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BS News

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BSNews

May 1997

IRISH BUILDING SERVICES NEWS

Energy Training Facility Demonstrates Value of All-Industry Cooperation

The opening of the Fas Energy Training Facility in Cork recently clearly demonstrates the value and effectiveness of all-industry cooperation in devising and developing systems and facilities which will benefit all. The state-of-the-art facility was purpose-designed and fitted out using products and equipment presented to Fas by some of the leading suppliers in the building services sector. Their generosity helped enormously in getting the venture off the ground, as did the input of The Irish Energy Centre, the IDHE, Bord Gáis, the LPG suppliers, OFTEC and the Domestic Heating Oil Council.

This new Energy Training Facility is the first of its kind in the country. It caters for the oil and gas industries and is essential if the highest standards of efficiency, safety and operation are to be established and maintained across industrial, commercial and domestic installations. It will also ensure conformity with the rigorous environmental standards and regulations now governing the energy sector.

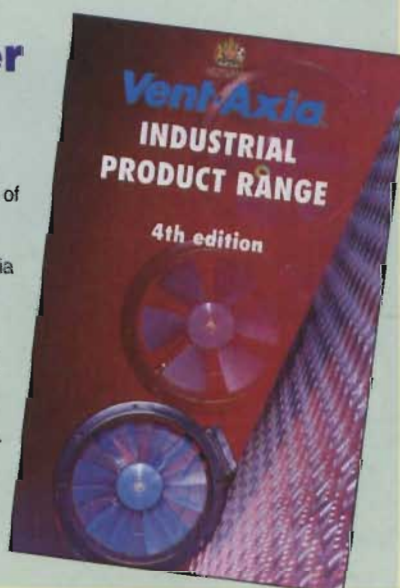
Full story pages 26/27.



Christy Cooney, Manager, FÁS Training Centre, Cork with Paul Fox, IDHE Development Officer; Minister for Enterprise & Employment, Mr Richard Bruton, TD; Colin Sutherland, OFTEC; and Peter Brabazon, Manager, Best Practice Programme, Irish Energy Centre.

Vent-Axia: Biggest Ever Catalogue

Vent-Axia has added yet further additions to its 300-strong range of heavy-duty commercial fans. Evidence of this expansion is highlighted by the latest Vent-Axia Industrial Product Range Catalogue which contains 244-pages detailing the entire range with full-colour photographs and complete technical information comprising performance data, graphs and installation drawings. The objective is to make fan selection as simple and as easy as possible. Copies from Vent-Axia Ventilation. Tel: 01 - 450 4133.



Air Management Special

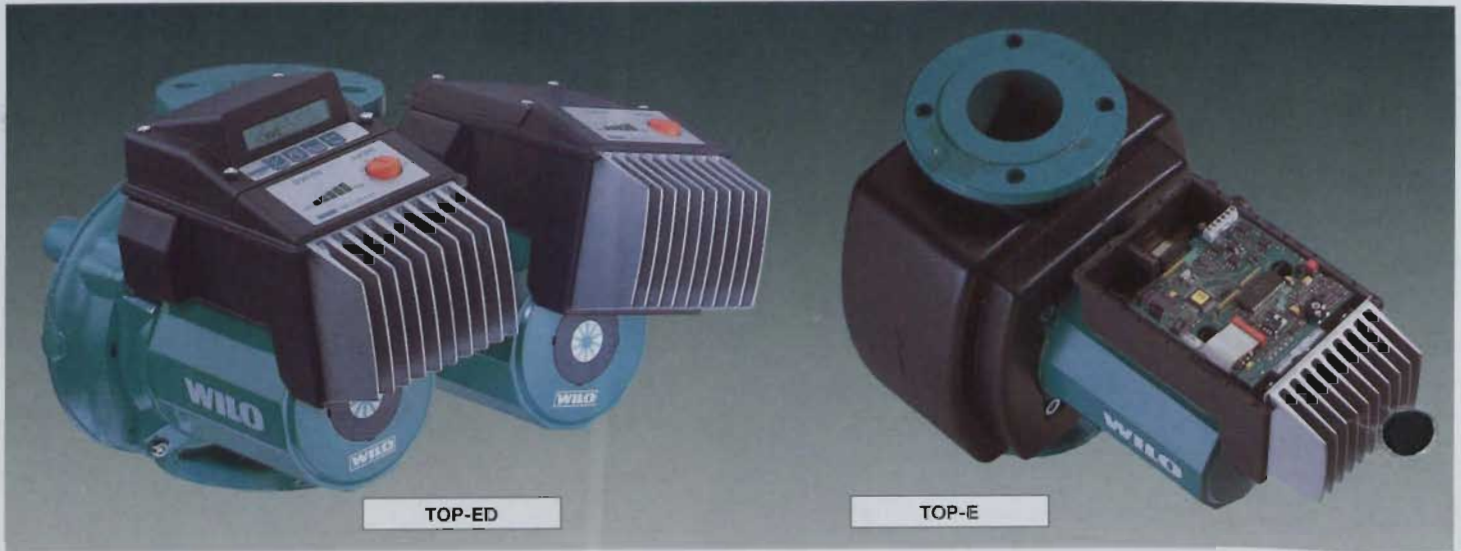
The whole area of air management is becoming fraught with regulatory controls and directives. However, far from being a problem for the industry, product suppliers and contractors should welcome these developments.

Professional companies whose product quality and service/contracting quality is as it should be have nothing to fear. Indeed, if anything they stand to gain from a more orderly marketplace where tender prices will be judged on like-for-like presentations, no short cuts being possible under the new system.

The emergence of the newly-established Irish Ventilation Association is part of this progressive development. The rules and regulations and administrative details are currently at an advanced stage of formulation with product suppliers, contractors and the Environmental Health Officers Association working closely together.

As part of this process this month's BSNews has a special feature on Air Management, with an introductory article by environmental health officer Siobhan Grace. Her duties include carrying out inspections and here she offers advice and guidance on ensuring compliance with the regulations and directives (page 17).

Innovative Technology in Heating Circulators



From the Company who patented the first circulator back in 1929 and introduced the first electronic circulator back in 1989 comes a heating circulator with completely in-built pump management.

- Micro processor controlled inverter drive
- Infinitely variable performance
- Energy savings up to in excess of 50%
- LCD, giving operating parameters at the pump head
- Suitable for new or replacement applications
- Digital link to BMS
- DN32-DN80
- Potential free contacts for simple fault indication
- Integrated motor protection.

WILO
Pumping Perfection

WILO Engineering Ltd., Enterprise Centre,
Childers Road, Limerick, Ireland
Telephone: 061-41 09 63 Telefax: 061-41 47 28

Building Services News*

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Chartered Institution of Building Services Engineers (CIBSE);
Mechanical Engineering & Building Services Contractors' Association (MEBSCA); The Association of Consulting Engineers of Ireland (ACEI); The Mechanical Engineering Contractors' Association;
The Institute of Domestic Heating Engineers (IDHE);
The Registered Heating Contractors Association; The Maintenance, Energy & Environmental Technology Association (MEETA) which incorporates energy managers and maintenance managers;
The Energy Conservation & District Heating Association; The Institute of Plumbing;
The Irish Home Builders Association (IHBA);
Builders Merchants/Trade Supply Outlets; Irish Property & Facilities Managers Association.

In addition, Irish Building Services News circulates to independent building services contractors and key executives in industry. Government, Semi-State and local authority bodies. Essentially, our circulation is virtually saturation coverage of all those with an interest and/or involvement in the industry.

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et al.: BS News

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INSURANCE — MAKE HAY WHILE THE SUN SHINES

Making contributions to your pension fund NOW is your wisest option.

PAGE 13

AIRCON — SERVING & SAVING 24 HOURS A DAY

This special, 4-page, full-colour, feature details Aircon's growth to date and clearly illustrates the client benefits available which specifiers and end-users alike find so attractive and cost-effective.

PAGE 17

AIR MANAGEMENT

Siobhan Grace, B.Sc. (Hons.) Environmental Health, MEHOA gives an environmental health officers view and some pointers and advice on how to go about meeting the requirements.

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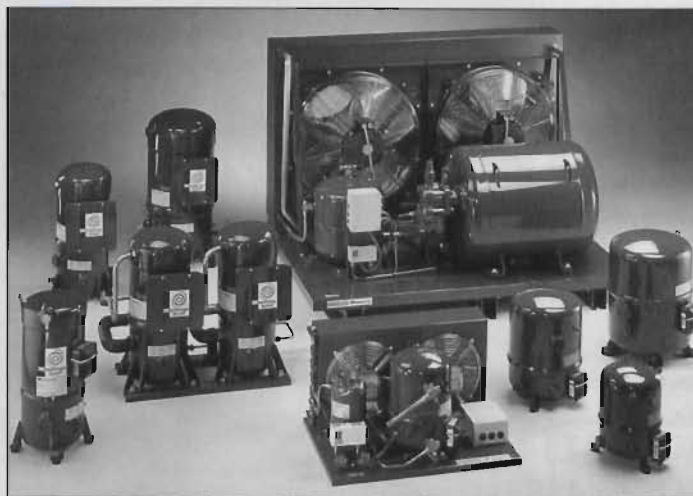
FAS CORK ENERGY TRAINING FACILITY

A state-of-the-art Energy Training Facility - the first of its kind in Ireland - catering for the oil and gas industries was recently opened by The Minister for Enterprise and Employment, Mr Richard Bruton, TD at the FÁS Training Centre, Rossa Avenue, Bishopstown, Cork.

PAGE 28

DANFOSS GOES "BLUE"

Following the purchase and take-over of Maneurop s.a. by Danfoss A/S, the latter's long-term representative in Ireland J J Sampson & Son Ltd now offers an extended range and synergised products package of both Danfoss and Maneurop.



LEFT:
Maneurop
reciprocating
and scroll
compressors,
and
condensing
units

TRADE NEWS

Peace of Mind with Carrier SerView

Carrier Air Conditioning has introduced SerView, an intelligent HVAC monitoring system, to help building managers maintain equipment efficiency and avoid unnecessary service calls and downtime. Initially, SerView is being introduced on Carrier's 19 series centrifugal and 23 XL series screw chillers, with a phased introduction planned to cover Carrier's full range of chillers and HVAC equipment.

SerView is a remote-monitored prognostic alert management system which records, analyses and troubleshoots chillers on a 24-hour basis. The system operates through a series of pre-packaged diagnostic sensors, which can be easily installed on new or existing machines. Unlike conventional alarm systems, Carrier SerView can identify potential operational problems before they develop into costly system failures.

Austin McDermott, Managing Director of Irish distributors Core Air Conditioning, says: "SerView has been designed to provide building owners and managers with complete peace of mind and to help reduce the cost of ownership by reducing on-site labour requirements. With Carrier's SerView system, it is possible to identify symptoms of problems earlier than ever before, hence providing a faster response to any problem that does occur". Contact: Austin McDermott/Greg Devitt. Tel: 01 - 294 3110.

Heatmerchants Do it with Style

The Heatmerchants golf outing took place recently at the CityWest golf and country club near Saggart, Co Dublin. Over 85 golfers from Dublin, Kildare, Athlone and Meath came together to take on the might of this magnificent Parkland golf course and afterwards relaxed in the restaurant where they tackled the excellent menu prior to the presentation of prizes.

The course was bathed in beautiful sunshine and a warm southerly breeze wafted among the trees and lakes in what was a truly memorable day. The board of directors of Heatmerchants was represented by Jim Casey, Michael Lucitt, Michael O'Brien and Brian McTernan, who incidentally supplied the smiles and the speech after the dinner.

The benign conditions called for plenty of sunscreen and liquids to be taken on board and, as is the usual course of affairs, everybody entered into the spirit of things. The winner was Stephen Morrissey of "Bathrooms Complete" who paid tribute to the course and his playing partners, stating it was in "great shape and the lads kept me going". He took home a one-off piece of hand-cut Tipperary Crystal commissioned specifically for the day. This is a perpetual trophy and Stephen assures us he will be back to defend it again next year!



