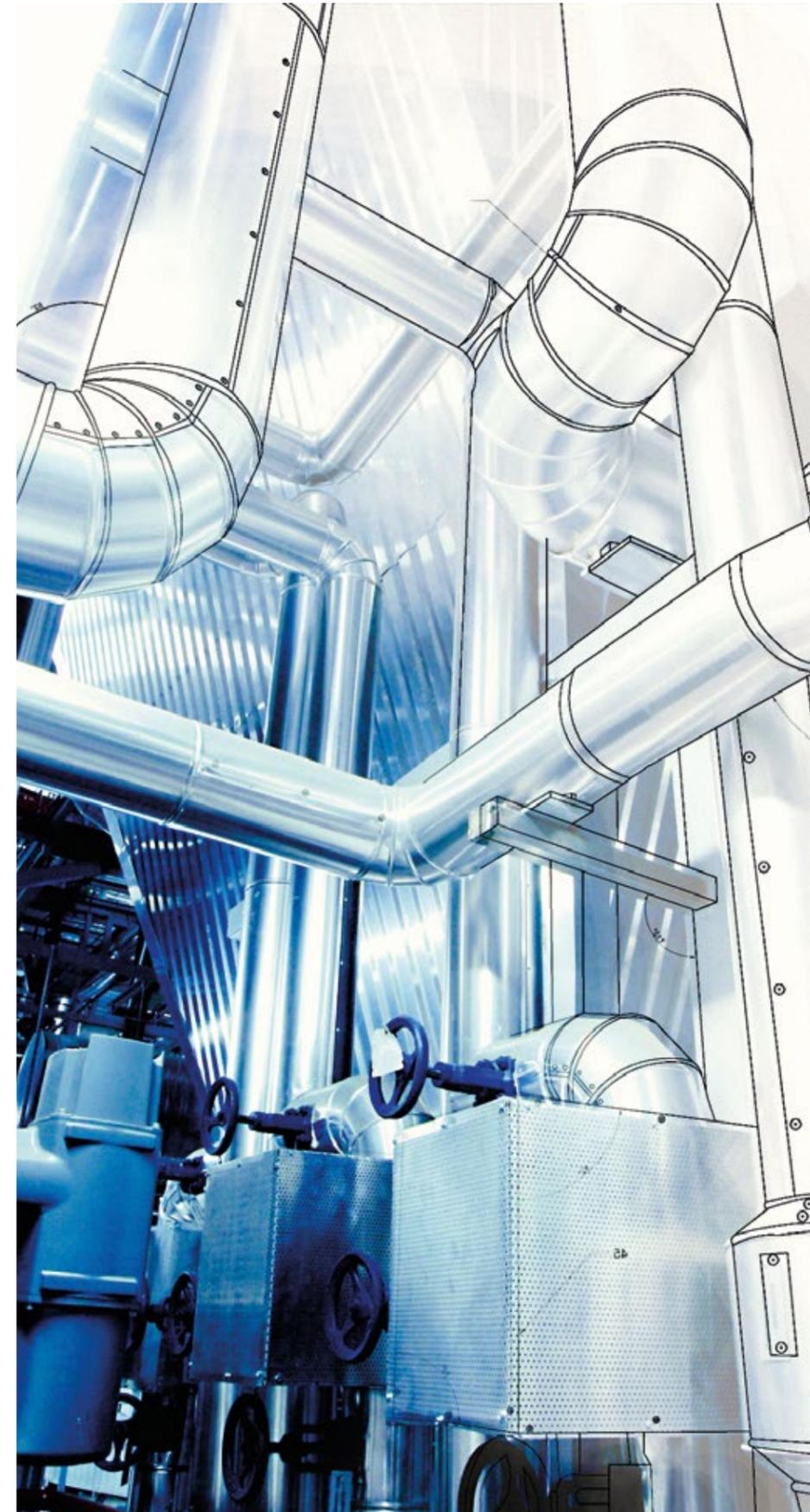
The team of engineers understand the real-life application of the solutions they promote. Their knowledge covers a wide range of project scenarios and can guide you toward the most effective, compliant solution.

For information or support on any of the technologies in this brochure, please call us on:

0344 879 3587

or enquire online at:

www.gdhv.com



Building Regulations and Compliance

As the government becomes ever more focused on carbon savings, newly built and refurbished residential and commercial buildings are required to significantly reduce energy consumption to become more energy efficient. This is changing the way a building's energy needs must be met, and has created new requirements in the effective specification of heating, cooling and ventilation.

