Standards

Working together to raise industry standards

Installation Commissioning Maintenance Health & Safety Corporate & Social Responsibility (CSR)

Partner Programme

MITSUBISHI ELECTRIC
AIR CONDITIONING SYSTEMS

A time of change

Changes in legislation. Changes in the environment. Changes in customer expectation. Changes for the better.

"As a leading supplier of air conditioning equipment, Mitsubishi Electric is committed to continually raising industry standards for the benefit of our Customers, Partners, Specifiers and End-users alike.

We want customers to experience a guaranteed level of quality and support from our Partners that will truly differentiate Mitsubishi Electric from its competition and help build stronger business relationships. That is why all our **Business Solutions Partners** and **Accredited Installers** are working to this agreed set of best practice industry standards - delivering best-of-breed solutions and peace of mind to our customers."

Yoshinori Miyata
President
Mitsubishi Electric Europe
UK Branch

MITSUBISHI ELECTRIC
Changes for the Better

"Of necessity, clients, their professional advisors, contractors and others anxious to follow the sustainability agenda are increasingly aware of the need to manage the construction supply chain. This, coupled with emerging EU legislation, revised Building Regulations and Competent Persons and Quality schemes is creating a pressing need for contractors to be able to demonstrate their level of skills and competence. Independent third party verification, using recognised industry standards, is the best way for both to establish and to boost their credibility.

The HVCA's Inspection and Assessment regime, launched in 2003, is already becoming a cornerstone of contractors' efforts to set themselves apart from the rest, including their ability to comply with emerging EU legislation on safe handling of refrigerants, waste products and the like. Through independent inspection and assessment our members clearly and genuinely demonstrate that they have the necessary skills, commercial capability and technical competence to match the client's needs.

The Mitsubishi Electric initiative is very much in line with our efforts to raise standards and to boost the credibility of specialist firms in the building engineering services sector and is to be applauded."

Robert Higgs
Director HVCA

February 2005

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Working together to raise industry standards

Mitsubishi Electric is taking an industry lead and improving the way it does business. We are committed to quality - both in the equipment we supply and the services we provide to our customers.

This is why it is of paramount importance that all our **Business Solutions Partners** and **Accredited Installers** must be committed to demonstrating competence in key delivery areas such as Installation, Commissioning, Aftercare, Health and Safety, Corporate Social Responsibility and Refrigerant Handling.

The standards as set out by Mitsubishi Electric, and published within this brochure are derived from industry standards that are already established and are mindful of existing legislation.

We truly believe that adherence to these standards will benefit our Partners and customers alike.

For ease of reference as Mitsubishi Electric Business Solutions Partner and a Mitsubishi Electric Accredited Installer will hereafter be referred to as Business Solution Partner and Accredited Installer respectively.

Installation Standards

1. Introduction

The fixing of all air conditioning equipment, installation of all refrigerant pipework and full commissioning shall be performed by a specialist refrigerant installer who shall be authorised to install Mitsubishi Electric equipment.

Prior to installation Business Solutions Partners or Accredited Installers shall submit their Partner Programme certificate. In the event of a Business Solutions Partner or Accredited Installer not using directly employed labour, any specialist sub-contractors that meet the required standards, and have previously been registered with Mitsubishi Electric can be used. Business Solutions Partners or Accredited Installers must clearly state any intention to use such sub-contractors prior to installation.

Full access shall be afforded to site during the installation stage of the project to allow them to verify that installation methods are fully in accordance with Mitsubishi Electric Engineers requirements and that the equipment warranties will not be invalidated. All works including labour, materials, plant, tools and equipment will comply with BS EN378. Furthermore all Business Solutions Partners or Accredited Installers must adhere to the following:

1.1 Retain the responsibility to advise of any aspects which, based upon experience, would appear to be inappropriate and/or likely to lead to operational problems.

