CONSULTANT FOCUS

LOW CARBON RETROFIT

MITSUBISHI ELECTRIC

What is Low Carbon Retrofit?

Low Carbon Retrofit is the process of improving a building's fabric and systems with the primary goal of improving energy efficiency and reducing carbon emissions

TYPICAL LOW CARBON RETROFIT PROJECTS INCLUDE:

REPLACEMENT of end-of-life HVAC with new energy efficient systems

CAT A to CAT B office conversions

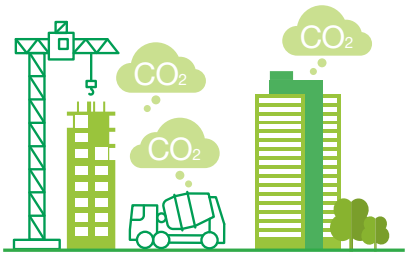
UPGRADING existing HVAC to improve energy efficiency

REPLACEMENT of fossil fuel heating systems with heat pumps

UK has committed to achieving **Net Zero** carbon emissions by 2050

Demand for sustainable commercial space is surging

Energy efficiency has been the driver – but now the focus is on **Operational Carbon & Embodied Carbon**



UK needs to double the pace of redevelopment to levels seen over the last ten years, while delivering a step change to achieve the

59% REDUCTION in energy use needed by 2050 (UKBC)

80% **of commercial buildings** currently in use will still be here in 2050

70% **of commercial buildings were built before 2000** - so to realise 2050 targets much of the sector will have to undergo some form of retrofit (UKBC)

Approximately **132,000** **buildings are over 1000m²** and account for 50% of **ALL** non-domestic energy usage

2 FORMS OF RETROFIT

LIGHT RETROFIT
Focus on performance optimisation, basic remodelling, replacement, or adaptation of existing building elements

DEEP RETROFIT
Focus on significant works of size or scale that result in a fundamental change to the building structure and/or services

Why electric is the right solution

A cleaner grid **46%** of UK's electricity from green sources

Using a heat pump over a gas boiler for the same heating task reduces carbon emissions by **76%**

CO_2 Over the whole life cycle a heat pump produces **5 times less carbon emissions**
(BASED ON TM65 METHOD FOR CALCULATIONS FOR EMBODIED CARBON)

Mitsubishi Electric has an extensive range of energy-efficient, low carbon, **heating, ventilation and cooling solutions** suitable for commercial retrofit projects

Embodied Carbon
CIBSE Mid-Level TM65 calculation data available for many products

CIBSE

We have low carbon solutions available for:

Hotels | Offices | Leisure facilities | Retail | Schools & universities | Public sector | Multi-Residential applications

HEAT PUMPS

Ecodan CAHV-R Air Source Heat Pump

Robust, low carbon system for the provision of sanitary hot water and space heating

ecodan Renewable Heating Technology

CONTINUOUS HEATING PROVISION 70°C outlet temperature down to -2°C ambient temperature

MULTIPLE UNIT CASCADE CONTROL from 7.8kW to 640kW capacity

WATER FLOW TEMPERATURES from 24°C to 70°C without boost heaters equals cost & energy savings

REDUCED EMBODIED CARBON

HERMETICALLY SEALED monobloc design

LOWER GWP R454C refrigerant (GWP 146)

ABILITY TO ROTATE units offers extended product life

DESIGN FLEXIBILITY for wide range of commercial applications

NEEDS ONLY WATER AND ELECTRICAL CONNECTIONS

ADVANCED HEAT exchange design for a shorter defrost time

EASY TO INSTALL and maintain

LOW FREQUENCY COMPRESSOR CONTROL improves energy efficiency

Download Product Information

Ecodan CO_2 QAHV Air Source Heat Pump

Energy efficient low carbon solution for sustainable provision of commercial sanitary hot water

ecodan Renewable Heating Technology

MODULAR SYSTEM FOR EASE OF INSTALLATION AND SCALABILITY Connect up to 16 units for total system capacity of 640kW

UTILISES CO_2 AS REFRIGERANT (GWP 1)

78% Overall carbon savings of 78% compared to typical gas boiler

SIGNIFICANT SAVINGS in running costs and carbon emissions compared to direct electric heating systems