At Glen Dimplex Heating & Ventilation, we have a team dedicated to understanding the changing industry regulations and plans, and the direction in which compliance measures and incentives are heading. As a result, we regularly review, amend and develop our products to meet evolving industry requirements and work towards providing you with the most efficient heating, cooling and ventilation solutions, considering low carbon technologies and counteracting overheating issues.

Our Business Development team can help you with the requirements behind complying with aspects of the building regulations, such as Part F and Part L. We understand that requirements can differ greatly by region and our team are experienced in specifying to the needs of these areas, such as in accordance with the London Plan, Scottish pertinent sections or the Welsh low carbon pathway.

This brochure showcases some of the main solutions and products which can address issues you face during your project development and aid you in creating the most efficient and cost-effective building.

Compliance through SAP and SBEM

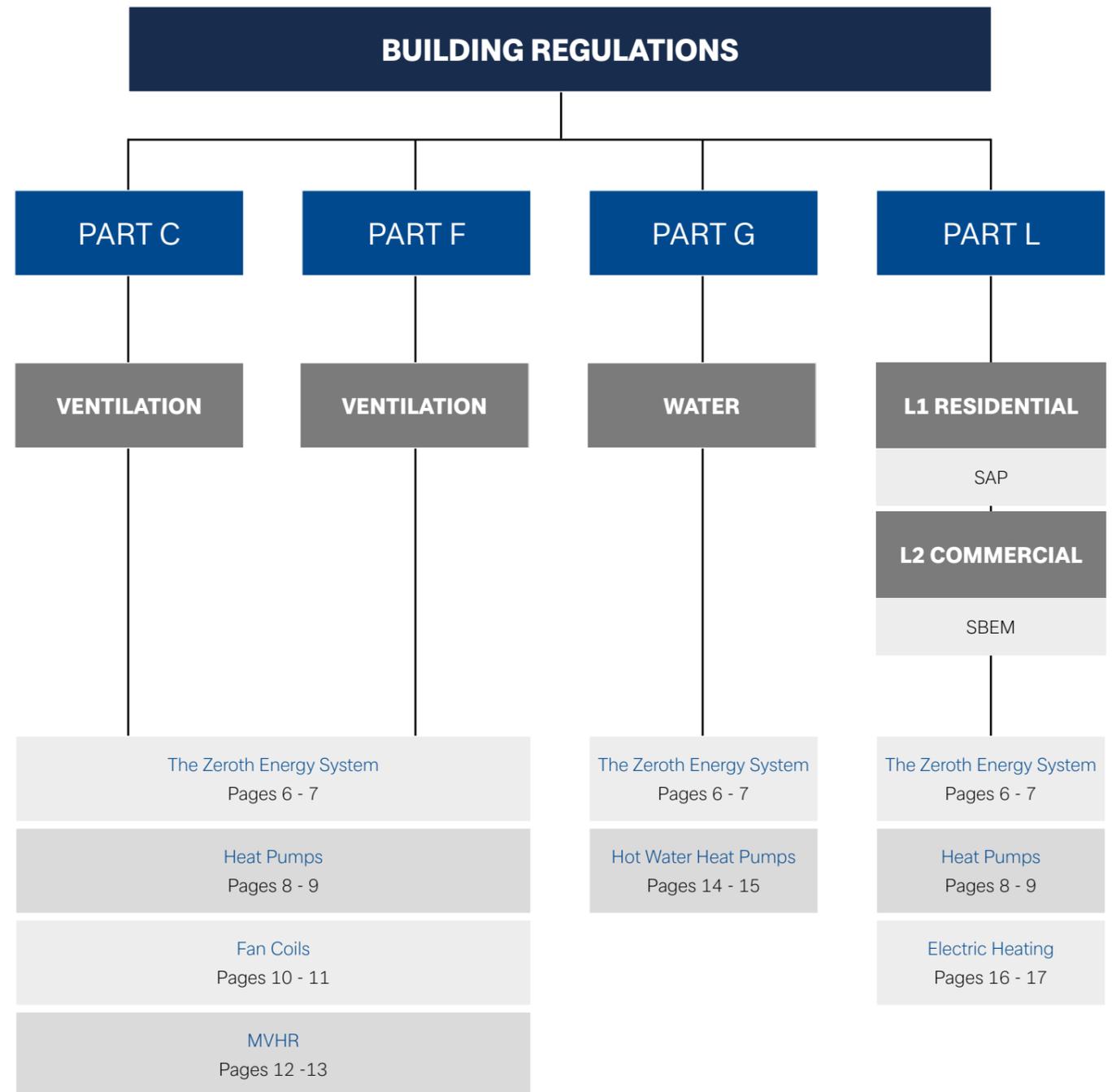
We have the capability and experience to work with you in getting all types of projects passed through the SAP and SBEM programmes, including complicated projects that prove difficult to meet requirements in traditional ways.