1.2 Health & Safety at Work Act 1974, and all other relevant attendant legislation, particularly the management of Health & Safety at Work Regulations 1992, Personal Protective Equipment at Work Regulation 1992 and the Construction, Design and Management (CDM) Regulation 1994.

1.3 Ensure that all personnel are in possession of the appropriate personal protective equipment to comply with the Personal Protective Equipment Regulations 1992.

1.4 Ensure that all personnel are fully competent in the work they are tasked to perform and any claim to stated qualifications are valid.

1.5 Ensure that all personnel are instructed to comply with the prevailing site rules/directions.

Installation Standards

1.6 Must use calibrated and regularly checked tools. Electrical tools will be calibrated and checked annually.

1.7 Upon completion of the works ensure that all debris is removed and the site is left clean and tidy to the satisfaction of the Customer.

2. Refrigeration Pipework

Supply and installation of all interconnecting refrigeration pipework should be carried out by a Business Solutions Partner or Accredited Installer (their Partner Programme certificate must be submitted prior to installation commencement) in accordance with Section 4, Part 1, of the "Safety Code for Refrigerating Systems Utilising HFC's" published by the Institute of Refrigeration, and to BS EN 378 Specification and Mitsubishi Electric Air Conditioning design and installation instructions. All pipework must be suitable for R410A/R407c as applicable. Longest possible lengths of copper pipe should be utilised to minimise joints on site. Furthermore all of the following points should be adhered to.

2.1 All copper pipe up to 1 1/8" (28 mm) outside diameter (O/D) shall be fabricated from refrigerant quality tube to BS EN 12449:1999. Tube shall be fully annealed up to 7/8" (22 mm) outside diameter (O/D) only. Tube shall be delivered to site internally degreased and shall be stored in clean dry conditions with ends sealed until required for installation.

2.2 All due consideration and allowances shall be taken to keep pipework clean and dry during the installation works, ensuring that all pipework unfinished ends are capped off at all times.

2.3 The number of joints, bends and sets are to be kept to a minimum. Butt joints will not be accepted, properly swaged joints must be formed. Bends and sets are to be machine pulled to an approved radius where possible.

2.4 Flared joints must only be used when connecting to the manufacturers equipment.

2.5 Pipework to be properly fixed and supported using a recognised industry approved support system.

Installation Standards

Brazing shall be carried out in accordance with British Refrigeration Association Specification for Brazing and BS 14324:2004. Brazing rods shall be cadmium free and conform to BS EN 1044:1999. At all times, when brazing, a small amount of dry nitrogen must be purged through the pipe to prevent oxidation and scaling internally. Any component susceptible to heat during the brazing process that may be damaged must be protected. Soft solder shall never be used for jointing of refrigeration pipework.

2.6.1 All completed R410A systems will be strength and leak tested with dry nitrogen as per the Mitsubishi Electric Commissioning Log Book method statements as below and BS EN 378. If the system is found to be leak free, the final pressure readings for both strength and leak testing are to be witnessed by either the main contractor or end-user and recorded in the Mitsubishi Electric Commissioning Log Book (Method Statement 1).

5 Steps Strength and Leak Test

1) 3 bar (N2) Minimum of 3 minutes.
2) 15 bar (N2) Minimum of 3 minutes.
3) 32 bar (N2) Minimum 15 minutes.
4) 41.5 bar (N2) Strength test for a period of time that is acceptable to show any signs of deformation to the pipework.
5) 33 bar (N2) After step 4, drop pressure to 33 bar for final leak test for minimum 24 hours.

Pressure testing signage will be clearly visible on site during testing periods.

2.6.2 All completed R407c systems will be leak tested with dry nitrogen as per the Mitsubishi Electric Commissioning Log Book method statements as below and BS EN 378. If the system is found to be leak free, the final pressure readings for leak testing are to be witnessed and entered into the Mitsubishi Electric Commissioning Log Book (Method Statement 1).