BOOSTS BREEAM points – up to 3 points

M-NET READY CONNECTION for ease of control

SEASONAL EFFICIENCIES for sanitary hot water at 65°C equals 3

LEAVING WATER TEMPERATURE UP TO 90°C

Download Product Information

MEHP-iS-G07 Air Source Heat Pump

Top level energy efficiencies with a compact modular design

HOT WATER UP TO 65°C Operating range as low as -20°C ambient

EXCEPTIONAL PERFORMANCE at part-load operating condition

COMPACT DESIGN and modular expansion

R32 **USES LOWER GWP R32** (GWP 675)

PLUG & PLAY SOLUTION: options for factory fitted pumps and buffer vessel

SMART COORDINATED DEFROST for maximum energy efficiency

Best-in-class for **LOW NOISE LEVELS**

Download Product Information

e-Series Heat Pumps & Chillers

Exceptional energy efficiency and a wide operating range

USES LOWER GWP R32 (GWP 675)

EXCEPTIONAL ENERGY EFFICIENCY – SEER 5.52

COMPACT FOOTPRINT **35%** less plant space needed

MODULAR DESIGN simplifies lifting and installation

EASILY SCALABLE - CONNECT UP TO 6 UNITS FOR SYSTEM CAPACITY FROM 150KW TO 1,080KW

Download Product Information

CLIMAVENETA HEAT PUMPS & CHILLERS

CLIMAVENETA

Climaveneta Heat Pumps & Chillers

Fully customisable and highly energy efficient

Range includes options with **LOW GWP REFRIGERANTS**

EXTENSIVE OPTION LIST allows systems to be configured for almost any project requirement

EASY INTEGRATION with BEMS

Download Product Information

VARIABLE REFRIGERANT FLOW (VRF) AIR CONDITIONING

CITY MULTI

City Multi VRF

Future proof technology

R32 **USES LOWER GWP R32** (GWP 675)

Download Product Information

HEAT RECOVERY SYSTEM CAN REDUCE POWER input by up to **30%** Ideal for hotels, offices and leisure

2 TWO PIPE SYSTEM FOR EASY INSTALL

50 INDOOR UNITS CAN CONNECT TO ONE OUTDOOR UNIT Complete flexibility in design, installation and operation

HEAT PUMP SYSTEM ideal for open plan offices, call centres or retail

City Multi Hybrid VRF

Comfortable and stable air temperature control with no refrigerant in occupied spaces, meaning simple compliance with BS EN378 and removing the need for leak detection

2 SIMPLIFIED TWO PIPE SYSTEM

LOW CARBON solution with water pipework connecting the indoor units and no refrigerant in occupied spaces

SCALABLE system can be expanded using additional horizontal Sub-HBC's allowing up to **50** indoor units to be supplied by one outdoor condenser

VALVES, PUMPS and heat exchanger all contained within the Main-HBC for phased, installation

Ideal for Cat A to Cat B applications

NEW VERTICAL HBC

Download Product Information

VENTILATION

Lossnay Mechanical Ventilation with Heat Recovery

Supplies fresh air while simultaneously extracting stale air

Lossnay

PLUG AND PLAY CO_2 SENSOR on many models

Download Product Information

M-NET CONNECTION for easy integration of control

IMPROVES AIR QUALITY and saves energy

WIDE RANGE OF AIR VOLUMES

RECOVERS HEAT ENERGY FOR MAXIMUM EFFICIENCY

COMING SOON

s-AIRME Compact AHU

Highly advanced and energy efficient AHU systems – easy to install and commission

Mr.SLIM Mr Slim R32 Power Inverter heat pump technology enables energy efficient tempering of fresh air

R32 **USES LOWER GWP R32** (GWP 675)

SELF-SUPPORTING, COMPACT ONE-PIECE CONSTRUCTION for maximum air tightness and minimal thermal bridging

EASY AIR FLOW COMMISSIONING with selectable target air volume control

FULLY INTEGRATED CONTROLS and single point power supply for ease of installation

PLATE HEAT EXCHANGER for effective heat recovery

CONSTANT VOLUME EC PLUG FANS for greater efficiency and cost savings

Download Product Information

Contact your Mitsubishi Electric Account Manager for specification advice for retrofit projects.

les.mitsubishielectric.co.uk

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