Right: Heatmerchants at CityWest - Overall winner Stephen Morrissey (centre) with Philip Morley and Brian McTernan of Heatmerchants

Arro Initiative Means 100 New Jobs

The Minister for Justice, Nora Owen, TD announced the creation of 100 new jobs when she performed the official opening of the new showrooms at Reynolds ARRO DIY Superstore, Ballinamore, Co Leitrim last month.

Reynolds ARRO DIY Superstore is part of a new marketing initiative called ARRO which has been devised by the directors of National Hardware, a wholly Irish-owned, independent company. The objective is to improve group identity and to establish a uniform image throughout the country.

The ARRO initiative is being supported by an £11 million group marketing/promotional spend which will result in the creation of 100 new jobs within ARRO-member companies. Employment within the group currently stands at 185, the collective annual turnover being £35 million.

Contact:
Derek Lambert,
National Hardware.
Tel: 01 - 830 9122.

Right:
Derek Lambert, Arro,
pictured with
Minister Owen and
Peter Reynolds,
Reynolds Arro DIY



RACGS Golf Results

Golf outing at St Margarets Golf Club

Overall Winner:

Matt Butler (6) 33pts;

Class 1 - Winner:

Che Banwell (11) 31pts;

Runner-up:

John Brogan (8) 29pts

Class 2 - Winner:

Nick Gill (18) 32pts;

Runner-up:

Tom McDonald (18) 32pts;

Class 3 - Winner:

Jim French (19) 32pts;

Runner-up:

Frank O'Sullivan (20) 30pts;

Front Nine: Darren Anderson

Back Nine: Michael Clancy

Visitor: Michael Cleary

Most Exciting Performer:

Jim Chambers

TRADE NEWS

Airedale 600 Cassette the 'Answer'

Airedale International Air Conditioning has extended its "Answer" cassette range with the addition of a new 600 model with a duty range of 2 kW to 4Kw cooling. The unit fits into the area of a standard 600 x 600 mm ceiling tile making it easy to install and maintain in commercial, retail and leisure applications.

The "Answer 600" features a slimline profile, a multi-speed, low-noise centrifugal fan, microprocessor control, condensate pump and fresh air and branch duct connections. Options include electric resistance heating and electro-mechanical control. A DX heat pump model is available where required.

To complement the new 600 cassette, Airedale has developed a lightweight, low-profile, high-efficiency, air-cooled condensing unit which can be supplied as a reverse-cycle heat pump for year 'round heating and cooling. A pre-charged option is available to reduce refrigerant handling on site.

Airedale's "Answer" range now includes models from 2 kW to 12 kW, in both DX and chilled water variants, with a wide variety of control options.

Contact: Brendan Kilgallon, Coolair. Tel: 01 - 451 1244.

New Dwyer Turret Housing

Manotherm has introduced Dwyer Instruments' new turret housing, popular for industrial applications of the Model 7100B and 7112B Spirahelic® Pressure Gauges. The gauge is enclosed in a rugged 5.9" (14.9cm) diameter by 3.1" (7.9cm) deep polycarbonate body and includes dual-size 1/2" NPT male / 1/4" NPT female process connection, and crystal clear window. The Turret Housing allows bottom or back mounting of all 4-1/2" Spirahelic® gauges and is available in four ranges: 0 to 60 psig, 0 to 100 psig, 0 to 200 psig and 0 to 600 psig.

Model 7100B and 7112B Spirahelic® Pressure Gauges employ a unique triple wound spiral/helical Bourdon tube for precise measurement of

compatible gases and liquids. Pressure measurements meet ASME Grade A and 2A accuracies. Spirahelic® Gauges are constructed with premium-grade wetted parts, including Beryllium Copper or Inconel® X-750 Bourdon tube and brass or 316 stainless steel connection block.

For complete information with prices, contact:
Bob Gilbert, Manotherm Ltd.
Tel: 01 - 452 2355.

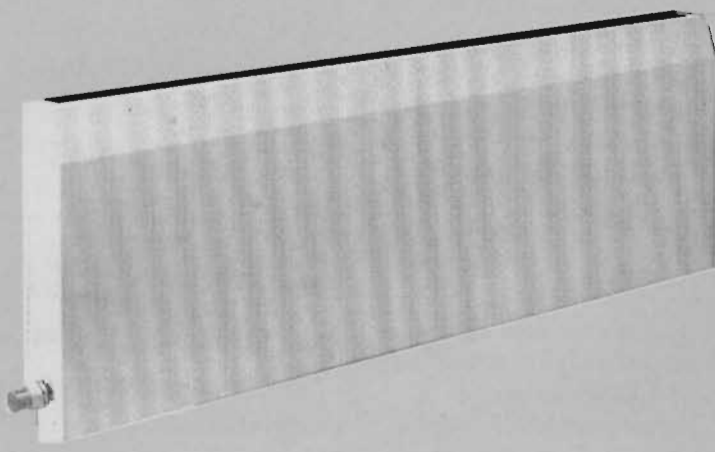


Dwyer Instruments new spirahelic turret from Manotherm.

FARAL RADIATORS

Collection

Betherma Compact LST



- ◆ Very low water content offers energy savings
- ◆ Extremely fast heating and regulation with TRV
- ◆ Pleasant and even warmth
- ◆ Simple and quick installation
- ◆ Compatible to all pipe systems
- ◆ Detachable outlet grille on casing
- ◆ Silent operation
- ◆ Appealing modern design
- ◆ Minimal heat radiation to the exterior wall
- ◆ Available ex-stock.

HEATING DISTRIBUTORS

Trianco House, 145 Richmond Road, Dublin 3.

Tel: 01 - 837 5144; Fax: 01 - 837 0531

TRADE NEWS

RDL Dublin and Cork Presentations

RDL recently held two very successful trade evenings and product presentations which were attended by a very broad cross-section of the air conditioning and refrigeration industry. The shows were held in conjunction with its principal suppliers, participants including Searle, Copeland, WJ Furze, CPS, Frigotech, Ysolis, Kabel Metal, ESK, Aspera and Alfa-Laval.

Approximately 130 attended the Dublin event which was held at the Doyle Green Isle Hotel. Delegates travelled from as far afield as Belfast, Donegal and Sligo, in addition to Dublin and greater the Dublin contingent.

In Cork the venue was the Country Club Hotel and here the attendance was approximately 100 delegates from Cork city, the surrounding districts and as far afield as Clare, Limerick and Wexford.

Additionally, Cork also hosted a special presentation for Fas apprentices earlier in the day. They included a mix of apprentices, half of whom were finishing their course while the remainder were just about to begin theirs.

Contact: Michael Nolan,
RDL. Dublin Office:
Tel: 01 - 450 600;
Cork Office:
Tel: 021 - 968 494.



Air conditioning and refrigeration students at the RDL exhibition in the Country Club Hotel, Cork.

Condair's CP Card Concept from Aircon

Condair's new CP range of steam humidifiers is now available in Ireland from Aircon Sales and Service Ltd. The key to the latest concept is the CP Card which defines and controls the amount of steam generated by the unit to the kg/hr, thereby matching the customers actual requirements.

Thus, when the unit is ordered, the price is determined by the required output which is stored on the card. The capacity of the unit can then be changed cheaply and quickly without changing the unit, simply by changing this "credit card". The humidifier can be supplied with an exchangeable cylinder or with Condair's environmentally-friendly cleanable cylinder.

Outputs range up to 360 kg/hr and units are equipped with an intelligent regulator.

Contact: Philip McEvitt, Aircon Sales & Service Ltd.
Tel: 01 - 830 7132.

IDHE Diploma Course

Details of the Institute of Domestic Heating and Environmental Engineers (IDHE) Diploma Course for the coming season have just been unveiled.

To be held in Bolton Street, the course content is designed to upgrade and develop the knowledge of industry personnel, especially trade counter, sales and stores staff.

Meanwhile, the newest addition to the already-expansive range of Baxi products was unveiled to a large turnout of IDHE members at the most recent technical evening in Clyde Road. Baxi was represented by Joe Fisher whose "no-nonsense" approach and "hands-on" presentation was particularly refreshing to this very knowledgeable audience.

Coming from an installer/fitter background, Joe was able to get his message across, without the usual padding that is becoming more the norm in sales/technical evenings of this kind. Brian McTernan of Heatmerchants was very happy with the evening and said that the industry is about to enter a new era in combi boilers. The Genesis comes in 80,000 btu and 96,000 btu outputs and is designed to be user-friendly. After the presentation Joe was on hand for an informal chat during which the refreshments were served.

Contact: Maureen Cullopy, IDHE.
Tel: 01 - 836 1083.



Joe Brennan, Linde Refrigeration with Pat Cummins, Managing Director, RDL and Dave Croft, Searle, at the Doyle Green Isle Hotel in Dublin.

GEC Appointment

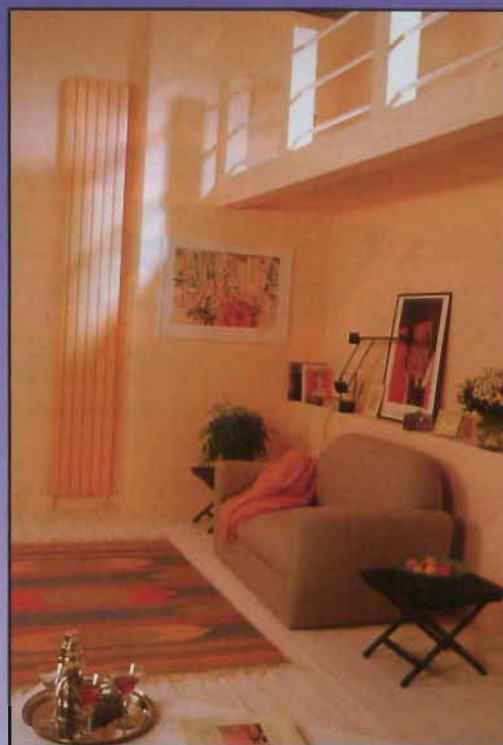
GEC Distributors (Ireland) Ltd has appointed Denis Begley as Product Sales Manager to the Lamps Division. In his new position he will be responsible for the nationwide sales and distribution of the Osram product range.



CHORUS

Technology & Design

A New Range of Designer Radiators



Elegance and Comfort
from

POTTERTON MYSON

Belgard Road, Tallaght, Dublin 24. Tel: 01 - 459 0870; Fax: 01 - 459 0880

TRADE NEWS

Walkair Moves Panasonic U51 Series

"Demand for the new Panasonic U51 Series packaged split air conditioners is surpassing all expectations", says Walkair's Vincent O'Mahony. "These new heat pump cassette types are proving extremely popular, not least because of their compact

installed due to its light weight;

Electric wiring – In the terminal boards, power supplies and signals are separated.

Wiring works are easier;

Long refrigerant piping length – All pipes are routed to the rear of the unit to reduce the total space required;

	1.5HP	2HP	2.5-6HP
Height difference	13m	20m	30m
Equivalent length	20m	30m	50m



Panasonic U51 Series cassette type packaged split air conditioner from Walkair

size and high-efficiency outputs, made possible by the new lightweight heat exchanger and three-dimensional turbo fan".

Installation and maintenance is easy, thanks to various innovative features. These include:—

Refrigerant Chargeless (1.5HP ~ 4HP) – Additional refrigerant is unnecessary up to the equivalent piping length 20m;

Installation work – The unit can be easily carried and

Smudge proof – A new type outlet grill is applied, reducing smudging (dirty by outlet air) and dirt of the ceiling. The decorative panel is hair-less laminated.

Long life filter – Anti-mould finished long-life filter does not require frequent maintenance. The filter is fitted to the decorative panel, and can be easily changed and cleaned.