3 Steps Leak Test

1) 3.0 bar (N2) Minimum of 3 minutes.
2) 15.0 bar (N2) Minimum of 3 minutes.
3) 32.0 bar (N2) Minimum 24 hours.

Pressure testing signage will be clearly visible on site during testing periods.

Installation Standards

2.7 On completion of strength/leak testing an evacuation is to be carried out to 2mm Hg (2 Torr). This will eliminate the risk of any moisture being present within the pipework installation. It is recommended that a triple evacuation process be carried out as below and as per the method statement in the relevant Commissioning Logbook (Method Statement 2). This should then be followed by a pressure rise test.

6 Steps Evacuation

1) Evacuate the system to 10 Torr from both service valves. System manifold gauges "must not" be used to measure a vacuum. A Torr gauge must be used at all times.
2) Break the vacuum with OFN (N2) into "suction" service valve to 1 bar.
3) Evacuate to 5 torr from "discharge valve".
4) Repeat step 2.
5) Evacuate to lowest pressure vacuum pump will achieve (2 torr for 1 hour minimum).
6) Pressure rise test to be carried out for a minimum of 30 minutes.

3. Drain Pipework

A condensate line shall be installed to each fan coil unit. This shall be installed (and insulated if copper) as per the standard specification. Minimum size of condensate pipes to be 22mm copper or plastic, insulated and pumped or by gravity from each fan coil/cassette, drains to run 1:80 min falls as indicated on drawings.

3.1 Pipework will be adequately supported in such a manner as to permit free movement due to expansion and contraction.

3.2 Pipework should be graded to fall throughout, run to waste, and should be accessible for cleaning.

3.3 On completion, a leak and function test must be carried out.

3.4 If Outdoor Units are installed inside a condensate drain tray will be fitted to collect and remove any condensate produced.

3.5 Gravity drains will be installed whenever possible.

Installation Standards

4. Electrical Work

The contractor shall include for the design and installation (unless otherwise specified), including connecting all items of mechanical equipment. The Contractor shall provide and install all wiring, cables, conduit, trunking, cable trays, termination points, local means of isolation, control wiring etc., to mechanical plant items to ensure that all items of equipment and controls fully function in accordance with manufacturers' recommendations and the current IEE Wiring Regulations, CIBSE Codes of Practice, British Standards and UK Building Regulations.

4.1 All electrical cables used for power distribution will comply with 16th Edition IEE Regulations. All cables used for data/control must be greater than 1.25 mm 2-core screened.

4.2 Appropriate glands will be fitted to each item of equipment in accordance with environmental conditions.

4.3 The whole installation will be in full accordance with the IEE Wiring Regulations in every respect with particular attention to clipping, earthing of equipment, glanding off, final connections and isolating.

4.4 Earth bonds on refrigeration, cold water and drainage pipework to be applied throughout.

4.5 Equi-potential bonding between exposed conductive parts and extraneous conductive parts at the same potential, to be applied throughout.

4.6 On completion the installation should be tested in accordance with the requirements of Inspection and Testing section of the IEE Wiring Regulations. Inspection shall include physical check that all equipment has been securely fixed and that all electrical connections are mechanically sound.

4.7 Where necessary, to prevent damage to components of equipment, the equipment shall be disconnected for the duration of the relevant tests.

4.8 Heat resisting cable should be used in all locations where wiring is subjected to ambient temperatures in excess of 40°C (104°F).

4.9 A suitable means of isolating the electricity supply shall be fitted adjacent to and within reach and sight of the equipment with over current protections.

Installation Standards

4.10 When running interconnecting control wiring it is essential to avoid the risk of electronic control signals being corrupted. Care should therefore be taken to avoid running control cables too close to power cables.

5. Insulation

Thermal insulating material used within any building shall, when tested in accordance with BS 476-4:1970, be classified as non-combustible also free from substances which in the event of a fire would generate appreciable quantities of smoke or toxic fumes. Insulating materials should be of Class "O" rating as defined by the Building Regulations.

