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H & V News

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IRISH H&V NEWS

SEPTEMBER 1983

IRELAND'S BUILDING SERVICES MAGAZINE

WELCOME TO YOUR NEW-LOOK IRISH H & V NEWS

Framework Regulations and Code of Practice

SERVICES SECTOR SET TO BENEFIT

While many wait with apprehension the imminent publication of the "Proposed Building Regulations", another document — which could have even more far-reaching implications for those involved in the design and installation of building services — is in the course of preparation by the Department of the Environment.

Called "Fire Safety in Places of Public Assembly", this 50-page discussion document has already been circularised to interested representative bodies whose comments must be returned to the Fire Services Council, in writing, by 31 October.

At this stage it's difficult to determine the overall feeling on the proposals but it is fair to say that reaction from some quarters has been quite critical.

The "Framework Regulations" were drafted by the Department under Section 37 of the Fire Services Act,

1981, though it is the Fire Services Council which is currently preparing the associated Code of Practice.

This code will be concerned with the design of building services so as to ensure that they do not create a significant risk of

fire outbreak and spread. In this context building services will include, among other things, heating appliances and installations; ventilation and air conditioning systems; gas or fuel supplies; cooking and associated equipment in

● Continued on page 4



● Lennox Industries have appointed Barry G Vanes as Regional Sales Manager for the North of England, North Wales, Scotland, and Ireland. He will head a team of local area managers supported by design, application and service engineers. Irish dealers are C & F and Arrow Heating.

Guess Who?



● Another Side Of... on page 14 tells you what prominent industry personality paints in his spare time.

You Are My Sunshine

Wexford Corporation's anthem could well be "You Are My Sunshine", because it has become the first local authority in the country to use solar energy to cut swimming pool heating costs.

The system was installed in June of this year, and the Corporation estimates the £12,000 cost will be paid back inside five years.

However, an interesting point was that the corporation didn't get any official help in putting in

the system, even though it was going to save energy as the Government has been strongly urging departments to do. "We did look for financial assistance from the EEC and the Department of Energy," said a spokesman, "but the EEC turned us down because the system wasn't experimental in European terms... and we didn't get any reply from the Department."

IDHE OUTING AT MALONE



● Checking out scores is a very serious business which demands the utmost in concentration. For the result of their deliberations see Ulster News inside.

John R Taylor - Issue Far from Resolved

With accusations, counter-accusations, rumours and talk of irregularities circulating within the trade, it's very difficult to even guess the full extent of what's involved in the John R Taylor liquidation.

As we went to press the only fact that we could be certain of was that there will be no funds available for the unsecured creditors. Unfortunately, this was as much as the liquidator, Ray Jackson, would confirm at the time.

It was also very difficult to pin down all the principals previously associated with John R Taylor.

However, we did confirm that a new company called Heatequip — a wholly-owned subsidiary of Eurohaul — based at Greenhills Road, Tallaght, Co Dublin, had taken on the agencies for Brefco, Potterton and Wednesbury. It is also understood that Terry Delahunty is acting as consultant to the new company.

Spring Bathrooms



**3, 5 and 8mm
Baths.
All carry 20 years
ICI guarantee.**

THE GENESIS SUITE
Launched in Ireland only this Spring, the Genesis Suite is a new departure for Spring Bathrooms. For the first time, the Company can offer a complete fashion package in the bathroom, with co-ordinating sanitaryware and baths.

Available in six fashion colours (Champagne, Wild Sage, Almond, Damask, Bermuda Blue and Kashmir Beige) the Genesis Suite features a luxury close coupled WC, matching bidet, and a compact washbasin and pedestal.



- Spring acrylic baths available in full range of colours. Spring Genesis sanitaryware in six popular colours.

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and Fittings Available Ex. Stock**

We Say...

While accepting that life in the H & V industry has undoubtedly been very difficult over the last 12 months, it's regrettable that the consequences are a general pessimism that's almost fashionable. Of course there have been problems, and very serious ones, but what we've all got to remember is that improvements can also come by learning to respond to such difficulties. Indeed, our entire future and even survival depends on it.

From time to time situations present themselves which force us all to take stock. That position has now arisen within the H & V industry. Fortunately, we all have a very clear view of where we stand at present and it must be admitted that the picture looks pretty grim. But it is because of this, and even in spite of it, that we must respond accordingly and be mindful of our responsibility to ourselves and one another.