Easy drain check – The water filling port for checking the drain pump is provided. Drain test can be made in working stage. The drain connection port is of transparent pipe, enabling easy checking of draining state.

Contact: Vincent O'Mahony, Walkair. Tel: 01 - 456 8070.

Vent-Axia LoWatt: Up to 80% Savings

Following an intensive development programme and applying the latest patented technology and manufacturing techniques, the new Vent-Axia LoWatt range is now available with four carefully-developed performances for every domestic application – WC's, bathrooms, utility rooms and kitchens.

Benefits include:-

- ☐ New super efficient motor with ultra-low energy usage (up to 80% energy saving);
- ☐ Low sound levels;
- ☐ IP44 long-life motor – lasts 10 times longer;
- ☐ Unique patented shutter – silent instantaneous opening;
- ☐ Meets Document F Building Regulations requirements;
- ☐ Panel, wall and ceiling mounted.

The Vent-Axia LoWatt range incorporates the most sophisticated patented shutter system yet devised. It requires no additional power to operate, giving instant opening and positive closing. For even more energy efficiency the range incorporates timers, humidistats and PIR sensors which operate the fan only when required.

LoWatt fans are quick and simple to fit using reversible grommets and easy-wire terminals. They are suitable for wall or ceiling mounting at any angle. The telescopic wall kit uses no screws on the outside grille, and the range is suitable for all safety extra-low-voltage uses in new, retrofit or SELV applications.

Contact: Michael Randall, Vent-Axia Ventilation. Tel: 01 - 450 4133.

Right: The new Vent-Axia LoWatt fan from Vent-Axia Ventilation



Faral Betherma from HDL

Betherma built-in elements from the Faral Radiator collection consist of sheet steel fins with a right-angled return at each end. The fins are fitted to a standard steel pipe which is then expanded to ensure a continuous fit between fin and tube. The return edge forms totally enclosed sides to the

element, adding additional strength to the assembly.

The strength of this assembly also means that cleaning can be carried out without danger or damage to the fins, allowing maximum efficiency to be maintained during the life of the product. A steel manifold box is fitted at each end. Pipe connections and air vents are fitted to the manifold boxes.

The Betherma Mini comes complete with telescope legs, sheetsteel casing and

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Betherma Mini from the Faral collection. Details from Heating Distributors

aluminium covergrill.

The standard valve supplied with the convector has a manual valve body which screws directly into the element manifold. An optional thermostatic valve can be supplied.

The convector elements are constructed from 0.5mm thick

cold rolled sheet steel. The tubes are manufactured in accordance with DIN 2393. Casings are made from zinc-coated sheet steel and powder-coated to RAL 9010. The outlet grille is formed from extruded aluminium and powder coated to RAL 9010.

Contact: Heating Distributors.
Tel: 01 - 837 5144.

HRP Reinforce Service

HRP has reinforced the quality and scope of its service and product offering with the appointment of three new personnel, extended opening hours and the addition of new product lines to its already-extensive portfolio.

A very significant management appointment is that of Don Munn as Sales Manager. Don is widely known and respected nationally throughout the refrigeration industry and his joining HRP is something of a coup.

On the service side Darren Lowndes brings a wealth of experience and technical know-

how to the company while Shay Carroll's influence on stores and internal sales will further strengthen the overall service provided.

Opening times have been extended to include 9am to 2pm on Saturdays.

Contact: Ray Nardone, HRP.
Tel: 01 - 830 6565.



Don Munn, newly-appointed Sales Manager at HRP Wholesale.



Home Heating with Oil - The Facts

- ◆ Oil is safe.
- ◆ Oil – the most popular central heating fuel in Ireland for 30 years.
- ◆ Oil is competitively priced.
- ◆ Oil is environmentally friendly.
- ◆ Oil is a smokeless fuel, approved by the Department of the Environment.
- ◆ Oil does not come from a monopoly supplier.
- ◆ Oil gives you a choice of many suppliers.
- ◆ Oil does not come from a state owned body.
- ◆ Oil boilers are high tech and efficient.
- ◆ Oil gives you security of supply.
- ◆ Oil in your tank is yours to control.
- ◆ Oil heating makes good sense.

**Before you even consider using other heating fuels consult The Domestic Heating Oil Council.
Tel: Freephone: 1 800 390 390.**

A Perfect Combination



IRELAND'S NEWEST NAME IN PVCu FASCIA & SOFFIT

- ▷ Designed for easy installation, it's a better board to work with.
- ▷ A complete fascia and soffit system, accessories include easy to fit internal and external angles, gables boxes and finials.
- ▷ Eavemaster is competitively priced, maintenance free and totally weatherproof.
- ▷ Eavemaster's decorative ogee moulded fascia and attractive board-effect soffit will enhance the appearance of any new or existing building.



- ▷ Classic is an elegant, ogee style rainwater system.
- ▷ It offers a choice of external fascia brackets or concealed internal brackets and either square or circular downpipes.
- ▷ The system is anchored at outlets, angles and unions, thus controlling the effects of thermal movement.
- ▷ Classic is the ideal choice where appearance, performance and capacity dictate the use of a rainwater system, other than half-round or square.

The sculpted lines of Eavemaster and Classic gutter offer the perfect combination.

Delivery is quick and reliable and backed by the kind of service and support one would expect from MFP, leaders in manufacturing plastic building products.



The clear choice

TRADE NEWS

Domestic Heating Oil Council Offers Installers Profit Package

The Domestic Heating Oil Council's initiative in encouraging installers to promote oil has proved extremely successful to date. Now it is set to enter a new phase with plans for an increased awareness campaign aimed at the trade to further strengthen the message that encouraging clients to opt for oil has very definite advantages for both customers and installers.

The Domestic Heating Oil Council is the representative body of the majority of heating oil suppliers in the greater Dublin area. It was formed to promote the "real facts" about heating oil and, secondly, to provide professional advice to the public on all matters relating to heating oil, with particular reference to safety, economy, cleanliness, efficiency of service, and its

environmental friendliness.

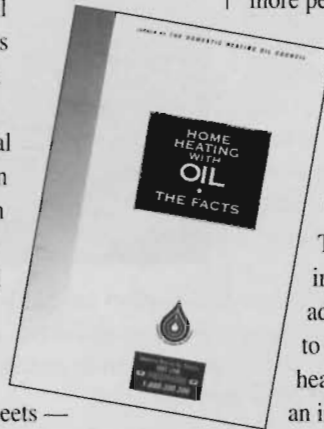
The Domestic Heating Oil Council has produced a very professional information pack which outlines in great detail — but succinctly and on separate sheets — the many reasons why consumers should choose oil over any other fuel. Plumbing contractors and installers can tap into this information pack and use it to great effect in winning over prospective customers.

The information contained within the pack will also reassure prospective customers as to the *bona fides* of the

contractor/installer. It clearly illustrates and prompts the more pertinent questions

consumers should ask and, in doing so, creates an image of professionalism and competency on the part of the contractor.

The different information sheets address all aspects of how to go about choosing a heating system, choosing an installer, and making cost comparisons between the various fuels. Titles on the information sheets include: Oil — The Most Economical Fuel; Specifying a Heating System; Buying A New Heating System; Keeping Warm At Lower Costs; and Maintenance Routines For Heating Systems. Contact: The Domestic Heating Oil Council. Tel Freephone: 1-800-390 390.



"More and More Joining in the Chorus"

Following its introduction this year, Potterton Myson's Chorus range — which was developed specifically for the specification sector — has made significant inroads with consulting engineers, mechanical contractors and architects.

Managing Director, Sean Hanratty says: "We're extremely pleased with the response to date. It's obvious from market reaction, and specifies in particular, that we have gone the correct route with the Chorus range.

"Apart from the quality of the product, the four different model types, and the extensive choice in dimensions and colours, has undoubtedly hit a cord with the industry. Soon everyone will be joining in the Chorus!"

Contact: Fiona O'Neill/Vincent Broderick, Potterton Myson Ireland. Tel: 01 - 459 0870.



Vertical panel radiator from Potterton Myson's new Chorus range.

New Balls Please

Cristopia Energy Systems, a leading supplier of encapsulated ice and eutectic latent thermal storage systems to commerce and industry, has introduced a new generation of spherical encapsulations designed specifically for the air conditioning market.

Traditionally, these high density polyethylene (HDPE) "nodules" have been manufactured in two diameters: 76mm for industrial applications, and 97mm for commercial air conditioning applications.

Over the past 10 years there have been tremendous developments in new polymer blends and catalysts; many have been designed specifically for application to satellites, TGV, aircraft and motor vehicles. This technology is now applied to encapsulated ice storage systems with the release of the Cristopia AC00 ice nodule.

The design of the Cristopia AC00 ice nodule has been optimised specifically for the air conditioning market. It has an external diameter of 98mm and the polymer blend, when compared to HDPE commonly used in encapsulated ice and other types of ice storage systems, has improved life expectancy, stress, chemical ageing, and viscoelastic properties.

Contact: Cristopia Energy Systems UK. Tel: 0044 181 330 1403.

BUSH NELSON SERIES 200 SLIMLINE WALL HEATER

Bush Nelson announce the 200 Series electric wall heater, available in four outputs ranging from 1kW to 2.24kW. These wall-mounted slimline panel heaters feature an element with a very high finning area which is claimed to combine long service life with low surface temperatures. Inlet and outlet grilles are hidden behind the front cover, shielding the user from potential hot spots. The Bush Nelson electronic thermostat ensures accurate temperature control and economic operation.

Contact: Jim Casey, O'Neills Electrical. Tel: 01 - 874 6013.



BIDMASTER PLUS 5 MAKES ESTIMATING EASIER

Estimation Ltd has launched version 5.2.7 of its BidMaster Plus 5 estimating system, operating within the new Windows-based ContractMaster Plus environment. The new release is combined with a rebate offer letting existing customers upgrade to the Estimation Digitizer electronic drawing board at a significantly-reduced price. Claimed to make estimating easier, the Digitizer package allows the estimator to measure quantities directly from the drawing board with material items easily identified without complicated codes or abbreviations.

Contact: Tracey Griffin, Estimation. Tel: 0044 121 704 3221.



FILLING COMFORTABLE WITH QUALITAIR QUDOS

A visit to the dentist can be daunting but hot, humid treatment rooms often makes the experience worse for staff and patients alike. Eaton-Williams Qudos air-conditioning units installed at the 12,000 patient Wilson House Dental Practice have improved both air quality and patient morale. The Qudos split heat pump system has infra-red remote controls, allowing staff to adjust air quality while treating patients, who are reported to be more at ease during their visits to the surgery.



Contact: Peter Dewdney, Eaton-Williams Air Conditioning. Tel: 0044 1732 869416.

HERBIDUR ONE-COAT MASONRY PAINT

H Marcel Guest's Herbol Herbidur masonry paint is designed to provide a cost-effective, one-coat, decorative and protective solution for rendered buildings, giving a typical service life of 7-8 years. This water-dilutable, acrylic-based coating is claimed to have such a high solids content that coverage can be achieved with one coat instead of two. HMG says that Herbidur gives application costs of around £1.50 per sq m, significantly reducing time on site.

Contact: Peter Salmon, H Marcel Guest Ltd. Tel: 0044 161 203 4606.



NUAIRE FLATMASTER 5 CUTS CONDENSATION

The Nuaire Flatmaster 5 looks like a lockable meter box but contains a low-energy, anti-condensation ventilation unit aimed at social housing developments. Colour-coded to brickwork, the units are opened by a master key. Nuaire say these anti-condensation units can be remote serviced without needing access to the dwelling, saving time and call-back delays. Flatmaster 5 units can be wired directly to an external power supply, eliminating installation costs within the dwelling.

Contact: Kieran O'Donovan, Connections (Gas & Electronic) Ltd. Tel: 01 - 284 4423.