5.1 Thermal insulation will be fitted to all the pipe work installations detailed herein. All materials used will be 'non-combustible' Class "O". All insulation materials, adhesives and finishes, will be suitable in all respects for continuous use without degradation throughout the range of operating temperatures and within the environment indicated.

5.2 The materials and method of installation will comply with all relevant British Standards Codes of Practice.

5.3 The material will consist of flexible CFC free, elastomeric black foam with a closed cell structure. The outer surface of the foam will be an inherent vapour barrier.

5.4 In all cases where pipes pass through fire compartment walls, fire resistant and non-flammable insulation/foam will be packed between the pipe sleeve and the pipe. All insulation will be supplied at the thickness specified in HVCA standards.

6. Ductwork, Grilles and Diffusers

Unless specified otherwise all sheet metal ductwork will be manufactured and installed in accordance with HVCA specification DW/144. Ductwork systems will be designed to give a maximum air velocity of between 5 and 8 m/s on main ducts and between 4 and 6 m/s on branch ducts. The ductwork system design is to take into account the equipment's characteristics in terms of static pressure generation and acoustic properties and suitable means of regulation to be incorporated.

Installation Standards

6.1 Ductwork shall be manufactured using hot dipped galvanised steel sheeting to BS EN 10327:2004.

6.2 Bends and fittings for rectangular ductwork will be of the square type with internal turning vanes.

6.3 Circular ductwork will generally be of the "spirally wound" type utilising standard sizes as specified in DW/144.

6.4 Bends in circular ductwork shall be a minimum of 0.5D throat radius.

6.5 Branches onto main ducts will be by "shoe" type connections with a 45° leading edge.

6.6 All ductwork will be adequately supported from the building structure using one of the methods approved by DW/144 appropriate to the size of duct.

6.7 All ductwork systems will be fitted with sufficient volume control dampers to enable system balancing. To prevent noise regeneration final trimming to 10% only of airflows to be carried out using the opposed blade dampers fitted to terminal devices.

6.8 Fire dampers are to be fitted to ductwork passing through designated fire barriers, these dampers to be fitted with HEVAC installation frames where passing through structural walls.

6.9 Flexible ducting shall be used to form the final connection to the air terminal device. The maximum length not to exceed 1.5 metres and incorporate a change in direction of not greater than 90°.

6.10 Flexible ducting will be manufactured from aluminium/polyester/aluminium laminate enclosing a high tensile steel wire helix. Where required flexible ducting will be of the insulated type with an outer jacket of reinforced aluminium laminate giving a Class "O" rating.

6.11 Joints between flexible and rigid ductwork to be secured by worm drive clip with the rigid ductwork spigot incorporating a 'swaged' end.

Installation Standards

6.12 Insulation will be applied to the following ductwork systems:

- Fresh air intake ductwork
- Heat recovery ventilation return air ducts passing through unheated spaces
- All conditioned air ductwork (unless an architectural feature and adequate control is provided to prevent condensation forming on the ductwork).

6.13 Insulation shall be either Rockwool ductwrap minimum 25mm thick, or phenolic foam, with re-inforced aluminium foil vapour barrier giving a Class "O" rated finish and a thermal conductivity of 0.018W/M/°K. The insulation is to be applied in accordance with the manufacturers recommendations. All joints to be securely taped with 75mm wide self adhesive aluminium tape and further secured with wire loops at 1.0m intervals.

6.14 All ductwork will be fitted with identification bands and directional arrows in accordance with BS 1710:1984.

6.15 Air terminal devices will be selected to provide the required air flows/throws for the system design, are to provide a draught free environment in all operating conditions and take into account the acoustic requirements of the installation. Generally terminal neck velocities will not exceed 3.5m/s to prevent noise regeneration.

Commissioning Standards

7. Pre-commissioning Split Systems

The following items must be checked prior to any systems being switched on.

