

CONSULTANT FOCUS on Public Sector Buildings



WHAT ARE THE KEY DRIVERS FOR DECARBONISATION PROJECTS ACROSS THE PUBLIC SECTOR?

Future proof new build projects with HVAC systems designed to reduce the Whole Life Carbon of buildings

LOW AND LOWER GWP REFRIGERANT SYSTEMS

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

Retrofit existing estates with energy efficient heating & cooling solutions

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

76%

Over the whole life cycle a heat pump produces 5 times less carbon emissions (based on TM65 method for calculations for embodied carbon)

Improve Indoor Air Quality with Mechanical Ventilation with Heat Recovery (MVHR) systems

We spend **92%** of our lives indoors where air pollution levels can be 2-5 times higher than outdoors

Building regulations promote improved insulation and air tightness of buildings to reduce heat loss

MVHR SYSTEMS CAN PROVIDE A STEADY SUPPLY OF FRESH AIR, RECOVERING HEAT FROM THE EXTRACTED STALE AIR

Maximise Efficiency with Effective Controls

Effective control of a building can maximise energy efficiency and optimise heating and cooling according to building occupancy

Help achieve building energy efficiency and carbon reduction targets that are set by legislation

Manage the indoor environment to optimise occupant health, comfort and productivity

Support good maintenance practice and manage wear-&-tear on controlled equipment by preventing unnecessary operation

PUBLIC SECTOR DECARBONISATION SCHEME FUNDING

Public Sector Organisations are eligible for funding for the installation of heat decarbonisation and energy efficiency measures

The Public Sector Decarbonisation Scheme is a government-led initiative aimed at reducing carbon emissions across public sector buildings and infrastructure

Help the transition to more energy efficient and low carbon technologies

Public Sector Decarbonisation Scheme aims to reduce direct carbon emissions from all public sector buildings by

75%

MITSUBISHI ELECTRIC HAVE AN EXTENSIVE RANGE OF ENERGY EFFICIENT HVAC SOLUTIONS FOR PUBLIC SECTOR BUILDINGS

COOLING **HEATING** **VENTILATION** **CONTROLS**

Plus expertise in new build and low carbon retrofit projects across the public sector

HEALTHCARE
NHS Trusts and Hospital Campuses

EDUCATION
Nurseries, Schools, Colleges and Universities

LEISURE FACILITIES
Leisure Centres and Civic campuses

GOVERNMENT BUILDINGS
Government departments and Local authorities

MEETING CARBON REDUCTION TARGETS WITH SOLUTIONS DESIGNED TO ACHIEVE NET ZERO GOALS

THE UKGBC'S NET ZERO ROADMAP STATES THAT **71%** OF THE UK'S BUILT ENVIRONMENT EMISSIONS ARE CREATED FROM THE ENERGY USED TO HEAT, COOL AND POWER BUILDINGS.

WE UNDERSTAND THE KEY CHALLENGES

To decarbonise buildings, all sectors need:

- To improve energy efficiency to reduce running costs
- To ensure compliance with new building legislation
- To reduce their carbon footprint and meet Government Net Zero targets
- To manage refurb and retrofit projects within public buildings which are operational 24/7, 365 days a year
- Easy maintenance and remote monitoring - for buildings that need to stay productive and operational all year round

HEALTHCARE SECTOR CHALLENGES

Diverse range of facilities - from local surgeries to medical research laboratories, care homes to large hospital complexes - all needing to:

- Improve indoor air quality (IAQ)
- Filter out viruses and pollutants
- Keep staff comfortable and productive
- Comply with carbon reduction legislation
- Keep energy bills to a minimum

Ageing NHS estate requiring retrofit measures

42% NHS BUILDINGS BUILT BEFORE 1985

NHS Net Zero Building Standard set targets to achieve net zero health service for direct emissions by 2040 and indirect emissions by 2045*

Vision is to improve patient care, while reducing operational building energy demands, embodied carbon in construction and the whole life carbon of building elements used within them*

IMPROVING HVAC EFFICIENCY

- By phasing out direct fossil fuel usage by all primary heating and cooling systems
- Taking advantage of planned heat networks and making use of hospitals as anchor loads for heat networks
- Specifying refrigerants with a low global warming potential (GWP)
- Making use of high efficiency heat recovery
- Use of smart Building Energy Management Systems (BEMS) to optimise HVAC operation

Require complete flexibility of HVAC equipment design and installation, to enable accurate temperature control, alongside comfort, safety and reliability

- CONSTANT, STABLE TEMPERATURES
- HIGH TEMPERATURE HOT WATER PRODUCTION
- WHISPER-QUIET OPERATION
- FRESH AIR

EDUCATION SECTOR CHALLENGES

The education sector faces the challenges of:

- COMPLYING WITH LEGISLATION
- DELIVERING COMFORTABLE, ENERGY-EFFICIENT BUILDINGS
- LOWERING RUNNING COSTS

SCHOOL & UNIVERSITY BUILDINGS ACCOUNT FOR **36%** OF TOTAL UK PUBLIC SECTOR BUILDING EMISSIONS

IMPROVING INDOOR AIR QUALITY (IAQ)

- Stale air affects students' concentration and causes drowsiness, impairing their performance
- Overheating in classrooms and student accommodation during warmer weather can cause physical discomfort and illness
- Low air volumes in classrooms lead to high concentrations of infectious particles
- Universities are pioneering use of smart buildings and IoT (Internet of Things) sensors to monitor building occupancy and manage energy efficiency more effectively