SHUT THAT NOISY BOILER UP!

Have you ever come across boiler noise problems? Now there is one quick and easy solution, Superconcentrate Boiler Noise

Silencer from Fernox, the market leader in central heating protection. There is currently no equivalent product on the market for solving boiler noise. You can therefore benefit from new business. Just connect the Boiler Noise Silencer to any radiator vent using a standard cartridge dispenser gun and squeeze for a long-lasting, effective, cure of boiler noise. This means the plumber or heating engineer can treat a system in minutes.

Contact: Fernox hotline. Tel: 0044 1799 550811.





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Air Conditioning

Making contributions to your pension fund NOW is your wisest option. Make hay while the sun shines. The taxman encourages such a move and will contribute to your fund by means of full tax allowance says Kevin Wallace



BSNews *Better* Business

Make Hay While the Sun Shines

It's 6.30pm on a summer's evening in Dublin as the jaunting cars line St Stephen's Green. Sly Stallone has been and gone, having honeymooned with Mrs Stallone. Other movie stars are wandering around searching for old castles as holiday homes while the aroma of continental dishes fills the Temple Bar air ... having replaced the pong from the sewers. Dublin is buzzing!

Every eight year old girl has the full Boyzone CD collection courtesy of her mammy's bulging purse and the boys ponder the rumour that Posh Spice will buy the house on Killiney Head between the racing car drivers.

And have you noticed too that the average Irishmans' expectation of winning has increased? We definitely didn't want to win the Eurosong again this year and were happy to see the "Y O UNI" win. We gave them "dooze pwoint" to boot!

Dublin city dwellers have become wealthy property owners overnight. The EU continues to pump money into the country to improve infrastructure and create a climate for growth. Some day, you can be sure they will ask for it all back.

Stuttgart '88, Italia '90 and USA '94 all served as a

prelude to the current Paddy boom. But the image of singing leprechauns with beer bellies was just a smoke screen to disguise the real Paddy who is a studious, highly-intelligent, bookworm. He has a degree in engineering and his doctorate in psychology was secured in his spare time.

Five years ago, EU statistics showed that Ireland had the youngest workforce in Europe. Our 25/30 year age group was proportionately the largest, and best educated in the EU. Unemployment was forecast to fall while the economy would turn around.

Are the good days here now? How long will they last? What does the future hold?

As Catholic Ireland and pulpit power declines, sex education and divorce will cause the population to decline. The coming decades will produce average families declining from 2.4 kids to 1.5 or even less. Mary Robinson's diaspora probably won't come home since their roots are firmly planted in foreign parts. Emigration is not a problem any more but the late 1980s "brain drain" of youth and talent could seriously affect our lives in the long term.

The present workforce will, in 20 years time, be

approaching pension age while the reduced population in the workplace will carry the tax burden. Medical science is striving for the pensioners longevity. I fear that the economic alarm bells would "go off" if there were twice as many pensioners as workers in 2015.

Will we be a nation of paupers?

Making contributions to your pension fund NOW is your wisest option. Make hay while the sun shines. The taxman encourages such a move and will contribute to your fund by means of full tax allowance. When you turn 60, you will be entitled to take a large chunk of money in tax-free cash with the balance providing you with an income for the rest of your life. If you don't do it, your years of building your business and working so hard will all lead to nothing. You don't want to stay working until you drop.

At Redmond Insurances Life & Pensions Ltd we can give you all the advice you need on starting your pension. We will explain to you how it works and what expectations you should have. Call 01 - 496 5022 for more information. The earlier you start your pension the better for you.

Aircon - et al.: BS News Serving & Saving 24 Hours A Day

While Aircon Sales & Service Ltd is a relative newcomer to the air conditioning and refrigeration sector, the combined experience of its management and sales and service engineers represents 100 years. All have worked extensively for leading refrigeration and air conditioning companies down through the years and it is this combined strength which has seen Aircon emerge as such a strong and influential force over the last 12 months.

Whether its product supply, after-sales service and maintenance support, or both, Aircon's industry standing can be judged on its client portfolio. The fact that it includes names such as Heinz, Telecom Eireann, Winthrop, Intel, OPW, Oral B, Dixons, Analog BV, United Beverages, and the South Eastern Health Board to name but a few says it all. Using Aircon you are in good company.

There are two distinct facets to Aircon's business — product supply and the provision of after-sales service and preventative maintenance packages. While separate, both obviously overlap and it is the ease with which this can be done and a combined quality service provided that sets it apart from competitors.

The same fundamental philosophy underpins the entire operation and that is to provide quality, tailor-made, customised solutions to satisfy clients' needs in the areas of commercial/industrial air conditioning, ventilation, air treatment, energy recovery equipment and refrigeration.

This is done in consultation with the client and his professional advisors, especially the consulting engineer, with whom Aircon works very closely, as required.



Service & Preventative Maintenance

After-sales service is critical and to this end Aircon currently employs a team of 15 highly-qualified, widely-experienced engineers who provide nationwide coverage, 24 hours a day, out of the company's Dublin and Belfast offices. Emergency call-outs are given priority status with engineers constantly in touch with head office via mobile 'phones.

Planned service and preventative maintenance contracts are also available. Advantages include priority status in emergencies; 10% preferential discount on service labour, spare parts and materials; optimum plant performance; longer plant life; and minimum downtime.

Engineering staff are certified to C&G 2077 Refrigerant Handling while the company also holds a Hazchem Certificate. Refrigeration audits and quotations for carrying out retrofitting are provided free of charge.

Product Portfolio

The product portfolio is extensive and all-embracing. It caters for all eventualities and is made up of brand-leading names in the respective categories catered for. Included are:—

York — Air to air systems, hydronic systems, roof-top units, fan coils, chillers and condensing units;

Mitsubishi Heavy Industries — Split air conditioning systems;

Qualitair — Close-control computer room equipment;

Dalair — Air handling units;

Luxaire — Portable air conditioning units (1.9kW and 3.9kW);

Whispair — Mobile air conditioning units (4.5kW, 11.5kW and 18kW);

Condair — Humidifiers;

DST — Dehumidifiers;

Climatair — Fan Coils;

Neslab — Process Coolers.



Aircon

SALES & SERVICE LTD.

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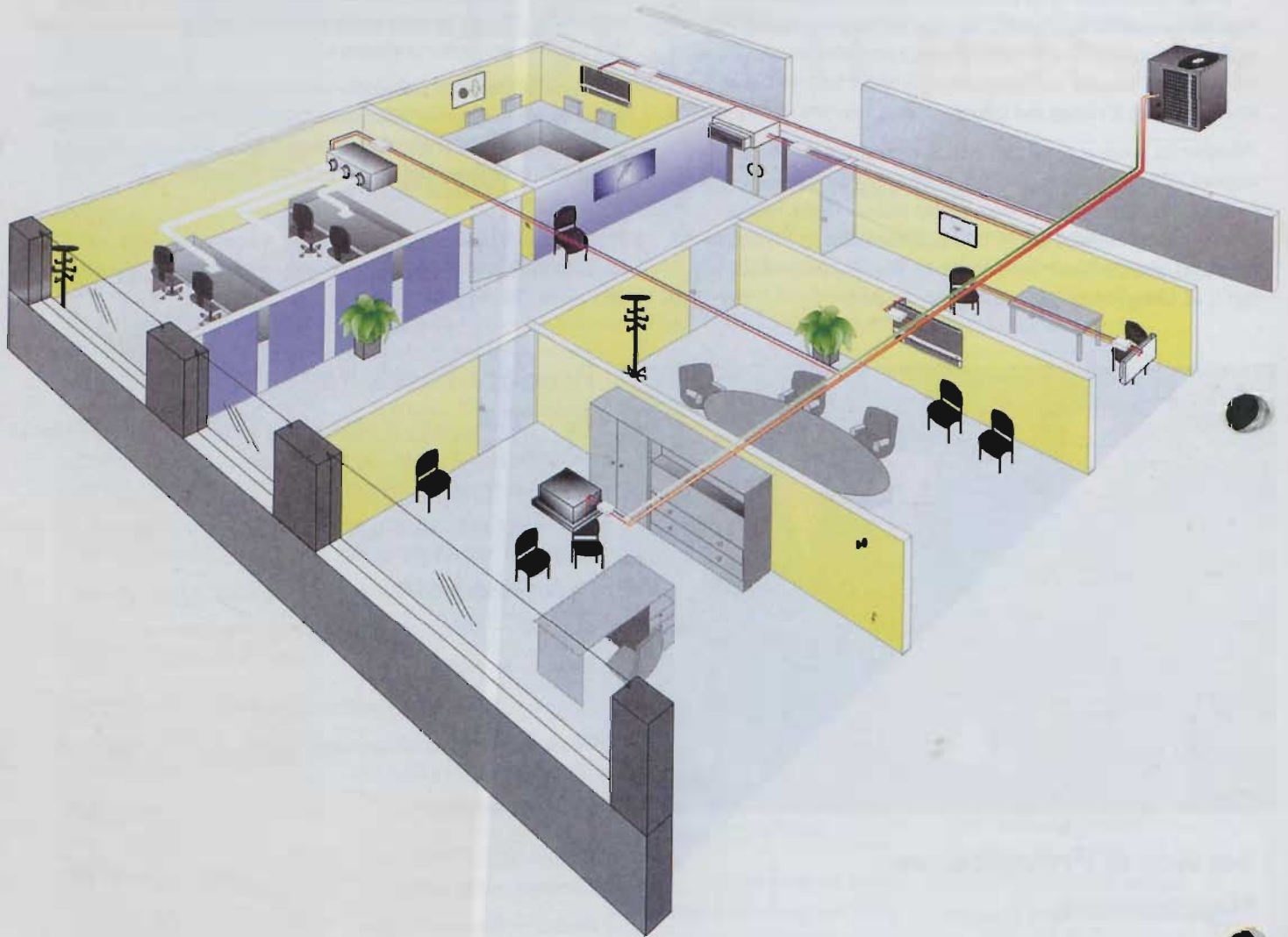
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Multi-split chilled/hot water system

- Cooling only or heat pump operation.
- Indoor units fitted with electronic regulation and infrared remote controls.
- Hydraulic kit and Hydro Control kit for easy installation.
- Longer piping lengths possible.
- Operating range between + 45°C and -15°C outdoor air temperature.
- Modular design enables problem-free interior building rearrangements or extensions.
- The ecological principle of Sunline Hydro uses water as the heat transfer fluid : it is far simpler and less dangerous than other substances.
- The Sunline Hydro system is as quiet indoors as it is outdoors. Low noise levels are achieved with variable speed fan operation.

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DALAIR

Dalair is a specialist air handling unit manufacturer with a background in ductwork and dust extraction which has achieved recognition as a quality manufacturer of both central station and packaged air conditioning equipment.

Consistent quality is achieved right throughout the range which caters for the needs of high-tech areas such as electronics, aerospace, automotive, pharmaceutical, food retail and medical care industries.

Continuous innovation and the development of new products – together with the extensive investments in staff training – has placed Dalair at the forefront of the central station and packaged air handling equipment industry.

CONDAIR CP

This latest generation of steam humidifiers from Condaire is packed with all the know-how of the market leader; plus a whole lot more.

At the heart of the new system is a revolutionary innovation – the CPCard. This is a control card which defines the exact amount of steam generated by the unit to the kg/hr. So, with the Condaire CP, you pay only for the steam you actually need.

In the past, users of steam humidifiers have had to accept capacity levels determined by the size of the unit, which has often meant paying for output that is never actually needed. Now, the new CPCard and the latest generation of humidification systems from Condaire make this problem a thing of the past. Steam output now matches the capacity required by the customer ... to the kg/hr precisely.

If circumstances change and the user requires more – or less – steam capacity, he simply inserts a new CPCard with the modified output data.