7.1 A marked-up scale site drawing showing all Mitsubishi Electric units and refrigeration pipework, address settings (for units and remote controllers) and model/serial numbers must be produced.

7.2 Fan coil units, Outdoor Units addressing and screened wiring (greater than1.25mm) as per the Mitsubishi Electric specification (refer to data book).

7.3 All control wiring, remote controllers, A-M net adaptors (if fitted) must be complete and connected.

7.4 Before the Power Supply to Outdoor Unit is turned on, the mains wiring must be checked phase to neutral, neutral to earth. Once this is complete the mains isolator can be switched on to allow the crankcase heater to warm up the oil (minimum 24 hours).

7.5 All power supply wiring to Indoor Units must be complete, tested and left switched on at Indoor Unit isolators.

7.6 All Indoor Units must be clearly marked with marker pen or similar indication and label indicating address and model/serial number.

7.7 Pressure test and evacuation of system refrigerant pipework must be completed as per section 2.6.1, 2.6.2 & 2.7.

7.8 Condensate pipework must be completed and tested.

7.9 Total lengths of liquid line pipework installed, must be confirmed by installation Engineers and marked on drawings for additional refrigerant charge calculation.

7.10 Sufficient supply of refrigerant R410A/R407c in dumpy cylinders must be on site adjacent to the Outdoor Units ready for use.

7.11 Now charge refrigerant into pipework based upon the additional refrigerant charge calculation.

7.12 Outdoor Unit service valves must now be opened.

Commissioning Standards

8. Commissioning Split Systems

8.1 Connect A-Control Service Tool and check system information.

8.2 Start up the system and run each Indoor Unit one by one in cooling mode to confirm correct operation superheat and pipe temperatures.

8.3 Then change over all Indoor Units to heating mode and check operation, sub-cooling and pipe temperatures.

8.4 Set up and configure all controllers/timeclocks/G50 centralised controllers.

8.5 Check operation of all accessory interlocks i.e. timeclocks, centralised controllers etc.

8.6 Carry out airflow and static pressure drops on any units connected to ductwork.

8.7 Check operation of all condensate pumps if fitted.

8.8 Monitor operation for at least 1 hour. Observe and record all data.

8.9 Complete Commissioning Log Book via paper forms provided or via CLBmobile™ (handheld device).

Commissioning Standards

9. Pre-commissioning VRF

The following items must be checked prior to any systems being switched on.

9.1 A marked up scale site drawing showing all Mitsubishi Electric units and refrigeration pipework, address settings (for units and remote controllers and BC branch connections) and model/serial numbers must be produced.

9.2 City Multi Indoor Units, BC Boxes, Outdoor Units addressing and screened wiring (greater than 1.25mm) as per the Mitsubishi Electric specification (refer to data book).

9.3 All control wiring and remote controllers must be complete and connected but final connection to TB3 & TB7 left disconnected.

9.4 Before the Power Supply to Outdoor Unit is turned on, the mains wiring must be checked phase to neutral, neutral to earth. Once this is complete the mains isolator can be switched on to allow the crankcase heater to warm up the oil (minimum 24 hours).

9.5 All power supply wiring to Indoor Units (and BC controllers if R2 system) must be complete, tested and left switched on at Indoor Unit isolators.

9.6 All Indoor Units must be clearly marked with marker pen or similar indication and label indicating address and branch controller connection (R2 only) and model/serial number.

9.7 Pressure test and evacuation of system refrigerant pipework must be completed as per section 2.6.1, 2.6.2 & 2.7.

9.8 Condensate pipework must be completed and tested.

9.9 Total lengths of liquid line pipework installed, must be confirmed by installation Engineers and marked on drawings for additional refrigerant charge calculation.

9.10 Sufficient supply of refrigerant R410A/R407c in dumpy cylinders must be on site adjacent to the Outdoor Units ready for use.

