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Digital Inverter Heat Pump Systems, Compact 4-Way Cassettes

- Compact 600 x 600 mm cassette
- Easy installation and maintenance via corner pockets
- Panel depth less than 30 mm for sleek, unobtrusive installation
- TCC Link control panel for flexible, easy system control
- Control box access is easy, simply remove the suction grille
- Ideal for R22 replacement

DIGITAL INVERTER

R410A



PLANNING AND BUILDING CONTROL
24 FEB 2012

Outdoor unit RAV Indoor unit (cassette) RAV Panel Remote control		SM563AT-E SM562MUT-E RBC-UM11PG(W)-E RBC-AMT32E
Cooling capacity range	kW	5.0 (1.5-5.6)
Heating capacity range	kW	5.6 (1.5-6.3)
Power input, cooling/heating	kW	1.61/1.61
EER, cooling/COP heating	W/W	3.11/3.48
Annual power consumption, cooling	kWh	805
Energy label, cooling/heating		B/B
UK conditions - cooling capacity	kW	5.44
UK conditions - sensible cooling capacity	kW	4.22
UK conditions - heating capacity	kW	4.69

Indoor unit (cassette) RAV		SM562MUT-E
Air flow (low/med/high)	l/s	151/186/221
Air flow (low/med/high)	m³/h	546/672/798
Sound pressure level (low/high)*	dB(A)	34/39/43
Sound power level (low/high)	dB(A)	49/54/58
Dimensions, height x width x depth	mm	268 x 575 x 575
Weight	kg	17
Panel dimensions, height x width x depth	mm	27 x 700 x 700
Panel weight	kg	3

Outdoor unit RAV		SM563AT-E
Air flow	l/s (m³/h)	667 (2400)
Sound pressure level, cooling/heating*	dB(A)	46/48
Sound power level, cooling/heating	dB(A)	63/65
Dimensions, height x width x depth	mm	550 x 780 x 290
Weight	kg	38
Operating range, cooling	°C	-15 to 43
Operating range, heating	°C	-15 to 15
Pipe connections, gas - liquid	in	1/2 - 1/4
Pipe length, maximum/minimum	m	30/5
Pipe length, pre-charged	m	20
Additional R410A charge	g/m	20
Maximum height difference, above/below	m	30/30
Max. operating current, cooling	A	7.9
Suggested fuse size	A	10
Power supply	V-ph-Hz	220/240-1-50
Supply to		Outdoor unit
Interconnecting cables		3 + E

Digital Inverter Heat Pump Systems, Ducted Units

- Unobtrusive installation above suspended ceilings for different room layouts and a wide range of applications
- High-performance operation, using digital inverter control, infra-red control (option)
- High static pressure up to 98 Pa
- Ideal for hotels, banks and similar buildings
- High-lift drain pump kit to 290 mm
- Uniform temperatures throughout the room
- Extremely quiet operation
- Twin-split also available
- Discharge spigots as standard
- Ideal for R22 replacement

DIGITAL INVERTER

R410A



Sizes 563 and 803 Sizes 1103 and 1403

Outdoor unit RAV Indoor unit (ducted) RAV Remote control		SM563AT-E SM562BT-E RBC-AMT32E	SM803AT-E SM802BT-E RBC-AMT32E	SM1103AT-E SM1102BT-E RBC-AMT32E	SM1403AT-E SM1402BT-E RBC-AMT32E
Cooling capacity range	kW	5.0 (1.5-5.6)	7.1 (1.5-8.0)	10.0 (3.0-11.2)	12.5 (3.0-13.2)
Heating capacity range	kW	5.6 (1.5-6.3)	8.0 (1.5-9.0)	11.2 (3.0-12.5)	14.0 (3.0-16.0)
Power input, cooling/heating	kW	1.78/1.71	2.53/2.41	3.56/3.14	4.42/4.03
EER, cooling/COP heating	W/W	2.81/3.27	2.81/3.32	2.81/3.57	2.83/3.47
Annual power consumption, cooling	kWh	890	1265	1780	2210
Energy label, cooling/heating		C/C	C/C	C/B	C/B
UK conditions - cooling capacity	kW	5.44	7.76	10.87	12.81
UK conditions - sensible cooling capacity	kW	4.20	5.85	7.64	8.73
UK conditions - heating capacity	kW	4.69	6.70	9.31	11.92