We can do this by combining our systems to take advantage of synergies that allow compliance from innovative technologies, which work well together.

“At a time when the industry is looking to go electric, it is good to see how innovation such as the Zeroth system takes full advantage of grid decarbonisation to help buildings achieve better compliance standards and improve thermal comfort.”

- Michael Lim, AECOM

Regulations



Each of the above technologies can also be applied to the Scottish Building Regulations, under Section 3 and Section 6.

The Benefits of a Low Temperature Network

For some time now, it has been clear that we need a HVAC innovation that has been designed for our transforming cities and modern living. Traditional communal heating systems have high heat losses through their internal pipework. These losses are then being trapped inside air-tight buildings and can raise temperatures of communal spaces to uncomfortable levels. The Zeroth Energy System has been created based on the input and requests of industry-leading developers and is changing the way HVAC systems are designed into multi-residential projects.

The revolutionary Zeroth Energy System uses an innovative, refrigerant-free, water-to-water energy loop, running at 15-25°C, providing heating, cooling and hot water to apartments through in-dwelling heat pump technology.

The unique design and operating temperatures of the Zeroth Energy System allow a broader range of heating or cooling emitters to be used compared to those incorporated in traditional building design. The system improves energy performance while helping to alleviate overheating issues currently experienced with traditional communal heating designs.

Benefits of the Zeroth Energy System include:

- Potential to reduce OPEX and CAPEX
- A low carbon solution for heating, cooling and hot water
- Able to improve building efficiency by reducing overheating issues
- Compliance with building regulations and engineering standards
- Uses a refrigerant-free water-to-water energy loop
- Requires less insulation on pipework than traditional systems
- Wide choice of emitters and controls in occupied spaces
- Fewer pipes and smaller units can increase usable design space in the ceilings, risers and wall cavities
- Fully modular system allows for a flexible, smaller plant room, with multiple options for the energy source, emitters and controls



Reduce Carbon with the Zeroth Energy System

Using in-dwelling heat pumps and a low-temperature energy loop, the Zeroth Energy System reduces the carbon emissions for heating and hot water of a comparable new dwelling by up to 29%, when combined with an air source heat pump.

By using the Zeroth Energy System in your projects, you could benefit from a significant carbon saving, improving year-on-year as the grid decarbonises. This is particularly important when reviewing carbon tax and its impact on your project costs.



The Zeroth Energy System Specification

Product Standards

Dimensions	
Dimensions (mm)	550 x 550 x 2000
Filled Weight (kg)	363
Weight - no packaging (kg)	178 or 110/68 split

Hot Water Cylinder	
Type	Unvented
Material	Stainless Steel
Insulation	EPS Foam
Integrated Electric Immersion (kW)	2

Product Variants

Item Code	ZHP4-180H
Description	180L combined cylinder with 4kW heating only heat pump

Item Code	ZHP6-180H
Description	180L combined cylinder with 6kW heating only heat pump

Item Code	ZHP4-180C
Description	180L combined cylinder with 4kW heating and cooling heat pump

Item Code	ZHP6-180C
Description	180L combined cylinder with 6kW heating and cooling heat pump



Zeroth Heat Pump

The Future of Heat Pumps

As carbon factors for primary fuel sources change, the tipping point for the switch from traditional fuel sources towards new low carbon technologies gets closer. Building regulations recognise this fact and are moving towards a preference for heat pump technologies over CHP and gas-based systems.

Understanding how to apply these technologies to your projects will enable compliance and protect your designs through future industry changes. Glen Dimplex Heating & Ventilation has been at the forefront of heat pump innovation for over 30 years and are perfectly positioned to provide products to suit a wide range of applications.