9.11 Now charge refrigerant into pipework based upon the additional refrigerant charge calculation.

9.12 Outdoor Unit service valves must now be opened.

Commissioning Standards

10. Commissioning VRF

10.1 Connect Monitor Tool and check system connect information is correct i.e. Outdoor Unit, BC port, Indoor Unit and Remote controller addresses.

10.2 Start up the system and run each Indoor Unit one by one in cooling mode to confirm correct operation superheat and pipe temperatures.

10.3 Then change over all Indoor Units to heating mode and check operation, sub-cooling and pipe temperatures.

10.4 Set up and configure all controllers/timeclocks/G50 centralised controllers.

10.5 Check operation of all accessory interlocks i.e. timeclocks, centralised controllers etc.

10.6 Carry out airflow and static pressure drops on any units connected to ductwork.

10.7 Check operation of all condensate pumps if fitted.

10.8 Monitor operation for at least 1 hour. Observe and record all data.

10.9 Complete Commissioning Log Book via paper forms provided or via CLBmobile™ (handheld device).

Maintenance Standards

11. Frequency and Tasks

11.1 The following table outlines the periodic maintenance frequencies and maintenance tasks recommended by Mitsubishi Electric. Frequencies may increase depending on the equipment's geographical location and environment. A minimum of 2 visits per annum is required.

11.2 Filter cleaning to be carried out a minimum of 2 times per annum. This may increase depending on the equipment's environment.

Important Note.
In addition to the above tasks, a full auditable trail of all refrigerant usage and/or disposal, must be available for inspection.

Maintenance Frequency Checklist

Equipment	Parts	Service cycle							Detail of service		Trouble when service is neglected
		1 mth	6 mths	1 yr	2 yrs	3 yrs	4 yrs	5 yrs	Detail of checking	Service methods	
Common parts	Isolators/Printed Circuit Boards		✓						Visual inspection	Tighten terminals as necessary on isolators and printed circuit boards	Nuisance tripping or failure of components
Indoor Unit(s)	Casing/Panels (appearance)				✓				Visual check for damage and dust appearance	Clean with neutral detergent solution. Re-paint where required	
	Frame						✓		Visual check for rust/insulation	Repair if rust generation is serious. Repair insulation material	Unit corrosion by rust. Condensation by improper insulation
	Fan			✓					Visual check for run out of balance and dust attached	Clean off dust as necessary to negate possibility of fan running out of balance	Premature failure of fan
	Motor		Ω ✓	Ω ✓	Ω ✓	Ω ✓	Ω ✓	Ω ✓	Visual check on wiring. Insulation resistance check to be carried out annually	Measure insulation resistance - more than 1M Ω	Possible failure of motor
	Heat Exchanger		✓						Check for clogging by dust. Check for leaks	Clean air inlet side as necessary	Lowered cooling/heating capacity due to low air flow rate
	Drain Pan/ Condensation line		✓						Check for obstructions and free flow of water	Clean necessary to eliminate obstructions and check condition of drain pan	Overflow by clogged drain pipe
	Filter		✓						Check for clogging by dust	Clean filter	Lowered cooling/heating capacity due to low air flow rate
	Temperature readings		✓						Measure air on and off	Place temperature probe in return and supply air of unit	
Outdoor Unit(s)	Frame					✓			Visual check for rust/insulation	Repair if rust generation is serious. Repair insulation material	Unit corrosion by rust. Condensation by improper insulation
	Fan			✓					Visual check for run out balance and dust attached	Clean off dust as necessary to negate possibility of fan running out of balance	Premature failure of fan
	Motor		Ω ✓	Ω ✓	Ω ✓	Ω ✓	Ω ✓	Ω ✓	Visual check on wiring. Insulation resistance check to be carried out annually	Measure insulation resistance - more than 1MΩ	Possible failure of motor
	Heat Exchanger		✓						Check for clogging by dust	Clean heat exchanger coils	Nuisance tripping and lowered performance
	Compressor		Ω ✓						Check for high/low pressure. Measure insulation resistance Check audibly Compressor noise	Measure insulation resistance - more than 1MΩ Check Compressor run hours using switch SW1	Generation of abnormal sound. Compressor burnout/lock
	Operational Readings		✓						Make note of operational readings in Test Cool/Heat	Use of dipswitch SW1 Function (refer to service handbook)	
	Magnetic contactor		✓						Check for loose terminal connections	Re-tighten if loose Remove dust	Improper contact. Coil burn out and nuisance tripping
	Electrical Connections		✓						Check all electrical terminals, mains, comms etc	Re-tighten if loose	Improper contact. Nuisance tripping and premature failure of components
	External panel				✓				Visual check for damage and rust. Wax panels periodically	Repair with paint as necessary	
	Water Temperatures WR2 only		✓						Measure water on and water off temperatures	Place temperature probe in flow and return water pipe work and record readings	
	Strainers WR2 only		✓						Remove strainer from pipework	Clean strainer cage and inspect its condition. Replace cage if necessary	Nuisance tripping on high/low temperature/pressure
	Water System WR2 only		✓						Remove water sample form drain off point & measure PH value	Correct PH value by using appropriate chemical by adding through dosing point	Premature furring of heat exchanger may lead to failure