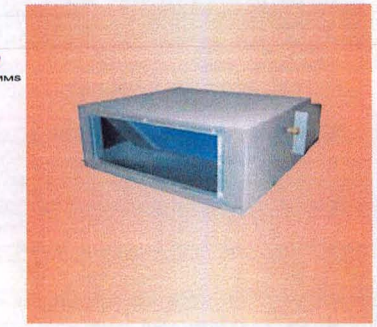
Indoor unit (ducted) RAV		SM562BT-E	SM802BT-E	SM1102BT-E	SM1402BT-E
Air flow (low/medium/high)	l/s	161/198/217	222/270/317	315/383/450	385/467/550
Air flow (low/medium/high)	m³/h	581/713/781	799/972/1141	1134/1379/1620	1386/1681/1980
Sound pressure level (low/medium/high)**	dB(A)	33/37/40	34/37/40	36/39/42	38/41/44
Sound power level (low/medium/high)	dB(A)	48/52/55	49/52/55	51/54/57	53/56/59
Dimensions, height x width x depth	mm	320 x 700 x 800*	320 x 1000 x 800*	320 x 1350 x 800*	320 x 1350 x 800*
Weight	kg	30	39	51	51
Discharge spigots	mm	2 x 200	3 x 200	4 x 200	4 x 200

Outdoor unit RAV		SM563AT-E	SM803AT-E	SM1103AT-E	SM1403AT-E
Air flow	l/s (m³/h)	667 (2400)	750 (2700)	1250 (4500)	1250 (4500)
Sound pressure level, cooling/heating*	dB(A)	46/48	48/50	53/54	53/54
Sound power level, cooling/heating	dB(A)	63/65	65/67	70/71	70/71
Dimensions, height x width x depth	mm	550 x 780 x 290	550 x 780 x 290	795 x 900 x 320	795 x 900 x 320
Weight	kg	38	42	77	77
Operating range, cooling	°C	-15 to 43	-15 to 43	-15 to 43	-15 to 43
Operating range, heating	°C	-15 to 15	-15 to 15	-15 to 15	-15 to 15
Pipe connections, gas - liquid	in	1/2 - 1/4	5/8 - 3/8	5/8 - 3/8	5/8 - 3/8
Pipe length, maximum/minimum	m	30/5	30/5	50/5	50/5
Pipe length, pre-charged	m	20	20	30	30
Additional R410A charge	g/m	20	40	40	40
Maximum height difference, above/below	m	30/30	30/30	30/30	30/30
Max. operating current, cooling	A	7.9	10.3	15.0	17.6
Suggested fuse size	A	10	16	20	20
Power supply	V-ph-Hz	220/240-1-50	220/240-1-50	220/240-1-50	220/240-1-50
Supply to		Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit
Interconnecting cables		3 + E	3 + E	3 + E	3 + E

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Super MMS System - Fresh Air Intake Indoor Units

- Three models, air flow range 300 to 583 l/s
- Helps prevent sick building syndrome
- Controls the temperature of the air supply
- Operates as part of S-MMS (up to 30% of the system's capacity
- TCC Link control
- Powerful centrifugal fan with three-speed, single-phase motor
- Heats air as low as -5°C



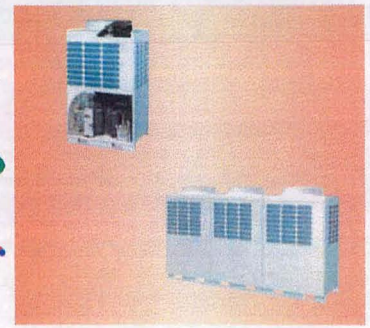
Rating	HP	5	8	10
Models		**MMD-AP0481HFE**	**MMD-AP0721HFE**	**MMD-AP0961HFE**
Cooling capacity	kW	14.0	22.4	28.0
Heating capacity	kW	8.9	13.9	17.4
Power input	kW	0.28	0.45	0.52
Air flow (high/medium/low)	l/s m³/h	330/270/210 1188/972/756	513/420/327 1848/1512/1176	642/525/408 2310/1890/1470
Sound pressure level (high/medium/low)	dB(A)	45/43/41	46/45/44	46/45/44
Sound power level (high/medium/low)	dB(A)	60/58/56	61/60/59	61/60/59
Static pressure (high/medium/low)	Pa	230/210/170	180/165/140	205/190/160
Dimensions, height x width x depth	mm	492 x 892 x 1262	492 x 1392 x 1262	492 x 1392 x 1262
Weight	kg	93	144	144
Max. operating current	A	1.43	2.52	2.73
Starting current	A	3.5	7.0	7.0
Power supply	V-ph-Hz	220/240-3-50	220/240-3-50	220/240-3-50
Pipe connections, gas - liquid	in	5/8 - 3/8	7/8 - 1/2	7/8 - 1/2
Operating range, cooling/heating	°C	5 to 43/-5 to 43	5 to 43/-5 to 43	5 to 43/-5 to 43