In addition to the technical application of heat pumps, there are often benefits available like grants and funding to incentivise the use of heat pump technology. We have the expertise to support you from a technical perspective, giving you viable solutions for your projects.

BREEAM & Heat Pumps

If BREEAM is required for your project, heat pumps are a great way to gain credits.

During the recent refurbishment of three offices, a newly installed heat pump system that uses only waste heat from a nearby transformer was used to heat the offices and the building's communal areas. As well as helping with general compliance and building regulations, Glen Dimplex Heating & Ventilation were able to provide cutting-edge technology and assist in specifying the heat pump best suited to the project.



Heat Pumps Specification

Air Source Heat Pumps - 3 Phase	Nominal Rating (kW)	Indoor/Outdoor	Controller	Max. Flow Temp (°C)
LA TU	25-60	O	WPM	58-65
LI TES	9-28	I	WPM	60
LI AS	40	I	WPM	58
LA TUR+	34-60	O	WPM	60

Ground Source Heat Pumps - 3 Phase	Nominal Rating (kW)	Indoor/Outdoor	Controller	Max. Flow Temp (°C)
SI TU	18-90	I	WPM	62
SIH TE SIH TU	20-90	I	WPM	70
SI TUR+	30-130	I	WPM	5-58



SI 18 22 TU Heat Pump & SI 30 TER+ Heat Pump

Tailoring Fan Coils To Maximise Efficiency

Fan Coil Units (FCUs) enable designers to create the most flexible terminal unit systems, providing close control of both heating and cooling. Suitable for offices, commercial spaces and residential projects, FCUs can meet and exceed the requirements of the strictest building energy standards. Our range of EVO, Matrix and Multiroom solutions can deliver benefit to your projects and help meet your energy requirements. By using advanced control strategies, the FCUs are able to monitor real-time demand, closely adjusting both air and water flows to ensure the occupied space conditions are maintained with minimum input.

The Matrix range takes things a step further, introducing pre-commissioning and self-balancing, which can dramatically reduce on-site skill requirement and setup times. Each fan within the unit can be factory set to the specified airflow, which means the fan will self-adjust its speed to overcome the resistance of the specific ductwork system installed. When coupled with intelligent control valves, the water flow rates can also be pre-configured, further reducing site commissioning requirements.

The introduction of the Multiroom allows us to take this technology to the next level, controlling up to five individual spaces via a single unit, reducing the number of FCUs needed for one space. By measuring each space independently, the Multiroom can determine, and satisfy, the area with the greatest need first, before moving on to the next area in demand.

In addition to the economic and environmental benefits of supplying fewer products, savings are also realised through reductions in pipework, wiring, installation and commissioning.

Fan Coil Case Study

The Palestra building provides Transport for London (TfL) with an iconic headquarters right in the heart of the city. During construction back in 2007, Ability supplied 750 Titan AC Fan Coils to provide air conditioning throughout. As part of the company's ongoing commitment to energy efficiency and environmental impact, the units have since been upgraded to utilise the latest EC motor technology, dramatically reducing energy consumption.