One way in which this can be achieved is through the various associations that make up the industry. While we are all involved in different market sectors, there is a representative body appropriate to each individual. Join the one that's most suitable to your needs and make an active contribution.

Subsequent inter-association activities could

then result in a detailed plan of action designed to steer the industry through these troubled times.

It would also replace the pessimism now so rampant and set us on a positive recovery path leading to where we want to be in the next few years.

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Dear Reader,

Welcome to your new-look *Irish H & V News*. With this issue we bring you a completely re-designed format which also incorporates a number of new features chosen to give you, the reader, an even more comprehensive coverage than before. With over 20 years experience of serving the industry behind us, we are ideally suited to this purpose. Nonetheless, ever-aware of the dangers of complacency, we have always endeavoured to change to suit the immediate needs of the industry. Hence the new format and features. Co-incidentally, the design change occurs with the appointment of a new editor and advertisement manager. Pat Lehane is now responsible for all editorial contributions while Joe Warren will handle your advertising needs. Joe has in fact been in touch with most of you over the last month or two while Pat previously edited *H & V News* from 1976 to 1978. Additionally, former editor Ray Loughran, who has gone on to better things, will be remaining with us as Technical Consultant.

The Editor

IRISH H&V NEWS

IRELAND'S BUILDING SERVICES MAGAZINE

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Irish Heating & Ventilating News circulates to key executives in the heating, ventilating, air conditioning, refrigeration, sanitaryware, plumbing and environmental control industries. Its circulation also includes energy managers, architects, designers, sanitary engineers, and environmental engineers in the 32 counties of Ireland.



**Which Irish
company creates
employment for
the Irish while
generating foreign
currency earnings?**

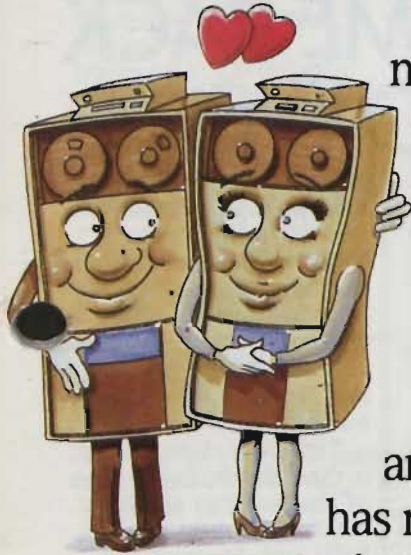
Walker Air Conditioning

Distributor for Carlyle air conditioning and heating products

The Walker philosophy has worked throughout Ireland for almost 20 years and now works in the U.K. and around the world. We supply the best air conditioning, refrigeration and heat pump hardware backed by the special style of Walker service.



As a result, all our clients can bank on real energy savings. 4000 Carlyle products, computer-



matched for maximum energy efficiency, can be supplied throughout the 32 counties.

Our mix of products and super-service has made us number one in Ireland and helps us to sell abroad.

As an Irish business supplying the Middle East and beyond, and hard at work in Scotland and northernmost England, we earn vital foreign currency to provide wealth for Ireland and employment for our people.




So by buying from Walker in either Dublin or Belfast, you're supporting a myriad of local Irish



companies who supply us with a host of other products and services.

Ours is an Irish company with the hallmark of success, with Carlyle from Walker you can invest, in the most energy efficient products and systems on the market, in transatlantic technical innovation, and in Irish industry.

DUBLIN: Dublin Industrial Estate, Finglas Road, Dublin 11. Tel: Dublin 300844. Telex: 24862
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GLASGOW: Washington Road, Unit 10B, Abbotsinch Industrial Estate, Paisley, PA3 4ET.
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CTT to Grant-Aid M&E Contractors

Coras Trachtala, whose responsibilities have recently been extended to include construction industry contractors and subcontractors, have set up a new Services Exports Department which organised a one-day conference at the Burlington Hotel on 22nd September.

Previously, CTT have only been able to assist and grant-aid building consultants (architects, engineers and surveyors) and suppliers of building products and materials. The new department, headed by ex-Milan office manager Colum McDonnell, has two divisions: Manager of Construction Services is Bill Jermyn while Eamonn O'Reilly heads up Non-Construction Services, (agricultural, medical, catering, etc).