Accessories	
Part No.	**Description**
TCB-DP31DE	Drain Pump Kit (AP0181-0481)
TCB-DP32DE	Drain Pump Kit (AP0721-0961)
TCB-FCY21DE	Filter Chamber (AP0181)
TCB-FCY31DE	Filter Chamber (AP0241-0361)
TCB-FCY51DE	Filter Chamber (AP0481)
TCB-FCY100DE	Filter Chamber (AP0721-0961)
TCB-PF1D-1E	Long Life Prefilter (AP0181(1)/0481(2))
TCB-PF2D-1E	Long Life Prefilter (AP0241-0361(2))
TCB-PF3DE	Long Life Prefilter (AP0721-0961)
TCB-UFM1D-1E	High Efficiency Filter 65 (AP0181(1)/0481(2))
TCB-UFM2D-1E	High Efficiency Filter 65 (AP0241-0361(2))
TCB-UFM3DE	High Efficiency Filter 65 (AP0721-0961H)
TCB-UFH5D-1E	High Efficiency Filter 90 (AP0181(1)/0481(2))
TCB-UFH6D-IE	High Efficiency Filter 90 (AP0241-0361(2))
TCB-UFH7DE	High Efficiency Filter 90 (AP0721-0961)

PLANNING AND BUILDING CONTROL
24 FEB 2012

S-HRM System - VRF Heat Recovery Outdoor Units

- Low weight, compact design
- 48 modular indoor units maximum, 8 to 30 hp to be combined with up to 135% of the outdoor unit capacity
- Superior EER for reduced energy consumption and increased savings
- High-lift design, greater location flexibility
- State-of-the-art communication bus system with automatically configured addressing
- Outdoor unit dimensions match the S-MMS
- Added flexibility and control with flow selectors and piping branches



Rating	hp	8	10	12
Heat recovery model MMY		**MAP0802FT8-E**	**MAP1002FT8-E**	**MAP1202FT8-E**
Cooling capacity	kW	22.4	28.0	33.5
Heating capacity	kW	25.0	31.5	35.5
Min.-max. capacity code*	hp	5.6-10.8	7.0-13.5	8.4-14.4
Power input, cooling/heating	kW	6.07/6.29	8.54/8.73	12.90/9.65
Max. running current, cooling/heating	A	9.25/9.55	13.15/13.40	19.85/14.85
EER, cooling/COP heating	kW/kW	3.69/3.97	3.28/3.61	2.60/3.68
Sound pressure level, cooling/heating	dB(A) at 1 m	57/57	58/58	59/59
Sound power level, cooling/heating	dB(A)	70/70	71/71	72/72
UK conditions - cooling capacity	kW	21.44	26.80	32.16
UK conditions - sensible cooling capacity	kW	16.08	20.10	24.12
UK conditions - heating capacity	kW	20.72	25.90	31.08
Refrigerant charge R410A	kg	11.5	11.5	11.5
Dimensions, height x width x depth	mm	1800 x 990 x 750	1800 x 990 x 750	1800 x 990 x 750
Weight	kg	263	263	263
Pipework				
Suction line type - diameter	in	Brazed - 7/8	Brazed - 7/8	Brazed - 1-1/8
Liquid line type - diameter	in	Flare - 1/2	Flare - 1/2	Flare - 1/2
Discharge line connection type - diameter	in	Flare - 3/4	Flare - 3/4	Flare - 3/4
Maximum equivalent pipe length	m	150	150	150
Maximum actual pipe length	m	125	125	125
Maximum total pipe length	m	300	300	300
Max. height difference - indoor unit above/below**	m	30/50	30/50	30/50
Operating range, cooling	°C	-5 to 43 db	-5 to 43 db	-5 to 43 db
Operating range, heating	°C	-20 to 16 wb	-20 to 16 wb	-20 to 16 wb
Max. operating current per phase	A	9.55	13.40	19.85
Starting current per phase	A	1	1	1
Suggested fuse size per phase	A	16	20	25
Power supply	V-ph-Hz	400-3-50	400-3-50	400-3-50
Suppply to		Outdoor unit	Outdoor unit	Outdoor unit
Interconnecting cables		2-core twisted screened	2-core twisted screened	2-core twisted screened

* Codes are based on individual units and do not take into consideration modular applications
** If the indoor unit is above, maximum lift is reduced to 30 m, if the height difference between indoor units exceeds 3 m.

Flow selector	Capacity, kW	Max. No. of connected units
Y1122FE	0 to 11.2	5
Y1802FE	11.2 to 18.0	8
Y2802FE	18.0 to 28.0	8



05 August 2011

SBS Worlgdwide
SBS Cargo Centre
Anchor Boulevard
Crossways
Dartford
Kent DA2 6SB

Attention: Mrs Pat Asser

Dear Mrs Pat Asser

Ref. No E: 3119

Reference to: Manchester Office

Thank you for this opportunity to quote for the supply and installation of the specified air-conditioning.

I have calculated the heat loads for this area, taking into consideration heat gains from the fabric of the building, occupancy, air changes and electrical heat loads.