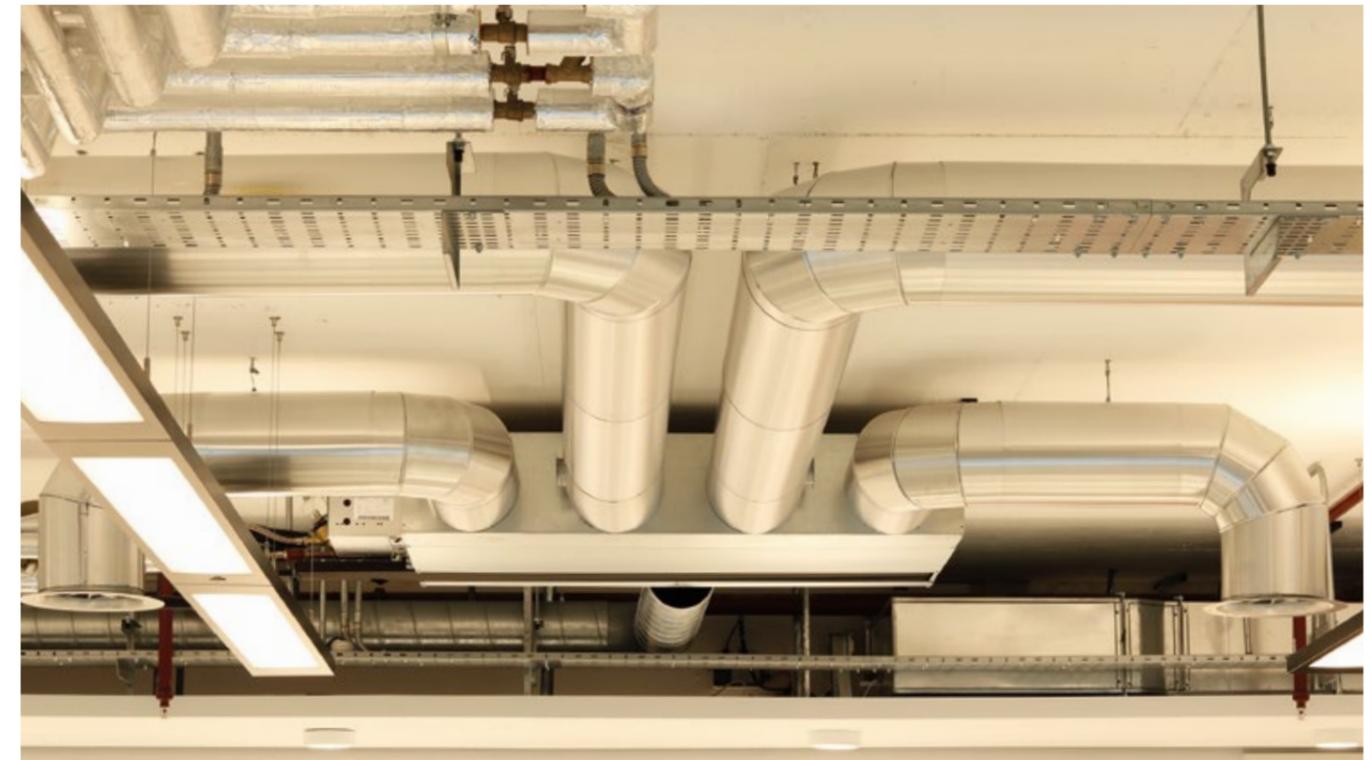
The upgrades were so successful that we were commissioned to undertake full refurbishment work on two additional TfL buildings, further reducing their running costs and carbon footprint. The buildings contained over 700 units from several different manufacturers, which created some unique challenges, all of which were overcome on time and within budget.



Fan Coils Specification

	SENS Cooling (kW)	Heating (kW)	Air Volume (l/s)	Min Width (mm)	Max Width (mm)	Height (mm)	Depth (mm)
EVOVERT	6.1	12.1	474	970	2170	510	235
EVOZEUS	5.6	9.7	411	950	1850	1700	235

	SENS Cooling (kW)	Heating (kW)	Air Volume (l/s)	Min Width (mm)	Max Width (mm)	Length (mm)	Height (mm)
EVO155	7.0	12.1	412	915	2115	800	155
EVO235	9.4	13.5	560	616	2116	900	235
EVO270	11.6	17.1	800	616	2116	900	270
EVO270+	12.1	17.8	850	616	2116	900	270
PRO285	12.1	21.2	850	616	1816	1000	285
MATRIX235	9.4	13.6	560	616	2116	900	235
MATRIX270	10.3	15.7	700	616	2116	900	270



MVHR

Mechanical Ventilation and Heat Recovery (MVHR) is a solution that creates air flow within modern buildings, where natural ventilation is significantly reduced. Not only will this improve indoor air quality, but the addition of heat recovery can add to the building's efficiency rating.

With an industry focus on producing less waste we are likely to move towards a circular economy, in which the greatest possible value is extracted from resources before they become waste. In HVAC terms, this will result in solutions that utilise waste heat becoming more widely specified. Using our knowledge, we can provide support on which systems can help you achieve your desired level of specification.