While no company or country will be excluded from consideration, Bill Jermyn sees mechanical and electrical subcontractors working in the Middle East via European main contractors as a prime target area.

Mechanical and electrical subcontractors would generally be able to do this easier than building and civil contractors. However, the Construction Services Division will be looking at several major contractors to assess how ready each company is to go overseas, whether it be the Middle East, Africa or elsewhere.



● A new series of Glow Worm natural gas heaters and boilers was launched by C & F, their Irish distributors, at a reception in Sachs earlier this month. Pictured are John Duignan, Managing Director, C & F Ltd, with Eamonn McNerney, McNerney Ltd, Camden Street, Dublin, and Eamonn Clancy, Marketing Manager, Dublin Gas.

CIS TECHNICAL TRAINING COURSES



● Jim Maher, CIS with Dublin Lord Mayor Michael Keating, TD, on the opening day of the recent fourth series of technical training courses organised by Coal Information Services.



● Participants and lecturers who attended the fourth series of technical training courses organised by the CIS recently.

WELCOME BACK TO LEO WEIR

After an absence of more than 12 months through illness, Leo Weir is now in full health and back in business on his own following the demise of John R Taylor.

Operating from 82 Glenbrook Park, Dublin 14, (Tel: 902307), Leo represents a number of key principals in very important sectors of the market. Included are the following:

P & D McFarlane of

Belfast; ITT Reznor gas unit heaters; Warmac pressurisation units; Combat warm air heaters; Dunham Bush — a full range of heating equipment; A K Waugh oil and oil-line heaters; and Nu-Way oil and gas burners.

The latter, Leo told us, is the John R Taylor part of the Nu-Way agency which is held on a split basis with Hevac.

SERVICES SECTOR SET TO BENEFIT

● Continued from front cover kitchens; and electrical services and wiring.

The code will also require compliance with Part R of the Building Regulations which contain specific requirements relating to the design and installation of chimneys, flues, hearths and heating appliances (including incinerators).

Additionally, the importance of regular

maintenance in accordance with appropriate standards is strongly emphasised, with the responsibility for this task being placed firmly in the hands of building management.

Another interesting point is that, whereas the Building Regulations apply only to new buildings, extensions and alterations, the "Framework Regulations" and Code of Practice will also apply to

buildings constructed before the coming into force of the Building Regulations.

It is accepted that the full application of all the provisions of the code on such buildings could prove to be impractical and very onerous, and might not be the most cost-effective measures to undertake; so, it will be interesting to see just what interpretation is applied and enforced.

It's stressed in the discussion document that the contents are mere proposals which may be modified, but the next immediate sentence reads "However, no substantial changes need be anticipated at this stage".

Whatever criteria is used to interpret these new measures the end result could be a much-needed boost to the services sector.

CALOR/ICI UNDERTAKE IRISH FIELD TRIALS

Calor and ICI are jointly developing novel systems to store heat and save energy. ICI's New Science Group are working with Calor on methods for storing heat in chemical materials and releasing that stored heat in a controlled way when the energy is required.

The agreement follows Calor's success in developing stable chemical compounds which can absorb and release heat over a long period of time without the destruction of their chemical composition — an achievement which was the result of several years of research in conjunction with the Fulmer Research Institute at Stoke Poges, England.

Already Calor storage systems are being developed in several markets under the tradename 'Calortherm' and excellent results have been achieved in field trials in Britain and Ireland, confirming long term stability of the chemical "heart" of the system and effective energy and cost savings.

Calor's field trials have

Wavin Appointment

Wavin Pipes of Balbriggan have appointed David Reynolds as Product Manager, Gas.

Mr Reynolds is a chartered engineer with extensive experience in modern gas distribution with British Gas and Wavin Plastics (UK). He has been involved for over 12 years in the design, development and operation of many gas projects in the UK and overseas.

Mr Reynolds is a member of the Institute of Gas Engineers, the Irish Gas Association and the Society of British Gas Industries where he is currently Chairman of the Society's Committee on Pipelines.

included solar heating systems and storage of off-peak electricity for central heating. Other potential applications

range from air conditioning and greenhouse temperature regulation to the re-use of waste heat in industry.