Proposal

Open Plan Office

1No. Toshiba Digita ceiling mounted heat pump cassette type RAV-SM804UT-E, duty 7kw, c/w matching condenser for max distance of 25 metres between indoor/outdoor at a cost of £2,950.00 + VAT

Comms Room

1No. Toshiba Digita Wall mounted heat pump type RAV-SM562KRT-E, duty 5kw, c/w matching condenser for max distance of 25 metres between indoor/outdoor at a cost of £2,220.00 + VAT

Scope of Works:

Site Survey
Delivery to site
Supply installation and commissioning of all equipment noted above

Exclusions:

(1) Work outside normal working hours (8am-5pm) Monday – Friday except at our discretion.
(2) Provision of power supply to indoor/outdoor units.
(3) All Builders works unless specifically stated.
(4) Obtaining Landlords, Local Authority or other permission.
(5) Main contractors Discounts or any other discounts.
(6) Special Insurance above our normal cover.
(7) Craneage and all hire costs

Guarantee:

The whole of the installation and supplies are covered with a statutory guarantee for 12 months from date of installation. A further 2-year parts warranty, in conjunction with an annual maintenance agreement being taken out with Y2K

Conditions of contract:

Our standard conditions of contract, a copy of which are available on request.

Payment Terms:

Net 30 days
This Quotation is valid for a period of 30 days.

We trust that this meets with your satisfaction but should you have any queries or require anymore information please do not hesitate to contact me.
Yours sincerely,

Andy Elly

	RISK ASSESEMENT SUMMARY Part 2	Ref. No.	
Site.SBS Worldwide MiOC, Style Rd Manchester	Location.Suit 3B Mainoffice & Comms Room	Job No.C855	Date.03/09/11

GENERAL MANUAL HANDLING OF MATERIALS & EQUIPMENT

CONTROL ITEM	DETAILS OF CONTROL MEASURES
Significant risks	Back strain, Foot injury, Hand injury, Eye injury.
Documents/ Procedures	General Company Policy as HSE statement.
Information	Operatives advised of risks involved arising from particular operations.
Instruction	Operatives advised to make use of lifting/hoisting/transporting aids wherever possible and/or practical, to avoid the risks of injury. Operatives advised not to exceed and/or perform outside of their own capabilities and to seek assistance whenever awkward tasks are unavoidable.
Training	General briefings on good working practices and techniques. Instruction data sheets made available from hire company source prior to use of equipment.
Supervision	Senior engineer and/or foreman to review use of equipment, needs of material storage and reduction of material movements.
Access	Maximum free access to be arranged or negotiated prior to commencing work.
Environment	Good lighting, adequate hand railing/barriers, good underfoot surfaces, dry surfaces and good ventilation.
Equipment	Mechanical handling equipment hired in from HSS Ltd. or similar wherever possible.
Emergencies	Standard first aid kits, fire protection and prevention equipment to hand. Site familiarization of evacuation procedures and accident/emergency procedures.
Communications	Not applicable.
COSHH	Not applicable.
PPE / FPE	Steel toe footwear, safety spectacles, hard hats, safety harness/ restraints.
Other Procedures	Site inspections prior to starting, to consider any particular needs. Information about the equipment/materials received before attending site.
Competent Persons	Senior engineers, foremen, project engineers to review particular procedures.

The above controls have been selected to protect the health and safety of operatives and others that may be affected by the work. The controls have been designed to protect against the risks recorded on Risk Assessment Summary Part 1. This general guidance should only be used when it is appropriate to specific site conditions.

	RISK ASSESEMENT SUMMARY Part 2	Ref. No. RAS 07/2000.	
Site. SBS Worldwide MiOC, Style Rd Manchester	Location.Suit 3B Main Office & Comms Room	Job No.C855	Date.03/09/11

PIPE WORK INSTALLATION

CONTROL ITEM	DETAILS OF CONTROL MEASURES
Significant risks	Falls from height. Back strain. Eye, hand, foot injuries. Cuts. Burns. Inhalation of toxic fumes.
Documents/ Procedures	Company Policy. Experienced and competent operatives.
Information	Operatives advised of risks from lifting, hot works, working at height, use of tools and noise.
Instruction	Operatives advised and instructed how to protect against those possible injuries. Use of PPE equipment.
Training	Site safety induction. Operatives SCATS or equivalently trained. Knowledge of use of installation tools and equipment.
Supervision	None required. Occasional inspections at none regular intervals. Checking that PPE & FPE equipment is in use.
Access	Pre planning to ensure maximum access is available and confined or restricted access is minimal.
Environment	Good task lighting. Safe surfaces at height. None combustible atmosphere. No risks of explosion due to naked flame.
Equipment	Operatives responsibility to use tools and equipment in good condition and free from obvious and visible defects. Small power tools to be 110volt or battery powered. Electrical equipment to have current PAT certification.
Emergencies	Standard first aid kit. Fire extinguisher and blanket to hand. Knowledge of site for evacuation procedures.
Communications	No prior arrangements need be made in normal circumstances.
COSHH	COSHH data sheets available for all consumable gases, solders, fluxes and oils.
PPE / FPE	Safety goggles. Hard hats. Gloves/gauntlets. Ear defenders. Steel toed footwear. Fall arrestor gear. Respirators for confined space working. Fire extinguisher/blankets. Flash-back arrestors on Oxy-Acetylene gear.
Other Procedures	Finish hot works 1 hour before leaving site. Check site does not have hot works permit procedure. Check all fire/smoke alarms are isolated before starting hot work.
Competent Persons	Operatives demonstrating a past knowledge and experience of this type of work and procedures. Operatives used to oxy-acetylene brazing.