Ventilation Specification

SYSTEM 1		Depth (mm)	Width (mm)	Height (mm)	Vent Diameter (mm)	Specific Fan Power (W/L/s)
Kitchen & Bathroom	Contour C4	131	180	180	98	0.42 / 0.33
	Contour CV4	131	180 / 200	180 / 200	98	0.32 / 0.24 / 0.16
	Contour LVCV4	131	180 / 200	180 / 200	98	0.4 / 0.29 / 0.21
Shower Fans	Complete	122.2	178.1	178.1	98	0.37
	Illumi Complete	122.2 / 131	178.1 / 200	178.1 / 200	98	0.37
150mm Simply Silent	DX150	130	229	229	148	0.25 / 0.34
	GX150	140	229	229	150	0.35 / 0.43
	Contour C6	143	228 / 245	228 / 245	148	0.28 / 0.36
	G6	210	228	228	150	0.34 / 0.42
Premier Fan Range	DX200	158	222	252	100	0.96 / 0.82
	DX200T / CF20 / CF20T	158	222	252	100	1.1 / 0.82 / 0.79 / 0.96
	LVDX200T	144	222	252	100	1.13 / 0.85
	LVCF20 / LVCF20T	158	222	252	100	1 / 1.13 / 1.05 / 1.08
	LVCF20T DC2 / CF20T DC3	158	222	252	100	0.27 / 0.26 / 0.33

SYSTEM 3	Depth (mm)	Width (mm)	Height (mm)	Extract (FID m3/h)	Specific Fan Power (W/L/s)
Xplus 2 AC	480	510	190	155 / 237 / 329 / 471	0.31 / 0.36 / 0.38 / 0.44
Xplus 2 EC	480	510	190	550 fully adjustable	0.52

SYSTEM 4	Depth (mm)	Width (mm)	Height (mm)	Extract (FID m3/h)	Efficiency (%)	Specific Fan Power (W/L/s)
Xcell 300QVI	455	750	660	340	91	0.6
Xcell 400QVI	455	510	660	445	90	0.66
Xcell Stratum S120Q	826	510	240	185	90	0.69
Xcell Stratum S155QVI	826	510	240	155	80	0.66
Xcell Stratum S275QVI	826	510	305	275	90	0.71
Natural Air 180	285	552	609	277	86	0.66

Ventilation Systems

The performance rates for each of the 'system' approaches set out in Part F are the minimum requirements needed to ensure that adequate air quality is provided for occupants. The following systems satisfy the performance standard:

- System 1** – Background Ventilation and Intermittent Extractor Fans
- System 2** – Passive Stack Ventilation
- System 3** – Continuous Mechanical Extract Ventilation
- System 4** – Continuous Mechanical Supply and Extract with Heat Recovery

As regulations become more stringent, there has been an increased demand for more sophisticated ventilation products, such as MVHR. We have the ability to recommend and design a ventilation system to the requirements of your individual projects.

Hot Water Heat Pumps

A hot water heat pump is a low carbon technology for providing hot water, which consists of a ducted system supplying fresh air to a small refrigeration circuit, mounted on top of a water cylinder.

A hot water heat pump can reduce carbon figures and running costs compared to direct cylinders, while potentially improving plant size in block developments. The product can also help you to gain Part L compliance, especially when combined with electric panel heaters. In refurbishment projects, installing a hot water heat pump can also help to increase the property's EPC rating.



Water Heating Specification

Water Cylinders	Height (mm)	Width (mm)	Capacity (L)	Expansion Vessel (L)	Heat Loss (kW/24hr)
Direct Cylinders ECSd100-580 - 300-580	810 - 2080	580	100 - 300	12/19/24	0.75 - 1.96
Indirect Cylinders ECSi100-580 - 300-580	810 - 2080	580	100 - 300	12/19/24	0.75 - 1.96

Hot Water Heat Pump	Height (mm)	Diameter (mm)	Capacity (L)	Heat Loss (kW/24hr)
EDL200UK-630	1426	630	200	1.85
EDL270UK-630	1690	630	270	2.00

Edel Case Study

The Edel hot water heat pump proved to be an exceptionally efficient, easy to install and cost-effective renewable water heating system for a refurbishment project on the island of Jersey.

The straightforward installation saw Jersey Electricity Building Services (JEBS) directly replace the traditional cylinder in the airing cupboard with a 200L Edel, which is also available in a larger 270L capacity. All previous pipework and wiring were easily adapted to the new system, along with the addition of two six-inch ducts exiting the top of the Edel heater - one which supplies fresh air from outside to the heat pump, while the other expels cooled air to the outside after the heat has been extracted.

To trial the heat pump's performance over a number of months, a range of monitoring equipment was also put in place. The results showed that the Edel is incredibly efficient for large families and businesses with high hot water demand. During days of peak demand when 240L of hot water was used, the Edel delivered 2.98 units of heat for every one unit of electricity - equating to an impressive efficiency rate of almost 300%*.