Key: Ω = Electrical Insulation Resistance Test

Health & Safety Principles

Mitsubishi Electric Business Solutions Partners and Accredited Installers operate according to the Health & Safety principles set out below:

Health & Safety Policy

All Mitsubishi Electric Business Solutions Partners and Accredited Installers publish an annual Health and Safety policy which incorporates:

- A Health & Safety statement of policy and procedure
- An undertaking by the company's management to enforce the policy
- Provision of general and detailed guidelines for company employees

Health & Safety Legislation

All Mitsubishi Electric Business Solutions Partners and Accredited Installer companies adhere to the following Government legislation:

- Latest Health & Safety Legislation
- Factories Act 1961
- Health & Safety at Work Act 1974
- Offices, Shops & Railway Premises Act 1963

Health & Safety Procedures

All Mitsubishi Electric Business Solutions Partners and Accredited Installer employees have been issued with a Company Employees Guide to Health and Safety on procedures covering, but not limited to, the following topics:

- Manual Handling
- Visual Display Equipment
- Hazardous Materials
- Environment
- Electricity
- Personal Protective Equipment
- Machinery

Health & Safety Principles

General Guidelines

All Mitsubishi Electric Business Solutions Partners and Accredited Installers will provide general guidelines to employees on the following:

- Access
- Safe use of chemicals
- Compressed air
- Confined spaces
- Customer premises
- Electricity
- Ergonomics
- Fire
- Gas cylinders
- Flammable substances
- Housekeeping
- Lifting equipment
- Lighting
- Machinery safety
- Maintenance
- Material handling
- Noise
- Office safety
- Personal protective equipment
- Pressure systems
- Roof work
- Safe systems of work
- Security
- Signs & symbols
- Site safety
- Smoking rules
- Storage areas
- Tools & equipment
- Ventilation
- Waste

Corporate Social Responsibility

All parties within the Mitsubishi Electric Partner Programme will use their best endeavours to:

- Maintain the highest levels of customer satisfaction
- Honour high ethical standards in all endeavours
- Meet all the necessary regulative and legislative requirements
- Provide quality products and services
- Strive to protect and improve the environment
- Conduct business relationships based on mutual trust and respect

Further Information

Please visit our website:

www.mitsubishielectric.co.uk/aircon

For further information on:

- **Current Business Solutions Partners**
- **Current Accredited Installers**
- **Approved accessories**
- **Extended warranty**
- **Product specifications**

> The Mitsubishi Electric initiative is very much in line with our efforts to raise standards and to boost the credibility of specialist firms in the building engineering services sector and is to be applauded.

Robert Higgs
Director HVCA

MITSUBISHI ELECTRIC

Changes for the Better

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