Condaire's newest steam cylinders are also totally system-compatible, giving the choice of a cleanable or exchangeable cylinder in the basic unit.

DST

DST dessicant dehumidifiers are specifically designed to solve humidity problems in commercial and industrial applications, particularly when the required humidity levels are below the efficient operating range of conventional refrigeration systems.

User benefits include simple installations; excellent reliability; efficient operation; simple to maintain; and competitive pricing.

While the standard dehumidifier range fulfils the majority of drying applications, most units can be tailored to suit individual requirements.

Using the unique SSCR rotor cassette, complete low dewpoint air handling systems can be designed and manufactured to conform to almost any specification. The patented SSCR silica gel rotor used in our equipment is technically the most advanced of its type currently available and enables continuous effective drying of air flows up to 96,000 kg/h.

CLIMATAIR

In a very short space of time Climatair has established itself as a leading supplier of high-quality, low-noise level, fan coil units. Investment in design and development led to the successful granting of a patent for an innovative type of airside control fan coil unit. This design is a giant leap forward in this technology and is rapidly becoming the benchmark against which all the others are now specified.

Climatair fan coil units are available for all types of systems including chilled water and DX; horizontal or vertical; concealed or cased; and with either waterside or airside control (patent pending). This airside system is unique to Climatair and represents a major step forward in temperature control.

Designed, manufactured and tested to the most stringent quality procedures, they are engineered to perform with great reliability at low noise levels and are supplied with a 2-year warranty. Duties up to 10kW cooling and 12kW heating are available in the standard range with "specials" being available up to 20kW.

MHI

Mitsubishi Heavy Industries' inverter-driven, multi-indoor-unit climate control system KX-series is a new way to air-condition or heat a building. The disadvantages of central units are the high running costs if there are only a few zones to be cooled, and the varying comfort level between each cooling zone.

The new inverter-driven KX multi-zone unit lets you choose when and where you want air-conditioning, and at what temperature and fan speed, without needing huge central units. The central cooling system with water piping, cooling towers and all the fan coil units are things of the past. Even boilers are sometimes not needed, just touch the changeover buttons on each unit when you want cooling or heating. With the water system out of the building, gone are the worries of water damage from the cooling system. The new KX-series ... every reason to replace small- and medium-size centralised cooling systems.

YORK COMMERCIAL UNITARY

York's ever-expanding portfolio is all-embracing. The comprehensive range of unitary commercial products is extensive.

The York unitary commercial range offers a diverse range of products including packaged roof-top units which are available in heat pump mode gas direct fired. The roof-top units are available from 8kW to 66kW with various options, including Enthalpy-based economiser control. Also included in the commercial range are the YCAM/YCAC range of air-cooled chillers from 8kW to 130kW. York also offers a full range of proven condensing units for DX application. These are fully versatile covering any requirement from 8kW to 160kW.

One of the latest introductions is the Sunline Hydro multi-split chilled/hot water system. This is a highly innovative product offering all manner of user benefits, environmental safeguards and cost savings.

QUALITAIR CLOSE CONTROL

Qualitair's close control units comprise two free-standing packages – the Series 600 and the Series 700.

Series 600 combines versatility, compactness and high performance, delivering up to 34kW of cooling from just one square metre of occupied floorspace. It is suitable for modern offices, production areas and computer rooms where space is at a premium.

Series 700 is designed for commercial and industrial air conditioning applications with capacities from 25kW up to 80kW.



MITSUBISHI
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AIR CONDITIONING SYSTEMS

MHI have provided innovative and reliable air conditioning systems to many millions of customers throughout the world for over 30 years. To find out more about the full extent of the

Mitsubishi Heavy Industries range contact:-

Aircon Sales & Service Ltd, Unit 100, Slaney Road, Dublin Industrial Estate, Finglas Road, Dublin 11.

Tel: 01 - 830 7132/830 6565; Fax: 01 - 860 0174.



Ventilation

- An Environmental Health Officer's View

By Siobhan Grace, B.Sc. (Hons.)
Environmental Health, MEHOA

Adequate ventilation is necessary in all buildings to ensure comfort of staff. However, it is of particular importance to Environmental Health Officers in food premises because high temperatures and a dirty atmosphere will promote bacterial growth in high-risk foods which could ultimately result in food poisoning.

Environmental Health Officers working in the food hygiene sector have no specific standards to work from in relation to ventilation. The Food Hygiene Regulation 1950 - 1989 mentions only that "suitable and sufficient" ventilation must be provided in food premises. This may at first seem like a disadvantage but, in fact, it does allow the Environmental Health Officer some lee-way to deal with each individual premises on its own merits. A uniform approach - while good in theory - may not be ideal in practice. However, there are certain minimum requirements expected of retail food premises.

Kitchen

Ventilation in a kitchen must comprise mechanical extract ventilation, vented directly to the outside air. It must be provided over all steam-emitting and cooking appliances. A stainless steel canopy with grease filters must also be provided. The canopy must extend outwards to a distance of 225mm beyond the rims of equipment. Mechanical intake ventilation must also be provided. A minimum of 15-20 air changes per hour must be achieved. All external ducting must extend 1m above eaves level.

Pipework and ducting should be insulated and chased into the wall or the floor to minimise drips from condensation onto food/surfaces and the collection of dirt and dust.

The vegetable store should have ducted mechanical ventilation if it is

not situated on an outside wall. The dry goods store will also need ventilation.

The main problem Environmental Health Officers find in relation to ventilation in food premises is the practice of drawing dirty air through a clean area, eg, drawing air from the sanitary accommodation through the kitchen.

Dining Area

A mechanical system of intake and extract ventilation must be provided in all dining areas to ensure a minimum of 10-15 air changes per hour.

Sanitary Accommodation

A permanent vent-opening vented directly to the external air may be acceptable in the water closet if the opening is not less than 5% of the floor area or 0.1m², whichever is the greatest. Where it is necessary to provide a mechanical extract ventilation system, it must be ensured that a minimum of three air changes per hour is achieved.

A lobby ventilated directly and separately to the external air must be provided between any water closet and a food room by way of a ventilator having an opening of at least 0.1m² or a permanent ventilation opening having a cross-sectional area of not less than 6500m². If a mechanical aided system of intake ventilation is required, it must be capable of achieving a minimum of two air changes per hour.

Not all premises are governed by the Food Hygiene Regulations but Environmental Health Officers' Association guidelines are applied as in Table A (right).

The Tobacco (Health Promotion and Protection) Regulations 1995 are slightly more specific than the Food Hygiene Regulations, in that they

TABLE A

Room/Building	Air Changes per hour
Assembly rooms	4-8
Bakeries	20-30
Bathrooms	6-10
Battery charging rooms	5
Bedrooms	2-4
Boiler houses and engine rooms	15-30
Cafes and coffee bars	10-12
Canteens	8-12
Cellars	3-10
Changing rooms (main area)	6-10
Changing rooms (shower area)	15-20
Cinemas and theatres	10-15
Club rooms	12
Conference rooms	8-12
Dance halls	10-12
Dining and Banqueting, Restaurants	10-15
Drying rooms	up to 5
Entrance halls and corridors	3-5
Factories and workshops	8-10
Garages, public parking	6 min
Garages, repair shops	10 min
Glasshouses	25-60
Gymnasiums	6 min
Hairdressing salons	10-15
Hospitals, operating theatre	15-17
Hospitals, treatment rooms	6
Hospitals, post mortem rooms	5
Kitchens, domestic	15-20
Kitchens, hotel and industrial	30 min
Laboratories	4-6
Laundries	10-15
Lavatories and public toilets	6-8
Lecture theatres	5-8
Libraries	3-4
Living rooms	3-6
Lobby	2
Offices	4-6
Public house bars	12 min
Schoolrooms	5-7
Shops and supermarkets	8-15
Shower baths	15-20
Stores and warehouses	3-6
Sculleries and wash-ups (large scale)	15-20
Swimming pools, changing areas	10
Theatres	6-10
Utility rooms	15-20

air management

specify special designated areas which are required to have a "No Smoking" section and in these areas the "ventilation or other system is adequate to prevent, as far as is practicable, the circulation of tobacco smoke into the area where smoking is prohibited – at least one quarter of the seating area. Such confirmation may only be issued following written application by the owner, manager or person in charge of the premises concerned, and inspection of the said premises and its ventilation or other system by an officer of the health board, and shall be subject to review by the chief executive at any time he/she considers appropriate.

Public Houses & Pre-Schools

The Environmental Health Officers' Association has drawn up its own policy documents on ventilation in public houses and pre-schools.

The policy document on ventilation in public houses was initiated due to the increased number of complaints to Environmental Health Officers regarding the uncomfortable smoky atmosphere in many public houses. There was a public demand for improved ventilation of public houses.

It is recommended in this document that a mechanical extract ventilation system capable of achieving 12 air changes per hour (minimum) is provided. Ventilation by means of an openable window only is unacceptable as it will not achieve the minimum required number of air changes.

A system of mechanical intake ventilation must also be provided to replace the air removed from the room with clean, fresh air. In some cases (in small pubs only) secure permanent openings having a total unobstructed area of at least 6,500mm² are acceptable as a means of intake ventilation. The intake fan, if used, should be positioned adequately so as to ensure the maximum flow of air through the room, leaving no pockets of unchanged air.

The position of the extract fan is also very important. It should not be positioned behind the bar as it will only draw the smoke into the bar area which will, in turn, cause problems for the bar staff. Factors which must be considered when deciding the position

must include the size and shape of the bar, the direction of the prevailing wind, and the position of external walls.

The guidelines on "Environmental Health Standards for Full-time Pre-school services" has been adopted nationally by the EHO in which specific ventilation requirements are also mentioned. These premises do not necessarily have to have a mechanical-aided system in place. Permanent openings having a total unobstructed area of not less than 4000mm² opening directly to the outside air may be adequate. The provision of a mechanical ventilation system may be necessary in some cases. The following guidelines are mentioned in the document.

Area	Air Changes per hour
Laundry areas	10-15 air changes per hour
WC's, sluice rooms etc	3 air changes per hour
Lobbies, stairways, and other access areas	2 air changes per hour
Play and rest areas	3 air changes per hour

Sick Building Syndrome

Other sources of concern in relation to ventilation which do not usually occur in a food premises but more commonly in office blocks are sick building syndrome (SBS) and Legionnaires disease.

Inadequate ventilation has not been sourced as the sole cause of SBS but is, in a majority of cases, the largest contributing factor. The syndrome seems to be most prevalent in buildings with re-circulating ventilation or air conditioning systems.

The symptoms of this illness are as follows:- eye irritation; nose irritation; throat irritation; skin irritation; headache; lethargy; irritability; and lack of concentration.

It is important that a sufficient supply of fresh air is made available as it is required for respiration, to dilute contaminants, and to reduce odours, all of which are related to SBS. There are several reasons why a ventilation system in a building may be inadequate, ie the system may be badly maintained, badly designed or ill controlled. It may simply be

malfunctioning. Whatever the cause, when any or all of the aforementioned are involved, the distribution of fresh air will be below the minimum specification required.

Legionnaires Disease is separate to SBS and has been known to occur in hotels. It is a form of pneumonia. Susceptible people would be: the elderly; those ill with respiratory or heart disease; those ill with kidney disorders; people on immunosuppressant drugs; diabetics; alcoholics; and smokers.

Men have proven to be more susceptible than women.

There are many places in which *Legionella* can survive. These include air conditioning equipment, jacuzzis, swimming pools, whirlpool baths, and wet cooling towers. The source which has caused most public concern is the typical cooling tower used in many office blocks today. Disease occurs when conditions favour growth and multiplication of bacteria, eg stagnant water.