The above controls have been selected to protect the health and safety of operatives and others that may be affected by the work. The controls have been designed to protect against the risks recorded on Risk Assessment Summary Part 1. This general guidance should only be used when it is appropriate to specific site conditions.

	RISK ASSESEMENT SUMMARY Part 2	Ref. No. RAS 15/2000	
Site.SBS Wordwide MiOC, Style Rd Manchester	Location.suit 3b Main Office & Comms Room	Job No.C855	Date.03/09/11
Hot Work / Cutting			

CONTROL ITEM	DETAILS OF CONTROL MEASURES
Significant risks	Falls from height. Inhalation of toxic fumes. Hot burns. Back strain. Eye injuries.
Documents/ Procedures	Company Policy. Operatives to be experienced and competent. Hot Work Permits may be required.
Information	Operatives attention drawn to other possible risks of injury. Ventilation to be provided in confined spaces.
Instruction	Operatives advised to protect against other possible risks of injury. Operatives to be aware of site evacuation procedures and site induction meetings.
Training	SCATS or equivalent in good and safe working practices. Site induction for site working.
Supervision	None required. Occasional inspections at none regular intervals. Ensure live water services will not be ruptured and/or cause local flooding.
Access	Pre plan to ensure access is free rather than restricted. Gas bottles should be transported by suitable trolley and secured by rope or chain to prevent accidental fall.
Environment	Good task lighting. Safe surfaces at height. Adequate ventilation. No naked flames near combustible materials or explosive atmospheres.
Equipment	Operatives responsibility to use tools in good condition and free from obvious defects.
Emergencies	Standard first aid kits. Fire extinguisher to hand.
Communications	No prior arrangements usually need be made.
COSHH	Hot works produce fumes from fluxes and solders. Sealant and combustibles may need regulations.
PPE / FPE	Safety goggles. Hard hats. Gloves/gauntlets. Respirators(in confined spaces). Fire extinguisher/blankets.
Other Procedures	Finish final hot works I hour before leaving site. Check site does not have a hot work permit procedure. Check that all fire/smoke alarms are isolated before starting hot work.
Competent Persons	Operatives demonstrating a past knowledge and experience of this type of work and procedure.
Maintenance	Gauges, Regulators, Torches and lines should be discarded if showing signs of mechanical damage or exchanged if showing signs of wear.

The above controls have been selected to protect the health and safety of operatives and others that may be affected by the work. The controls have been designed to protect against the risks recorded on Risk Assessment Summary Part 1. This general guidance should only be used when it is appropriate to specific site conditions.

Method Statement
Wall Unit Installation

The manufacturers agent will deliver the indoor unit to the installation site, by their transport. It will be complete with original packaging and unopened.
From the point of delivery, the installing engineers will transport the equipment to the designated area. Transport will be by sack truck, trolley or by hand.
Following opening of the packaging, the equipment will be inspected for damage or shortages and presence of all accessory items. The packaging will be disposed of on site if possible or removed from site if needs be.
The wall fabric will be inspected for suitability of fixing. In this instance the fabric will be fitted (at 4 points) with Hilti HKD 8mm. Anchors or HRD-SGS Frame Anchors. This is the proprietary method of support in concealed voids.
The installing engineers will carry out the drilling of the wall, using Hilti TE5A Battery powered Rotary Hammer Drill and TE-C masonry drill bit. A 110volt vacuum cleaner will be used to limit dust distribution, if a designated clean area. Dustsheets will be used to limit further cleaning, if required.
Once the fixings and support frames are fitted, The unit will be offered up to the support frame. This will be executed by the two installers, by hand, off stepladders, if the wall position is no higher than 3metres.
Following the completion of the indoor unit positioning, the interconnecting services of refrigeration quality pipe, class 'O' insulation, condensate pump & PVC hose, control SY braided multicore cable and remote controller ULV. PVC. flex will be installed to the unit. These will be fitted using Hilti 8mm proprietary support fixings/brackets, PVC cable ties, standard galvanised cable tray and Inoac pipe support systems. One or any of these methods will be employed. These services will be fitted between the indoor and outdoor equipment, to the designated route agreed prior to our attendance.