The upgrade also helped the resident to cut their electricity bill by almost 80% - which equates to a saving of nearly £300 a year.



ECSd Range

*As an indication waterwise.org.uk suggest that a typical bath requires 80 litres of hot water, an eight-minute shower 62 litres, or an eight-minute power shower up to 162 litres.

Passing Part L with Electric Heating

Ever-increasing levels of insulation mean that heating requirements in new-build developments are much lower than they used to be. Considering this and the fact that electricity generation has been significantly decarbonised in recent years, it's easy to see why electric heating is becoming a popular means of passing Part L. When combined with technologies like hot water heat pumps, electric heating can provide you with a viable alternative to the traditional ways of meeting building regulations.

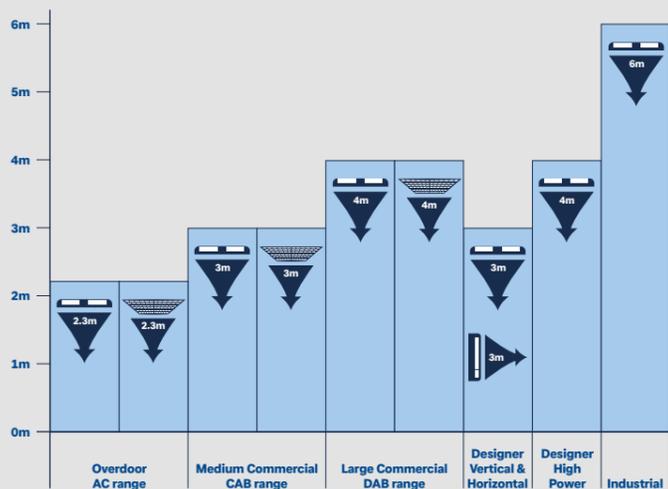
The reason these systems are not more widely specified is often the perception that the technology is old. Modern electric heaters come in a range of aesthetic designs and include modern features like electronic time and temperature controls, including 'Eco Start', delayed anticipatory control and inbuilt 'open window sensing' technology. Electric heating is fast and easy to install when compared with comparative alternatives, and is becoming a more highly specified heating solution.

Air Curtains

Air curtains can contribute significantly to lower running costs, greater energy efficiency and a more comfortable environment in commercial settings.

By fitting an air curtain over frequently opening entrances, whole building heating costs can be reduced by up to 30% as a result of less heat escaping the building.

Glen Dimplex Heating & Ventilation air curtains also encompass an ambient mode, which helps to stop the cool interior climate from escaping the building, cutting air conditioning running costs and improving comfort levels during warmer months.



Electric Heaters

Panel Heaters

Panel heaters are slim and wall mounted, and use a mixture of convected and radiant heat to warm a space quickly. These technologies can accurately balance the temperature of a space, in order to help you create a comfortable environment. Panel heater installation costs are minimal, due to the lack of pipework required, and can be a great supplement for hydronic systems, especially in infrequently heated areas.

SmartRad

SmartRad is a fan-assisted hydronic radiator with electronic control. It operates in a similar way to a fan coil and is able to deliver heating and cooling into a space.

Specification

	Watts	Height (mm)	Width (mm)	Depth (mm)
Q-Rad	500-2000	546	513-918	105
Monterey (MFPE)	500-2000	536	503-911	104
Girona (GFPE)	500-2000	565	530-940	107
Saletto (LPPE)	500-1500	235	746	100
PLXE	500-3000	430	450-860	108
LST	500-1500	430	688-860	108
SmartRad	600-3000	530	503-911	145



Cooling Solutions

As climate change leads to warmer summers and regulations demand greater building insulation, there is an increasing need to consider cooling solutions for your projects. Two ways in which these cooling solutions can be achieved is through mechanical cooling or by adapting your building's design.

Adapting your building's design could be approached in a number of ways, including through the use of low temperature networks.

The Zeroth Energy System, which incorporates this technology, offers a simplified solution to providing heating and comfort cooling while reducing the network losses.

An additional benefit of the Zeroth Energy System is that when the dwelling is in cooling mode, the excess thermal energy is utilised to reheat the hot water in the apartment. Should there be any further excess energy available, it will be put back into the central loop for others to use across the building.