LISTER TUBES GOLF OUTING



● The Lister Tubes annual golf outing took place at Hermitage last month with over 120 golfers participating. Conditions were dry, but very windy, which made for difficult golfing. Nonetheless there were many fine scores on the day, especially from some of the Northern visitors. Picture shows John English, Lister Tubes, congratulating Redmond McCauliff, McInerney Civil Engineering, Overall Winner.



● Michael McDonagh, 3rd, Class 3, receiving his prize from John English.

Energy Hotline Service

The Department of Industry and Energy Hotline is a free telephone advisory service available to give both trade and public information and advice on all aspects of energy savings.

The advisory service handles over 6,000 enquiries each year in both the domestic and industrial sectors, the majority of which are concerned with the insulation of buildings and the selection and efficient operation of heating systems. The advice given on the comparative cost of fuels using realistic efficiency factors is very important, which enables people to make economic decisions on investment especially where heating systems are concerned.

The Energy Hotline operates during normal office hours on three direct lines: (01) 376666, 375107, 375108.

19% Shareholding for ICC in Gastech

The Industrial Credit Company Ltd, Ireland's development bank, has acquired a 19% shareholding in the Gastech Group, manufacturers and distributors of appliances and control equipment for the gas industry from its base at Coolock, Dublin.

The ICC share injection, which cost £72,000, was for a 19% holding in both Gastech companies, Gastech Ltd, and Gastech Distributing Ltd. The funds are to be retained in the group to promote further expansion.

Gastech Distributing Ltd was established in 1976 by Martin Derby to

distribute fittings for the LPG industry as well as gas appliances and industrial central heating units.

Gastech Ltd was established in 1981 to provide a technological support base in anticipation of the needs which would follow the use of Kinsale natural gas. It is a wholly-Irish owned company with production and service facilities for pressure control modules applicable to gas distribution in town gas systems, and smaller pressure control stations for industrial and domestic dwelling applications. The company is the main agent

for the Brian Donkin range of control equipment for the mains gas industry.

In addition to substantial contracts already secured in the natural gas programme including the first Sparge gas vapouriser purchased by the Cork Gas Company, Gastech recently finalised plans to assemble gas cooking appliances with selected component parts production for the home and export markets. This is expected to generate an additional 25 to 30 jobs in the company within the next three years.

Plan EXPO

PLAN EXPO is a two-day exposition of architectural products and design lectures to be held in the Burlington Hotel, Dublin, on Tuesday 1st and Wednesday 2nd November 1983.

PLAN EXPO is being organised by Plan Magazine, the architectural monthly publication for all Ireland, and will comprise two major events:-

DESIGN LECTURES:

There will be two lecture sessions on a theme of interest to all developers, architects, designers, engineers, surveyors and contractors:

"Multi-Disciplinary Design and Contract Management":-

Tuesday 1st November: "BUILDING DESIGN"

Session Chairman: **Denis Haslam** ARIBA MRIBAI, President of the Royal Society of Ulster Architects and Partner, Anthony F. Lucy & Co., Belfast.

Guest Speaker: **Derek Sugden** MICE MIBStructE MWeldI MIOA, Partner, Arup Associates, London.

Wednesday 2nd November: "INTERIOR DESIGN"

Session Chairman: **Desmond Doyle** FRIAI, Partner, Burke-Kennedy Doyle & Partners, Dublin.

Guest Speaker: **Stefan Zacharay** BA FSIAD FBID FRSA, Director, Stewart McColl Design Associates, London.

Advance bookings per person per lecture cost £10.00 + 23% VAT (£12.30 total) or at the door if seats available £15.00 + 23% VAT (£18.45 total).

EXPOSITION OF ARCHITECTURAL PRODUCTS:

PLAN EXPO offers you the manufacturer, distributor and supplier of architectural products a truly unique opportunity to promote the specification of your products and services to the construction industry's most influential specifiers in a conducive environment.

Full information on both lecture sessions or exhibition costs and details are available from:

Richard P. Byrne or **Neil Steedman**

PLAN Magazine

5/7 Main Street, Blackrock, Co. Dublin, Ireland.

Tel.: 885001 Telex: 92258.

INTHERM '84

Germany's International energy engineering trade fair, Intherm 84, will take place in Stuttgart from 13th-17th March 1984.