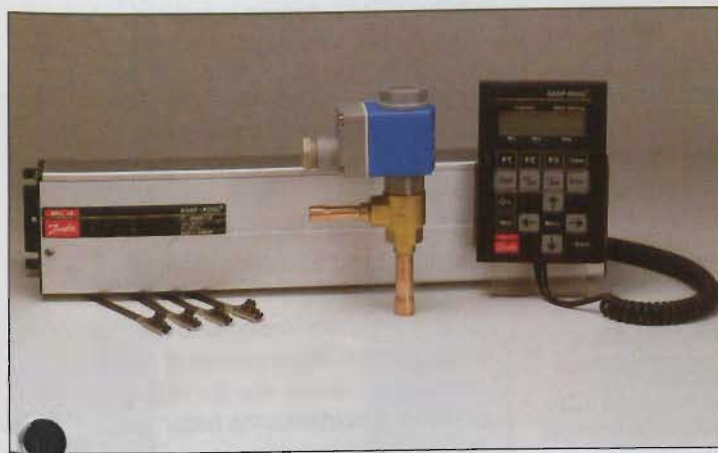
Environmental Health officers in Ireland do not have a direct responsibility in relation to either SBS or Legionnaires disease. These are dealt with by the Health and Safety Authority under the Health and Safety and Welfare at work Act, 1989. However, suitable and sufficient ventilation is the concern of EHOs and, as SBS and Legionnaires Disease are symptoms of inadequate ventilation, they are of some relevance to the profession and as such cannot be disregarded.

I would like to conclude by suggesting that when a new system is being designed, the district EHO should be contacted as soon as possible and brought into the planning process to avoid any problems that may arise in the future.

Danfoss VLT® Shows Way Forward

It is no surprise that the world's largest construction project is currently taking place in Hong Kong. With a provisional budget around St£13.3 billion, Hong Kong's new airport is the world's largest construction project. Danfoss is helping to maintain a pleasant indoor climate in the new passenger terminal by installing more than 400 VLT® 3500

CONTROLS YOUR ENERGY



Danfoss Adap-Kool® Refrigeration Control and Monitoring System

- ◆ Adaptive control optimises plant capacity.
- ◆ Reduced running costs and short payback time.
- ◆ Energy savings through lower condensing temperatures.
- ◆ Easy to retrofit on existing systems (eg water chillers, process plant, cold stores etc).

Danfoss-Randall Heating Controls

- ◆ Thermostatic Radiator Valves for individual room temperature control.
- ◆ Motorised Valves 2-port & 3-port (sizes from 1/2" to 6").
- ◆ Time Clocks and Programmable Thermostats.
- ◆ Automatic By-pass and Flow Control Valves for system balance and pump protection.



Danfoss HVAC Drives for pump and fan speed control

- ◆ VLT® 3500 (HVAC) Speed Drives with dedicated design for pump and fan applications
- ◆ No Motor Derating necessary
- ◆ CE marked to Machine Directive; Low-Voltage Directive; and EMC Directive

air management

HVAC frequency converters to control the ambient temperature and climate in the terminal, no matter how busy it is. With more than 50 gates and the capacity to handle 5,000 passengers, or 40 flights an hour, this is an absolute necessity!

Naturally there are many ways besides Danfoss HVAC frequency converters to maintain a pleasant indoor climate. However, the VLT 3500 HVAC has been developed especially to manage the indoor climate. Energy consumption can be cut by up to 60% by using VLT frequency converters instead of other control methods.

Besides the financial arguments, another benefit is that the reduction of energy consumption conserves natural resources. Generally speaking, variable air volume systems in ventilation and air-conditioning are required more and more due to increasing demands on energy consumption and comfort. Different regulation methods are used depending on the application and the annual operation load profile of the building or plant.

The simple method is a 2-speed motor. Switching the number of poles allows two different speeds. Switching from 4 to 6 poles gives, for example, full speed and 2/3 speed and switching from 2 to 4 poles full and half speed. The energy saving provided with the system is limited, as the air volume is only varied in two steps.

Two speed motors are therefore often used in conjunction with a simple flow control method like a damper. The damper control is a quite simple system giving little energy saving.

Any kind of fan follows the basic "laws" – flow is proportional to speed, pressure follows the square of the speed and power the cube of the speed. A variable airflow can easily be performed by varying the speed of the motor powering the fan. The speed control allows a constant pressure to be maintained in the duct system, or for a regulation according to temperature or the time of the day. In more advanced installations the VLT can be directly connected to a control signal from a Building Management System (BMS).

With a Danfoss VLT® frequency converter a simple standard motor is sufficient and no derating needs to be

considered as the VLT provides full nominal power output. In retrofit jobs the existing motor can be utilised, regardless of whether it's a pole changing motor or a standard motor.

The 2-speed motor system requires a pole-changing motor (Dahlander motor or with separate windings), a suitable switchgear, 6-wire motor cable, power factor correction and of course a damper and its actuator. A controller is necessary to control the damper actuator and to switch the motor poles. Frequent switching from one speed to another must be avoided. The damper requires some space in the ductwork, needs frequent maintenance and causes additional pressure loss.

Using a Danfoss variable speed drive, on the other hand, makes the damper, actuators, power factor corrections and extensive cablework superfluous. A simple voltage (0...10V) or current (0/4...20 mA) control signal to the

VLT® is sufficient to vary the flow and control the conditions required.

High starting currents and peaks, like when switching poles, disappear from the energy bill and the stress on motor, bearings and beltdrives is reduced considerably. Maintenance is limited to a minimum and installation costs and space can be saved. The VLT's IP54 enclosure allows it to be mounted directly at the airbox, or close to it on the wall.

Falling expenses for electronic equipment and increasing costs for labour have brought the investments for both regulation methods to a similar level. The above comparison of energy consumption shows why the utilisation of VSD's is doubtless the better choice.

Contact: Brian Maguire/Leslie Mason, J J Sampson & Son Ltd.
Tel: 01 - 626 8111.

Vent-Axia Ventilation – Committed to Customers

Customers are Vent-Axia's first priority, and the company is committed to making life for specifiers, installers and distributors as smooth and profitable as possible.

Quality Assurance at Vent-Axia is certified and registered to BS EN ISO 9001 (formerly BS 5750 Part 1), so the products truly perform. Additionally, Vent-Axia products are CE marked and also carry the widest range of national and international product safety certifications, including BEAB, DEMKO, TUV/GS, ASA, UL and CSA.

The company's new computerised product information systems give immediate technical help and job-customised print output. Included is the Vent-Axia Fan Selection Programme which is now routinely used by specifiers.

Vent Axia is constantly developing new products for the ventilation, heating and washroom hygiene-related markets. Safety extra low voltage equipment, integrated lighting, affordable ventilation and heat recovery products are all examples.

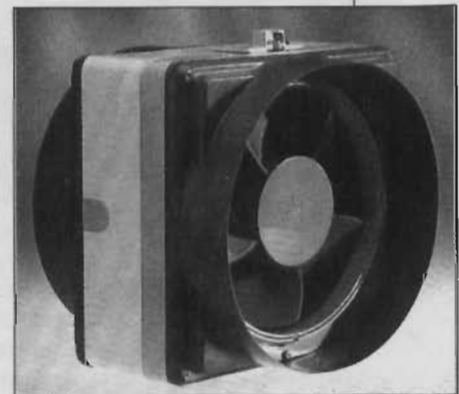
The latest addition is the LoWatt range of domestic extract fans which is already being hailed as the most significant development since the low energy lamp. LoWatt fans use 80% less electrical power than conventional units performing the same ventilation task.

To ensure that products are available when and where the customer wants them, Vent-Axia Ventilation has a large stockholding in Ireland, supported by a computerised 4,200 Europallet warehouse.

Vent-Axia products feature "intelligent" monitoring of indoor temperature, humidity, air pollution and occupancy levels via automatic electronic control to deliver a healthier indoor climate. This also minimises energy consumption, both in terms of electrical power and warm air extraction, contributing directly to a reduction in fuel burning and lower CO₂ levels in the earth's atmosphere.

Contact: Vent-Axia Ventilation. Tel: 01 - 450 4133.

Right: Vent-Axia T-Series in-line duct fan from Vent-Axia Ventilation



AIR FILTRATION

The Many Facets of AAF Air Filters



21st Century Filter Technology

AAF offers the most comprehensive engineering and manufacturing capabilities in the industry. With advanced in-house facilities in Singapore, Holland, and the US for testing and engineering air filters, we are unsurpassed in our ability to design air filters to any specification. All AAF products are guaranteed to meet rated performance standards based on industry accepted test procedures. Rigid quality control procedures ensure consistent performance. Quality control inspections are conducted throughout the manufacturing process from incoming raw materials to random checks on finished goods.

CONTACT

Caroline Fagan



Unit 8, Ashbourne Industrial Park, Ashbourne Industrial Estate,
Ashbourne, Co Meath. Tel: 01 - 835 2530; Fax: 01 - 835 2535

air management

Irish Ventilation and Filtration

Irish Ventilation & Filtration Ltd was formed in October 1995 but the combined experience of key personnel amounts to 30 years and takes in all aspects of ventilation design, product manufacture and installation. Its product portfolio is extensive and includes many brand-leading names. Typical examples are Rosenberg and Interfilta.

Rosenberg

The Rosenberg range of short cased axial flow fans offers the benefits and experience of the very latest motor technology and production techniques. Powered by the Rosenberg external rotor motor, the fan is of a compact design and has the advantage of 100% speed controllability via either transformer or electronic devices, offering a distinct advantage over conventional axial flow fans.

All Rosenberg fans are statically and dynamically balanced in accordance with VDI standard 2050, quality Q 2, 5 giving peace of mind for long, quiet and trouble-free operation.

Fans sizes – 200 to 300 – have impellers that are manufactured from high-quality galvanised steel with black epoxy coating applied. From size 315 to 630, the impellers are fibre-reinforced plastic with sizes 710 to 1000, the impellers are die-cast aluminium.

The versatile of the Rosenberg centrifugal roof extract unit is suitable for a wide range of applications from kitchens, toilets, department stores, garages to warehouses in horizontal

discharge version. The "DH" is used for less dusty air.

All units utilise high-efficiency backward curved impellers equipped with the latest generation of Rosenberg external rotor motor which are 0 to 100% speed controllable by either transformer or electronic control devices.

The cowls are manufactured from substantial gauge corrosion-resistant aluminium while the base is mild steel with an epoxy paint finish.

The impeller is suitable for open inlet conditions but really comes into its own where a ducted system is required with higher static pressures.

The Rosenberg Zero-Box range of single fan units is designed for applications where quiet operation is a prime consideration.

For more details on fans contact Kieron Ryan at Tel: 01 - 492 5003.

Interfilta

Interfilta's Intersafe PM is a range of medium to high-efficiency extended surface bag filters designed to benefit installations by combining high air-cleaning efficiencies with long-installed filter life (dust holding capacity).

Filter media can be impregnated with toxic anti-microbial chemicals, but there will always be the risk of these agents leaching into the air stream to the potential detriment of people's health.

By contrast, the Intersafe PM media achieves the desired result of preventing microbial colonisation without the use of added chemicals. Made from specially formulated polypropylene fibres which have an inherently anti-microbial characteristic, the media has been tested and certificated by a leading independent

test house in the USA.

The product design and careful selection of filter materials ensures that heavy weights of dust are trapped over extended maintenance intervals. There is a range of efficiencies to choose from designed to:-

- ☐ Protect equipment in general air conditioning plant;
- ☐ Ensure long life protection for fabric decoration;
- ☐ Achieve the levels of air cleanliness required in the manufacture of many products.

For more details on fans contact Tony Humphries/Claire Reid at
Tel: 01 - 492 5003.

Hotchkiss Spiral Tubes

Hotchkiss Spiral Tubes are specialist manufacturers of spiral and flat oval duct systems. Their expertise is based on many years' experience gained from their association with ductwork contracting through their sister company, Hotchkiss Ductwork Ltd. This enables them to truly understand the contractor's problems.