[See page 6 for more information on the Zeroth Energy System.](#)

Sufficient ventilation can also have a cooling effect by replacing warm air with cool air. There are a number of ventilation solutions that your building design could benefit from, for example an MVHR unit with summer bypass, which stops the heat recovery element reintroducing warm air back into a space.

[Further information on ventilation can be found on page 12.](#)

Mechanical cooling can also be approached in multiple ways and heat pump technology is advancing to meet this demand, offering higher efficiencies while reducing carbon, when compared to traditional cooling systems.

Heat pumps are capable of delivering both heating and cooling, and can use a variety of collection methods depending on what is available and suitable on site.

The Zeroth Energy System, as a water source heat pump, can also provide mechanical cooling, allowing you to safeguard any building from potential overheating issues at the start of your design.

Benefits of Low Temperature Networks

Low temperature networks reduce heat gains which are commonly produced through higher temperature systems. When high temperature systems are used the heat load inside the building can increase and often mechanical methods are introduced to remove the excess heat.

With a low temperature network the heat losses are greatly reduced and can remove the need to adapt the building ventilation systems or implement the use of air conditioning / chilled plant which can be costly.



Cooling Emitter Options

Fan coil technology can be specified to provide heating and cooling through either a two or four pipe system.

Some of the benefits of using this technology as an emitter for cooling could include:

- Significantly smaller ventilation plant and distribution duct work when compared to air driven systems
- Individual zoning and improved flexibility in controls
- Ability to adapt to part load conditions

[More information can be found on page 10.](#)

Another emitter option for cooling would be a SmartRad panel heater.

The benefits of this product include:

- A compact and slim-line profile, designed for wall mounting allowing space savings in ceiling voids and floor depths
- Reduced construction time when compared to other devices due to its ability to deliver both heating and cooling
- Fast response system with individual zoning and control flexibility

[Specification information can be found on page 17.](#)

Whichever cooling option suits your needs, HVAC requirements can be efficiently met using a mixture of systems. At Glen Dimplex Heating & Ventilation, we have a team dedicated to understanding the built environment and its future, so they can provide advice and assistance in your product selection. The following pages help show case these solutions.

Benefits of cooling with heat pumps

The current typical specification for cooling sees a separate chiller system incorporated with a gas central heating scheme. With the move towards a low carbon future and under the new SAP 10, heat pumps will become more widely specified, which will not only introduce the capability for cooling naturally in the plant technology, but will also remove the need for a separate chiller system.

This is often a lower carbon source of cooling than current alternatives, which potentially means a saving on carbon tax, CAPEX and OPEX.



HVAC Solution Residential

Heating

- Products:**
- Electric panel heaters
 - Fan-assisted hydronic radiators
 - Electric flow boilers
 - Bathroom heaters and towel rails
 - Gas and electric fires

Find more information about our heating solutions on pages 16 & 17.

Cooling

- Products:**
- Fan-assisted hydronic radiators
 - Multiroom fan coil units

Find more information about our heating solutions on pages 16 & 17.

Ventilation

- Products:**
- Centralised mechanical ventilation with heat recovery
 - Continuous mechanical extract ventilation
 - Intermittent extract fans

Find more information about our ventilation solutions on pages 12 & 13.

Hot Water

- Products:**
- Hot water heat pumps
 - Indirect water cylinders
 - Direct water cylinders
 - Electric showers
 - Thermostatic shower
 - Water boiling tap

Find more information about our hot water solutions on pages 14 & 15.



HVAC Solution

Mixed Commercial & Residential

Heating

- Products:**
- Ground source and air source heat pumps
 - Low temperature network, in-apartment heat pumps
 - Air curtains
 - Electric panel heaters
 - Bathroom heaters and towel rails
 - Gas and electric fires

Find more information about our heating solutions on pages 6,7,8,9, 16 & 17.

Cooling

- Products:**
- Heat pumps
 - Fan coils
 - Fan-assisted hydronic radiators

Find more information about our cooling solutions on pages 19.

Ventilation

- Products:**
- Centralised mechanical ventilation with heat recovery
 - Continuous mechanical extract ventilation
 - Intermittent extract fans

Find more information about our ventilation solutions on pages 12 & 13.

Hot Water

- Products:**
- Low temperature network, in-apartment heat pumps
 - Electric showers
 - Thermostatic showers
 - Water boiling tap
 - Water boilers
 - Stored water heaters

Find more information about our low temperature network solutions on pages 6 & 7.



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