Intherm was first held as an annual trade fair in the early 1960s for the oil and gas firing industries. Later on it became biennial and since the "oil crisis" ten years ago it has become more energy engineering oriented.

In 1982 there were 65,000 visitors from Austria, Belgium, Canada, Czechoslovakia, Denmark, Egypt, Finland, France, Britain, Greece, Hungary, Ireland, Israel, Italy, Japan, Luxembourg, The Netherlands, Norway, Poland, Portugal, South Africa, Spain, Sweden, Switzerland, Thailand, the USA, the USSR, Yugoslavia and Zambia as well as East and West Germany.

Nearly half of the visitors came from the heating industry and approximately 12% from the service sector.

New Brochures

A brochure just published by Sound Attenuators Ltd describes a new range of high velocity terminal units with many innovative features.

Of particular interest is the availability of microprocessor control on variable volume boxes. It enables the variable volume box to be used with low, medium or high velocity systems with even lower minimum operating static pressure requirements.

The brochure also describes in detail a complete range of boxes including single and dual duct — giving full technical and acoustic performance data.

Copies from Sound Attenuators Ltd, Eastgates, Colchester, Essex C01 2TW, England, (Tel: 030206-866911).

Published by ARROW@TU Dublin, 1983



● Five Carlyle 50DF series packaged cooling units supplied by Walker Air Conditioning have been installed on the roof of the Modcomp computer factory in Carrigtwohill, Co Cork. Although originally installed as insurance against possible heat damage, operating conditions in the factory have, to date, caused the cooling units to prove their worth mostly in terms of the essential comfort conditioning which they also provide.

Colour Choice in Cooling Towers

A new cooling tower leaflet from Watermiser Ltd, shows water cooling towers which should be of particular interest to consulting engineers and architects. It offers a choice of colour in an all-plastic glass reinforced one piece moulded tower shell.

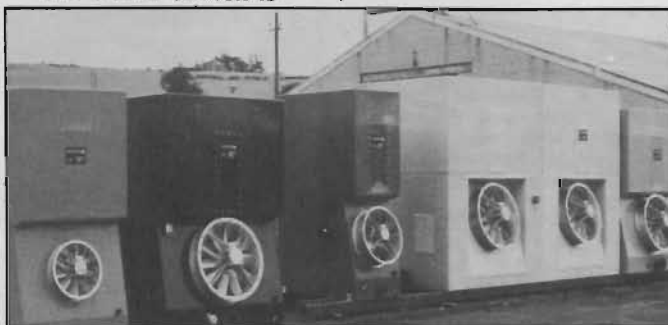
Several hundred towers are already giving almost maintenance-free service. The manufacturer's experience is that colours are usually chosen to match building cladding or the client's house colour.

The colour chosen is

mixed with the resin before moulding and goes right through the tower casings.

Axial or centrifugal fan models are available in a range of sizes up to approximately 500 tones of refrigeration. Twin-cell or multi-cell units extend this capacity to 1,000 tons or more.

Details from Watermiser Ltd, Tower Works, Stonegate Road, Newmilns, Ayrshire KA16 9AJ, Scotland, (Tel: 030560-20762, Telex: 779574).



● A few of the sizes available from the Watermiser range of GRP cooling towers.

20

YEARS AGO

The price of British Coal is likely to drop on the Irish market by as much as £2 a ton, if the plans of the National Coal Board materialise. In Dublin, Lord Alfred Robens, chairman of the Board, said that the Irish market was a very important one to them.

Lord Robens came to Dublin on the "invitation of the trade generally".

"We hope to be able to offer our coal at prices comparative to any of our competitors, including American, and to give top quality.

"We hope to have meetings with representatives of your port authorities and also the fuel importers with a view to the establishment of better facilities."

Irish Plumber and Heating Contractor, September 1963.

£800 Fines for BTUs!

The Minister for Trade Commerce and Tourism made the European Communities (Units of Measurement) Regulations 1983 (S.I. No. 235 of 1983) on July 28, 1983, which give effect to EEC Directive 80/181/EEC on the approximation of laws relating to units of measurement.

The Community aim is to establish the international System of the Units known as "SI" as

the sole system of units in use for commercial and administrative purposes and this involves the phased withdrawal from use of units of the Imperial and other non-SI systems.