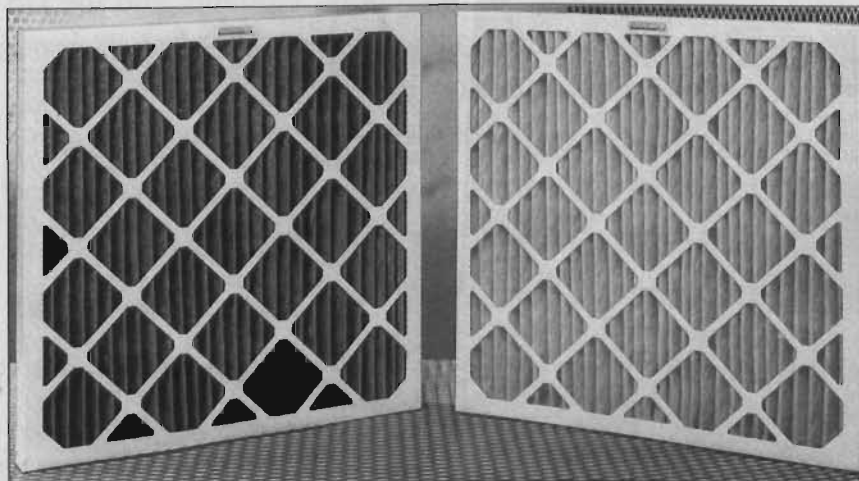
To complement the spiral ducts, a comprehensive range of stock fittings is maintained in all popular standard sizes. For the larger sizes, fittings are products to client's specification.

Contact: Dan Chambers/Jim Bollard,
Dan Chambers Ltd. Tel: 01 - 830 3222.

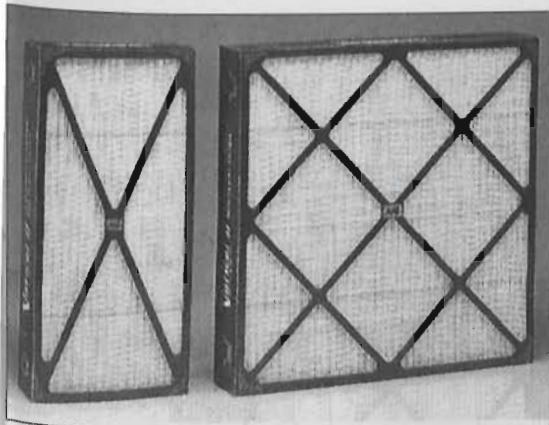
J&E Hall Meeting the Global Challenge

AAF began marketing its products globally more than 40 years ago. While many other American manufacturers were focussed on only the US market, AAF had the foresight to develop a worldwide market for air filtration and environmental products.

Today, American AirFilter and AAF brands are recognised throughout the world as the trusted names in clean air, and as a symbol of excellence. They



Interfilta's Interpleat pleated panel filters are available from Irish Ventilation & Filtration



VariCel II compact filters featuring the AAF Slimline design concept which are available from J&E Hall

are distributed throughout Ireland by J&E Hall.

As a member of the Hong Leong organisation, AAF benefits from the resources of a multinational conglomerate involved in financial services, real estate investment, and the manufacture and distribution of industrial, consumer, and high-technology products. Worldwide production facilities are specifically

designed to manufacture and test complex air filtration and air pollution control products. During the entire production process, operations are governed by the quality assurance programme and are ISO 9001 certified.

The product portfolio includes everything from high-efficiency particulate air (HEPA) filters for cleanroom environments, to residential air filters, to the latest cartridge dust

collectors.

In conjunction with AAF, J&E Hall offers the most advanced technology and skilled application expertise for cleaning air in facilities and processes as diverse as hospitals, industrial plants, gas turbines, and nuclear reactors.

Contact: Caroline Fagan, J&E Hall.
Tel: 01 - 492 5340.

Roof Units from Dan Chambers

The name Roof Units and Roof Units Ltd are of course synonymous. Roof Units Ltd are now part of the Air Movement Group and they in turn are part of Smithe Industries. Against this backdrop of growth and take-over, Dan Chambers Ltd has, over the past 20 years, been the Irish arm of this phenomenal success story.

It doesn't stop there, however. Dan Chambers Manufacturing Ltd has been manufacturing a substantial part of the Roof Units Ltd range for many years.

Glass fibre roof cowl's are now manufactured here in Dublin; as are the very successful and popular "Mixed Flow Square" in-line fans; Viking air handling units; and single and twin in-line centrifugal fans. It all adds up to being that much more competitive and reduced lead in times.

Fire Dampers/Volume Control Dampers/Air Distribution Grilles and Diffusers

Dan Chambers Manufacturing is now celebrating 10 years of manufacturing the complete range of NEA and fire fuel fire dampers and blow duct

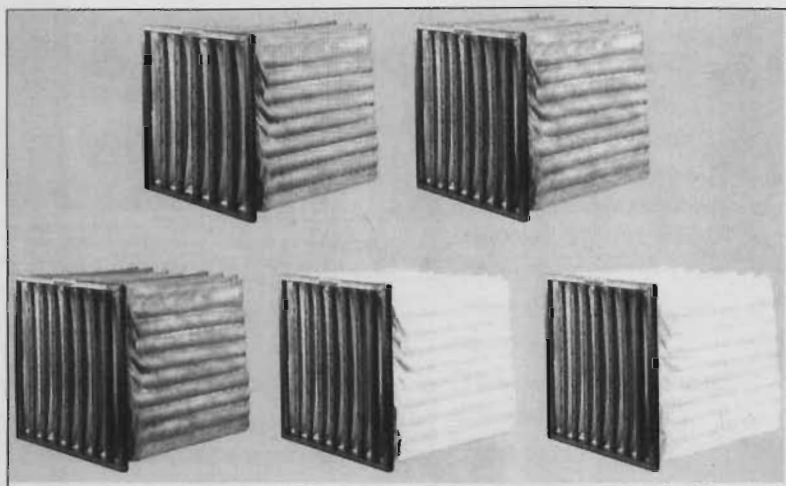


BENEFITS & FEATURES

- ☐ Manufactured from synthetic materials (no glass fibres used as in traditional high-efficiency equivalents). Ideal for use in the Food, Pharmaceutical and Electronics industries;
- ☐ Media is mechanically much stronger than glass media, reducing the risk of accidental damage during installation and throughout service life;
- ☐ Will generally have a lower pressure drop which will give (a) energy saving and (b) longer life;
- ☐ Inherently anti-microbial
- ☐ Competitively priced;
- ☐ Available in a range of efficiencies from EU4/5 (55%) to EU8/9 (95% plus)



INTERSAFE PM SYNTHETIC BAG FILTERS



CONTACT

CLAIRE REID & TONY HUMPHREYS
Irish Ventilation & Filtration Ltd, Unit C,
390 Clonard Road, Crumlin, Dublin 12.
Tel: 01 - 492 5003; Fax: 01 - 492 5005

air management

volume control dampers. Every fire-damper is tested before leaving the factory. Quality control is a must and is implemented by a vigilant production manager in the form of Peter Coughlan.

Spiral Ducting and Fittings

It is hard to believe that only six months has elapsed since Dan Chambers Manufacturing opened the door of its new factory for forming spiral ducting and fittings. An additional 6,000 sq ft seemed more than adequate at the time yet the success of the venture means there is now pressure on space. Of course the new Spiro Forming machine – together with Gore Lockers and other associated machinery – does take up a lot of room, not to mention storage space for the finished product and heaps of fittings. Dan Chambers laughs and says: "we just can't keep sufficient numbers of fittings in stock", and then goes on to marvel at the success of



The advanced computer-controlled spiral tubing machine at Dan Chambers Manufacturing

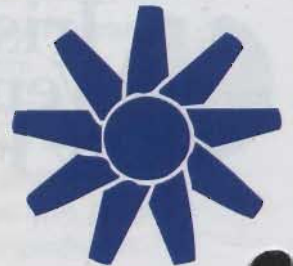
the operation. "It was a major and painful step forward", he says "but it has been worth the effort. It's great to get the support of the trade. Hopefully, we can continue to meet the demands

that are made on us".

Contact: Dan Chambers/Jim Bollard.
Tel: 01 - 830 3222.

DAN CHAMBERS

M A N U F A C T U R I N G



Manufacturers of

Spiral Tubes & Circular Fittings

Grilles & Diffusers

Roof Units

Fire Dampers

Louvres

VCD's

68 Moyle Road, Dublin Industrial Estate, Glasnevin, Dublin 11.

Tel: 01 - 830 3222, 830 3407, 830 3859; Fax: 01 - 830 8888

New Product Introductions from MFP Sales

With the extraordinary growth in the construction sector continuing unabated, the demand for new – and more specially innovative and problem-solving products – has never been greater. One of the companies which has responded to this challenge is MFP Sales Ltd. Among its most recent introductions are the following:-

MFP Eavemaster and Classic – the perfect combination

With years of expertise and experience in the development and manufacture of PVC-u materials, MFP can justifiably claim to be among the leading suppliers of quality fascia, soffit and guttering products to Ireland's construction industry. The company's comprehensive range of systems meets all the demands of modern construction.

MFP Eavemaster – MFP Eavemaster is the most complete fascia and soffit system on the market. It is notable not only for elegance of design, but also for ease of installation.

Competitively-priced, maintenance-free and totally weatherproof, the Eavemaster system includes easy-to-fit internal and external angles, gable boxes and finials. It's decorative ogee moulded fascia and board-effect soffit will enhance the appearance of any new or existing building.

Hardly surprising then, that in the two years since its introduction, Eavemaster has gained a large share of the Irish and Export markets – a share that continues to rise.

MFP Classic – Classic is an elegant, ogee style rainwater system, with a choice of external fascia brackets or concealed internal brackets and either

square or circular downpipes. Anchored at outlets, angles and unions to control the effects of thermal movement, Classic is the ideal choice where appearance, performance and capacity dictate the use of a rainwater system other than half-round or square.

Marley Alutec

Now available from MFP, Lucan is Marley Alutec, the Ogee profile to the Aligator 'Snap-Fit' rainwater drainage systems, suitable for use on all domestic, commercial and industrial sites, especially those installations where the building is long-life and low-maintenance.

Ogee is a 150 x 100mm profile gutter giving greater cross-sectional area and thus an increased flow rate.

Internal snap-fit unions are sealed with low modulus silicone sealant and there are concealed fascia brackets. "Snap-Fit" jointing ensures that installation is quick, simple and easy – being both secure and extremely durable.

There is a comprehensive range of choice in downpipes, accessories, fittings, sealants, fixings and assembly bolts where required. There are also 18 standard colours to match any exterior design on all types or ages of property.

Contact: MFP Sales Ltd.

Tel: 01 - 628 0696;

Fax: 01 - 628 1119.

Contractors – Reduce Site Labour Costs by Up to 66%

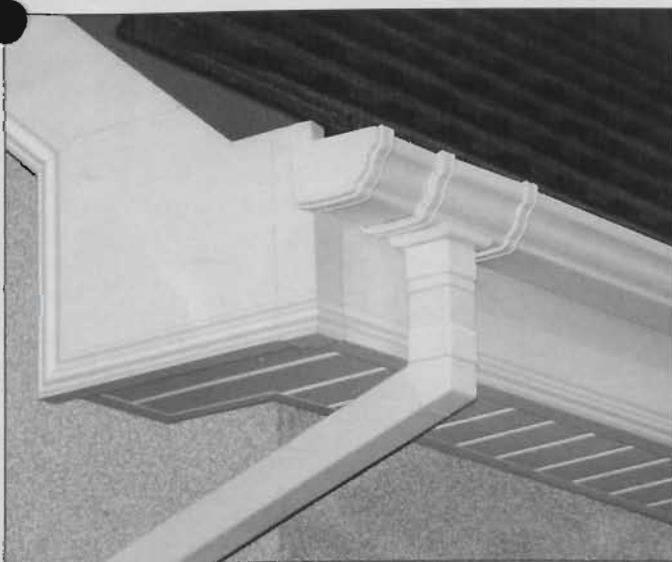
BSRIA's recently completed site productivity project has produced some important findings for the building services industry. Site productivity in a typical UK project was found to be as much as 66% lower than observed best practice. BSRIA has identified what changes are needed and how they may be implemented to increase productivity, not so much through increased spending, but by careful attention to detail.