The above mentioned system is a standard method, for this type of installation but does not include for condensing unit installation, mains power installation or commissioning.

METHOD STATEMENT
MOVING EQUIPMENT ON STAIRS

The equipment will be delivered by the manufacturers transport or agent and off loaded by any or all of the following:-hydraulic tail lift, mobile crane, pallett truck and/or chain hoist.

The equipment will be moved along level pathways by means of HSS standard equipment any one of the following, dependant on weight and dimensional size:- tracked Stairclimber 70495, Skoot 70439,42 or45, Shifting Skates 70406 to 70420, Powered Stairclimber 70492 and Sack Trolley.

All such operations are carried out with a minimum of two persons dependant on the physical access of the proposed route.

All equipment movements will be carried out with the local decoration and surrounding building fabric in mind, therefore cover sheets and boards will be placed over the surfaces when appropriate.

The areas of transport will be cordoned off, for the duration of the operation, to deny access to members of staff or public who are not directly involved with the operation.

All equipment will be secured to the movement device by means of securing straps and tied ropes.

Only equipment suitable for the purposes required will be employed.

Lifting or carrying of heavy loads by the operators will not be permitted.

Once the equipment has been successfully used, it will be removed from the site.

All lifting and shifting equipment will be hired to ensure first class condition.

METHOD STATEMENT
RISK ASSESSEMENT
WORKING IN CEILING or ROOF SPACES

- Documents.

The Construction (General Provisions) Regulations 1961.
The Construction (Working Places) Regulations 1966.

- Instruction.

Operatives instructed on safe working procedures. Site to be inspected for boarding out, task-lighting and/or use of fall arresters and harness.

- Training.

On site induction by main contractor or site management / operator. To include care when working at height. Operative to be made aware of availability and use of safety equipment.

- Supervision.

Due to dangers of working in roof spaces, supervision by senior operatives at all times.

- Access.

Suspended and lightweight ceiling surfaces, or openings, to be protected. Rigid guard rails to be employed if necessary.
Surface materials to be protected with boards or tarpaulins to eliminate surface damage.
Materials and tools to be kept off ceiling surface and avoid source of tripping. Observe safe path routes and existing site procedures.

- Environment.

Access prohibition in confined or volatile areas.

- Equipment.

Hire in from HSS Ltd with up to date test certifications.

- Emergencies.

Observe standard site procedures. This information from site operator.

- Communications.

Two-way radios, if two level operations are a consideration or confined space access is required.

- COSHH.

Not applicable for this risk.

- PPE.

Harness with inertia reel or fall arresters. Suitable fixed anchor or attachment shackles.

- Other arrangements.

Access arrangements such as ladders, hoists to reach roof for personnel and equipment. Fire extinguishers and flame protection equipment when pipe-work installed.

Method Statement
Positioning Condensing Units At Ground Level

Where condensing units are to be positioned above on level, the following options are available.

- 1. Paving stones.
- 2. Steel runners/frames.
- 3. Timber/Plastic bearers

The supporting structure is inspected for its suitability of construction material to support a heavy load and accept suitable fixings. The following materials are deemed suitable for the purpose: cast concrete, block concrete, stone blockwork, double skin brick, ashphalted/felted surface and hard packed level earth. In all instances the fixings will be selected from the 'Hilti' range of fixings with proven specification.

Once the method of fixing is determined the following considerations are made. Is the surface accessible in a safe manner? Is there any obstruction impeding the operative's access to position equipment? Can the work be carried out with due care and without danger to others below? Will future access to the equipment be satisfactory for service and maintenance?
When the answer to each question is 'Yes' then the following considerations are made.

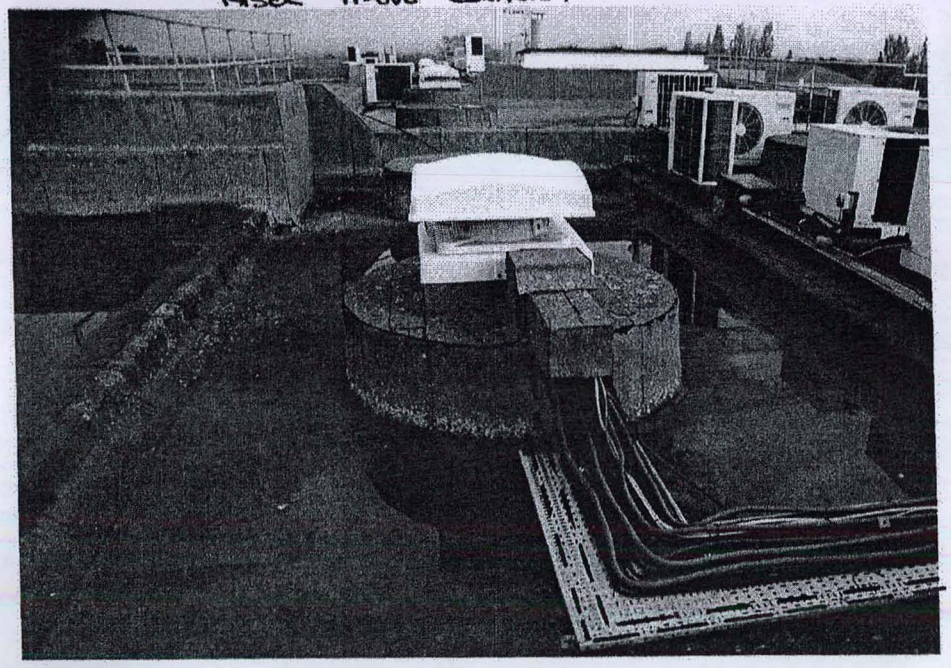
- 1. Will light weight alloy scaffold be required?
- 2. Will extension ladders be required?
- 3. Will any other form of access device be required?
- 4. Are there onsite-lifting devices available with operators or will 'Hired' equipment be required?