LEISURE SECTOR CHALLENGES

- SPORTS CENTRES
 - MANY DIFFERENT SIZED AREAS WITH VARYING HEATING & COOLING LOADS
 - NEED CONSTANT SUPPLY OF HOT WATER ALL YEAR ROUND
 - HIGH VENTILATION REQUIREMENTS
- CIVIC CAMPUSES (theatres, museums, libraries)
 - Varying occupancy levels require effective controls to ensure visitor comfort

Mitsubishi Electric has a wide range of renewable heating & cooling solutions for new build and refurbishment projects

COMMERCIAL HEAT PUMPS AND CHILLERS

- ADVANCED RANGE OF COMMERCIAL HEAT PUMPS AND CHILLERS
- SANITARY HOT WATER UP TO 90°C
- REDUCED RUNNING COSTS
- LOWER CARBON FOOTPRINT

ECODAN RANGE



Ecodan CAHV-R

- AIR SOURCE HEAT PUMP PROVIDING CAPACITIES UP TO 640KW
- UP TO 70°C OUTLET WATER TEMPERATURES
- UTILISES LOW GWP R454C REFRIGERANT
- LOW MAINTENANCE

Ecodan QAHV

- AIR SOURCE HEAT PUMP FOR SANITARY HOT WATER APPLICATIONS
- HIGH TEMPERATURE HOT WATER OF UP TO 90°C
- UTILISES CO₂ (R744) REFRIGERANT WITH GWP OF 1
- LOW NOISE LEVELS

e-SERIES RANGE



CLIMAVENETA RANGE



CONNECT UP TO 6 UNITS FOR UP TO 1,080KW CAPACITY

- MODULAR DESIGN WITH COMPACT FOOTPRINT
- UTILISES LOWER GWP R32 REFRIGERANT
- EASY TO INSTALL AND MAINTAIN

- AIR AND WATER-COOLED HEAT PUMPS & CHILLERS
- SCALABLE AND FULLY CUSTOMISABLE
- VARIOUS HEAT EXCHANGE OPTIONS
- USE LOW AND LOWER GWP REFRIGERANTS
- LATEST FIXED SPEED AND INVERTER SCROLL COMPRESSOR TECHNOLOGY
- INTEGRATE INTO COMPLEX BUILDING MANAGEMENT SYSTEMS

CITY MULTI VRF AND HYBRID VRF AIR CONDITIONING SYSTEMS



VRF Range

SUITABLE FOR MEDIUM TO LARGE SCALE BUILDINGS, UP TO 150KW CAPACITY

AVAILABLE AS SIMULTANEOUS 2-PIPE HEAT RECOVERY (R2 SERIES) AND HEAT PUMP (Y SERIES) SYSTEMS

HIGH LEVELS OF COMFORT BOTH THERMALLY AND ACOUSTICALLY

IDEAL FOR NEW BUILD & RETROFIT PROJECTS

- UP TO 50 INDOOR UNITS CAN BE CONNECTED TO ONE OUTDOOR UNIT
- AIR AND WATER-COOLED OPTIONS
- HIGH EFFICIENCY AND STANDARD MODELS AVAILABLE

Hybrid VRF Range

OPTIONS FOR VERTICAL & HORIZONTAL HBC SET-UP

2-PIPE HEAT RECOVERY VRF WITH WATER BETWEEN THE HYBRID BRANCH CONTROLLER (HBC) AND INDOOR UNITS

AIR AND WATER-COOLED OPTIONS

EASY TO INSTALL AND MAINTAIN

- UP TO 50 INDOOR UNITS CAN BE CONNECTED TO ONE OUTDOOR UNIT
- LOW CARBON SOLUTION UTILISING R32 REFRIGERANT
- 10% INCREASE IN SENSIBLE COOLING VS STANDARD VRF
- BENEFITS FROM NO REFRIGERANT IN OCCUPIED SPACES

VENTILATION



Mitsubishi Electric Lossnay MVHR systems and AHU's improve indoor air quality and optimise energy efficiency through heat recovery

Lossnay Systems

WIDE RANGE OF SIZES AVAILABLE

UNITS DELIVER CONSTANT SUPPLY OF FRESH AIR INTO ANY BUILDING WHILST SIMULTANEOUSLY EXTRACTING STALE AIR

- FLEXIBLE INSTALLATION OPTIONS
- QUIET OPERATION
- RECOVER VALUABLE HEAT ENERGY FOR MAXIMUM ENERGY EFFICIENCY

Air Handling Units

WORK IN CONJUNCTION WITH A BUILDING'S AIR CONDITIONING SYSTEM

- INCORPORATE ENERGY EFFICIENT HEAT RECOVERY TECHNOLOGY
- PROVIDE OCCUPANTS WITH A FRESH AND COMFORTABLE ENVIRONMENT
- PROVIDE TEMPERED FRESH AIR FOR CENTRALISED VENTILATION OF BUILDINGS

CONTROLS

- CHOICE OF INNOVATIVE CONTROL OPTIONS
- INTEGRATE SEAMLESSLY INTO BUILDING ENERGY MANAGEMENT SYSTEMS
- OPTIMISE EFFICIENCY OF HEATING AND COOLING PROVISION
- REMOTE MONITORING SOLUTIONS AVAILABLE

MELCloud COMMERCIAL

Total support from design to completion

Contact us for specification support and advice for your next Public Sector project

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