While the conclusions are based on the UK experience, they can equally be applied to the Irish marketplace.

The study is based on an international comparison of site work, examining construction activity in the UK, Sweden, the USA and Germany. Each project was assessed individually against criteria for best possible performance as well as against each other. Analysis shows that on specific tasks and activities, contractors in each country had something to learn from the other.

Output was divided into productive and non-productive components. Five major types of non-productive time was identified.

- ☐ time lost within the control of the worker;
- ☐ time lost due to inefficient methods of operation;
- ☐ time lost through management shortcomings;
- ☐ time lost through changes in the scope of the work;
- ☐ time lost by factors affecting the execution of particular tasks.



Eavemaster and Classic have been specifically designed to complement each other, both in visual appeal and in efficient performance. Separately, the two pride excellent results, but together, Eavemaster and Classic are the perfect combination.

A state-of-the-art Energy Training Facility, the first of its kind in Ireland, catering for the oil and gas industries was officially opened by The Minister for Enterprise and Employment, Mr Richard Bruton, TD at the FÁS Training Centre, Rossa Avenue, Bishopstown, Cork, on Friday 2 May last.

FÁS Cork Energy Training Facility – a First for Ireland

In the fast changing environment of technological change, it is essential that the domestic oil and gas industries ensure the highest standards in efficiency, safety and operation while at the same time conforming with rigorous environmental standards and regulations.

"The overall objective of the Energy Training Facility is to provide access to a framework of certification through which persons can display the required level of competence in gas and oil installation and service as required by the industry", said FÁS Centre Manager Christy Cooney.

FÁS Cork has responded in a positive way to the requirements of industry and has worked in co-operation with the Irish Energy

Centre, Irish Domestic Heating and Environmental Engineers (IDHE), the Domestic Heating Oil Council of Ireland (DHOC), and The Consultative Gas Committee to provide up to date certified training programmes designed for their specific needs and requirements.

Those involved in the oil and gas industries have responded positively and with enthusiasm to the new Energy Training Facility.

"FÁS Cork has provided gas technical training and other related training for over 300 people to the highest standards covering BGE staff, contractors and installers", states Bord Gáis.

Calor Gas sees its association with, and contribution to, the new facility as



John Fay with Joe Conroy, Grant Engineering; Paddy Scriven, Vokera; Fintan Kennedy, Potterton Myson; and Michael Stack, Waterford Stanley.



Minister for Enterprise and Employment, Mr Richard Bruton, TD, with Ms Paula Cosgrave, Instructor, FÁS Training Facility, Cork (both gas and oil)

a natural extension of its commitment to continuously improved standards and safety within the industry.

Indeed in 1993, in cooperation with the Gas consultative Committee – a group which represents the entire gas industry – FÁS Cork developed a domestic and industrial gas training facility within its Bishopstown Centre. The training area was further developed two years later to meet the needs of the Irish Liquid Petroleum Gas Association and in 1996 there were further developments to comply with the National Standards Authority regulation IS813.

Towards the end of last year, FÁS – in conjunction with the Irish Energy Centre, DHOC, IDHE, Firebird, Grant Engineering, Waterford Stanley and together with the Oil Firing

Technical Association for the Petroleum Industry and the Irish Heating Industry – provided a complete suite of technical training programmes in domestic heating installation, service and operation.

The opening of the Energy Training Facility earlier this month is the culmination of all these developments. It now provides training to the highest standards for both new and existing craftspeople within the sector in a custom-built area that is superbly equipped with classroom and "hands-on" practical training equipment. This includes a wide range of modern cooking and heating appliances donated by major equipment manufacturers.

The oil industry is particularly pleased that it too, like its gas



Richard O'Sullivan, Firebird Boilers, with Christy Cooney, FÁS Training Centre Manager, Cork; Minister Bruton, John Fay and Paula Cosgrave, Instructor

Supporters and Contributors

Among those who have supported and contributed to the development of the new Energy Training facility are:-

AGA-Rayburn Ltd; Aquatech Ltd; Barlo Heating Ltd; Baxi Heating Ltd; Bord Gáis Éireann; Calor Gas; Danfoss/J J Sampson & Son Ltd; Don Heating Products Ltd; Dublin Providers Ltd; Firebird Boilers; Grant Engineering Ltd; G.R. Claudio (Vokera) Ltd; Honeywell Controls/C & F Quadrant; Kingspan GSP Ltd; Monoflame Ireland Ltd; Optiflex Ltd; Potterton Myson (Ireland) Ltd; Selkirk Manufacturing Ltd/Hevac Ltd; Southern Gas Appliance & Parts Ltd; Teddington Controls Ltd; Trianco Redfyre Ltd; Waterford Stanley Ltd; Worcester Heat Systems Ltd/Heatovent Ireland Ltd.

counterparts, can now have its craftspeople trained in new skills and upgrade their knowledge of today's high-tech and highly-efficient appliances.

"The training of installation and service personnel to recognised OFTEC

fuel and gas is a natural source, it is critical they are used as efficiently and economically as possible, so the need for competent equipment installers and service personnel is obvious.

The courses are relevant to



Colin Sutherland, OFTEC with Mick McEvoy and Oliver McNally, Domestic Heating Oil Council, and Virgil Bolger, Irish Energy Centre

standards such as that provided by FÁS will have significant benefits", according to Firebird Boilers, who recognise the establishment of training facilities at FÁS, Cork, as a major step forward in the domestic oil heating industry.

"With the introduction of the OFTEC training course in conjunction with the FÁS Training Centre in Cork we feel the courses available will be of great benefit to both the installer and the service engineer" according to Grant Engineering of Birr, Co Offaly.

"Since oil is an imported

skilled people who are working as plumbers and fitters, either as self-employed or employees, and qualified craftspeople from the electrical and allied trades. Both oil and gas industries involve the use of flammable and explosive substances which can give off toxic fumes, so safety is a critical part of the training offered", said Mr Cooney. The gas certification is joint FÁS/City and Guilds while the oil certification is provided through OFTEC, the Oil Firing Technical Association for the Petroleum Industry.

DANFOSS GOES "BLUE" WITH MANEUROP

Following the purchase and take-over of Maneurop s.a. by Danfoss A/S, the latter's long-term representative in Ireland J J Sampson & Son Ltd now offers an extended range and synergised products package of both Danfoss and Maneurop. It combines automatic controls, compressors (reciprocating and scroll) and condensing units to suit all refrigeration and air conditioning requirements.

The existing Danfoss compressor and condensing units range is now enhanced by the extended ranges of Maneurop, giving a full and effective range from a nominal 1/10th h.p. up to 13 h.p. for single compressors and beyond, when combined in packs, or in tandem (scroll versions).

Combining such high-quality and reliable products – supported by the design and manufacturing expertise of world leaders in refrigeration and air conditioning – control and equipment – means that J J Sampson & Son Ltd now provides a comprehensive portfolio of problem-solving solutions for all situations.

MANEUROP: THE BLUE WORLD

The Blue World of Maneurop appeared 25 years ago in France – in the region where the Beaujolais wine is made, close to the City of Lyon and just two hours from Paris by the TGV "bullet" train.

Very rapidly, Maneurop became THE benchmark reference for all air conditioning, refrigeration and heat pump manufacturers.

It now operates three state-of-the-art facilities with a total covered floor space of over 45,000 sq m. One is in Atlanta – the bustling Olympic City and high-sport of American business – and the two in France are located in Anse and Trévoux where most of Europe's refrigeration and air conditioning industry is based. Maneurop exports over 80% of Anse and Trévoux plant output. Every day, literally hundreds of compressors are dispatched all over the world.

To further strengthen its international presence, Maneurop joined forces with the Danfoss Group.

The Group now has over 15,000 employees in 103 countries.

A WORLD OF INNOVATION

Maneurop's R & D Department maintains a continuous technology watch and the skills of the Design Engineering Department develop two technologies to meet every specification for performance and environmental protection.

Reciprocating compressor technology is continually improving and continues to demonstrate its effectiveness in a wide range of applications.

Maneurop's medium and low temperature condensing units and reciprocating
<https://arrowstudios.ie/bsn/vol36iss5/>
 DOI: 10.21427/D7N987

their toughness and peerless qualities.

Scroll compressor technology – a major innovation which increases efficiency and reliability – and reduces noise levels. Its highly complex scroll profiles of these two components optimise the hermetic technology.

A WORLD OF QUALITY

Maneurop constantly strives for total reliability and quality. Quality due to the commitment and professional skills of a

to the skills of the workforce. Maneurop is a fine-tuned team with an amazing ability to anticipate customers needs – the only way to be sure of producing the right products at the right time.

Long before compressors are marketed, the R & D laboratory tests them by simulating the conditions in which they will be used. Tests include measurements of cooling capacity, power consumption, noise levels to confirm the engineering design options.

Once operational, the service life of all prototypes is evaluated in real and accelerated time to optimise the durability of every component and every model of compressor.

A WORLD OF PERFORMANCES

Maneurop's range of reciprocating compressors, scroll compressors and condensing units covers the needs of the whole world. In air conditioning they keep surroundings pleasant and in refrigeration they maintain the quality of a wide range of products.



Maneurop reciprocating and scroll compressors, and condensing units

whole team trained in leading-edge techniques working in the framework of a Total Quality plan. Quality due to continuous inspections carried out by line staff and machines at every phase of production. No Compromise Quality based on rigorous organisation in compliance with ISO 9000 quality standards and total expertise at every workstation on the Maneurop line ... from building the motors to machining scroll compressor involutes. Every part is made in-house: a policy which reduces lead-times – and costs!

Legendary Maneurop product reliability meets every market requirement. This is due

For air conditioning they are at work in packaged and split-system units, heat pumps, liquid chillers and many industrial cooling systems.

But Maneurop is more than air conditioning. Maneurop also means refrigeration and total competence in every aspect of the cold chain from production to distribution of food products.

To explore the "Blue" world of Maneurop further, contact:
John Sampson/Dave Killalea/Eric Walsh
J J Sampson & Son Ltd.
Tel: 01 - 626 8111; Fax: 01 - 626 9334.

Yesterday's luxury is today's necessity.



Telephone communications, circa 1920.

Today, sophisticated global telecommunications are taken for granted, yet the telephone was once regarded as an expensive novelty.

Now another revolution is gathering momentum. Proven productivity gains resulting from comfortable working conditions are causing more and more companies to recognise the increasing necessity of environmental control in the work place. Particularly with greater use of heat-generating office equipment in well insulated modern buildings, itself creating a growing need for air conditioning, every day of the year.

Today's sophisticated 'split systems' are more affordable and easier to install than ever before. To find out how easily the revolution can improve your working environment all year round, simply post the reply card or fax us today.

Mitsubishi Electric Ireland.

Westgate Business Park, Ballymount, Dublin 24, Ireland.
Freephone 1800 409280 or Fax Dublin (01) 460 2069.

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in the workplace.**

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ELECTRIC**
ENVIRONMENTAL CONTROL SYSTEMS
TECHNOLOGY FOR LIFE

There are over 3,000 reasons why you should read this ...



That's how many instruments, controls, gauges and valves are in this New Dwyer Catalogue which includes full technical specification, and application details for Dwyer, Mercury, W E Anderson, Proximity and Love controls product lines.

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The Control Centre,
4 Walkinstown Road, Dublin 12.
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Fax: 01 - 451 6919