Following the conclusion of all the preambles to the job in question, the system and methods chosen are adopted that best suits the particular project. The relevant HSE data risk assessments are consulted and included in the overall Method Statement for the project at hand.

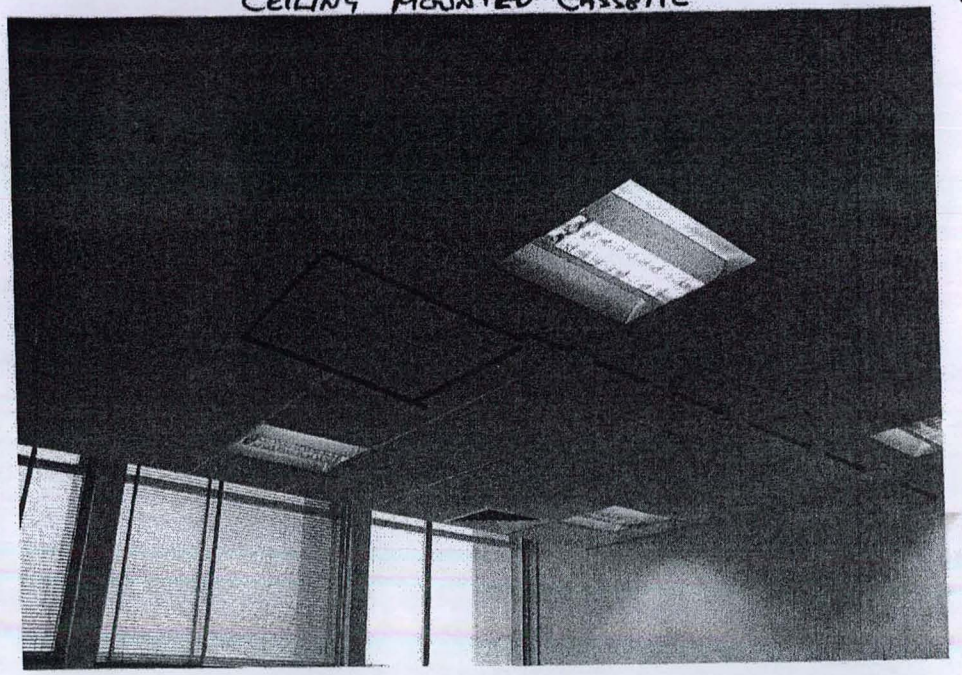
Refrigeration Pipe and Insulation Installation

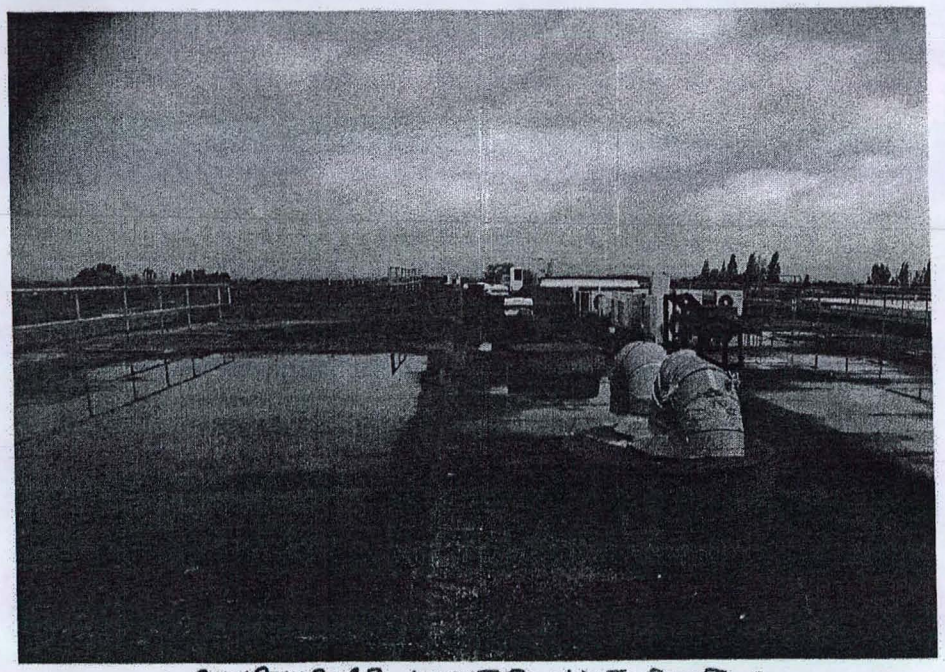
Following the opening of the floor void, (if required) (by others if arranged), the floor fabric will be inspected for suitability of fixing and supports will be fixed in two points with Hilti HKD 8mm. Anchors or HRD-SGS Frame Anchors or other selected fixings from the Hilti range of products. From these will be fitted 8mm galvanised studding legs (if required) of suitable length. Off this studding there will be a 2 piece support frame of Hilti 1.5mm 41x21 channel. This is the proprietary method of supporting multiple refrigeration pipework services within floor voids. The studding and frame will be adjusted to suit other void services.
The installing engineers will carry out the drilling of the ceiling, using Hilti TE5A Battery powered Rotary Hammer Drill and TE-C masonry drill bit. A 110volt vacuum cleaner will be used to limit dust distribution if executed in clean or decorated areas. Dustsheets will be used to limit cleaning in occupied areas.
Jointing of the pipework will be by HotWork Propane or Oxy/Acetylene torch. We would use Turboflow SF1 lead/silver free self-fluxing copper brazing rods
Once the fixings and support frames are fitted, The pipe will be offered up to the frame. This will be executed by one or two installers, by hand. The fitted pipe will be insulated with close cell 'O' class insulation and slid on the pipe without slitting. The pipe will be jointed and bent with proprietary installation tools and secured with neoprene cushion type clamps fitted to the supporting rail and/or nylon cable ties.
Pipework will be sized by the design engineers and indicated on the drawings.
All 'free issued' materials will be compliant with current COSHH certification and audit trail traceability.
Completed pipework will be pressure tested with OFN to 250psi for I hour and then blown off to 50psi holding.
All line fittings and accessories will be installed to the manufacturer's recommendations.
Supplied materials will be compliant with on site contract specifications.
These services will be fitted between the indoor and outdoor equipment, to the designated route agreed prior to our attendance.

RISER ABOVE CORIDOR.

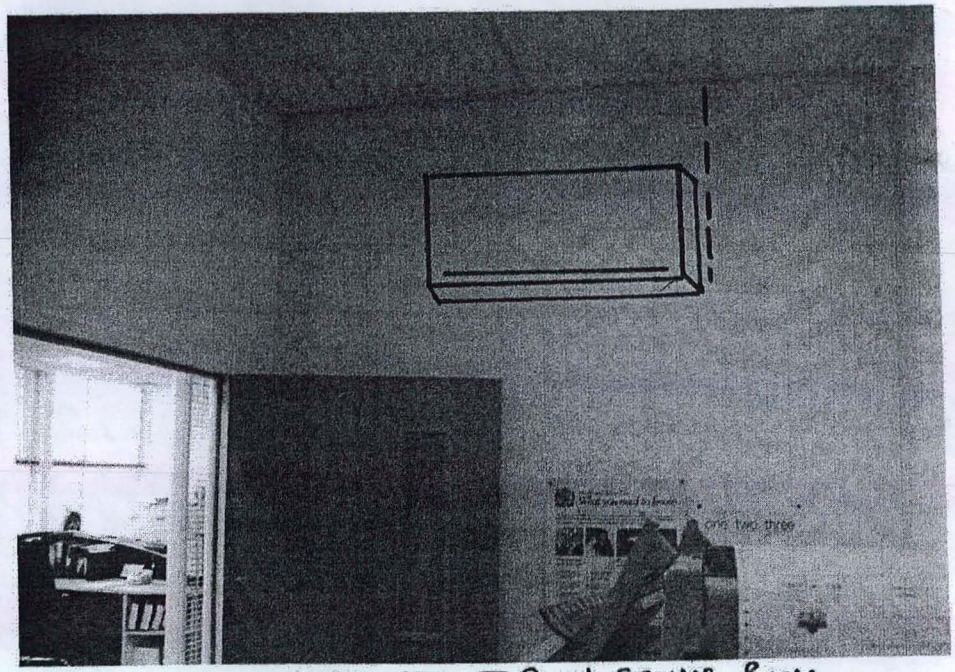


CEILING MOUNTED CASSETTE





CONDENSERS LOCATED NEXT TO EXISTING ON PLASS BLOCKS.



WALL MOUNTED IN COMMS ROOM.