The main purpose of the regulations is to give effect to the first phase of this withdrawal. They list a number of units of measurement which will cease to be authorised with effect from 1st November

1983, and a further number which will lose their legality after 31st December 1985. The regulations also include an up-dated list of units of the SI system (which system has been legal in Ireland since 1976).

A person who uses any unit of measurement in contravention of the regulations shall be guilty of an offence and shall be liable on summary conviction to a fine not

exceeding £800. The conversion of units not listed in the regulations eg the mile and pound (avoirdupois), to their metric equivalents will continue to be encouraged.

Copies of the Regulations may be purchased from the Government Publications Sales Office, Sun Alliance House, Molesworth Street, Dublin 2, or through any bookseller, price 90p, postage 22p extra.

Rads with 5-Year Guarantee

Interheat Ltd, a newly-formed company based at Unit 63, Cherry Orchard Industrial Estate, Dublin 20, officially opened its attractive showrooms on 16 August and since then have had to deal with a staggering number of enquiries.

Most of them centre around the new Dia-norm Diamond convector radiators which are supplied in a stove-enamelled finish and come with a five-year guarantee.

Other features include low water content — high convention; immediate reaction to temperature changes; the availability of decorative side and top covers; and a competitive price.

At the moment Interheat are running a very successful advertising campaign with the emphasis on radio slots.

Publicity concentrates on the provision of an overall package — the radiators, a Trinity boiler and the installation of the entire system. This controls the cost involved to the consumer while also guaranteeing a top quality product.

Grilles Manufactured in Dublin

A range of aluminium grilles, registers and louvres are now being manufactured from an address at 59 Brunswick Street, Dublin 7 by Aergrilles Ltd.

Products being made include single and double deflection grilles and dampers, non vision door transfer grilles, eggcrate grilles and dampers,

weatherproof external louvres and pressure release dampers. All materials meet BS specification and a satin anodised finish is mainly used throughout the range. However, alternative bronze anodising, as well as a painted finish to a choice of colours, can be supplied to suit architectural requirements.

The company is now in production and its purpose is to successfully compete for a share of the Irish market, which at present uses a substantial amount of imported grilles.

Catalogues and further details are available from Tony McNamara (Tel: 770772).

IDHE PRESENTATION CEREMONY



● Above: Pictured at a recent IDHE ceremony held to mark the presentation of certificates to Bolt-on Street students were (standing): Joseph Kane, Eamonn Kearns, Charles Owens and Eamonn McGlade. Seated were Robert Kennedy, Harry Pattison, Victor Madigan, Vincent Kennedy and Owen White.



● Right: Others at the IDHE ceremony were, standing: Jack Mooney, Denis O'Reilly, Frank Nugent. Seated were: Bob Couchman, Gerry Griffin, Laurence Dunne and Christopher Feeney.

Dubel Insulations Reception

● Dubel Insulations Ltd, formerly known as Sheffield Insulations Ireland Ltd, held a reception last month at their Naas Road premises which attracted nearly 200 guests. Pictured prior to the official ceremonies were Donal Scannell, Managing Director, Dubel, Sean Barrett, Government Chief Whip, and Tadhg Gleeson, Financial Director, Dublin.



International ASHRAE Meeting in Atlanta

Heating, ventilating, air-conditioning and refrigeration specialists from the world over have been invited to speak at the 1984 Winter Meeting of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE).

The ASHRAE meeting will take place from 29th January - 1st February at the Atlanta Hilton Hotel in Atlanta, Georgia, USA

in conjunction with the Southeastern Air-Conditioning, Heating, Refrigerating Exposition, the largest environmental control exposition to be held in the western hemisphere during 1984.

Some 60 individual technical sessions are planned for the meeting, featuring more than 200 speakers. In addition to the technical programme, ASHRAE technical

committees, standards-writing committees and general standing committee will hold meetings.

Registration fees for the ASHRAE meeting, which includes exposition attendance, are US\$45 for members and US\$60 for others. Spouses programme and social activities are also available. Registration fees may be paid upon arrival.

Post meeting tour information is available from travel agents.

A complete session listing with speakers and paper titles is available from ASHRAE International Headquarters, 1791 Tullie Circle, NE, Atlanta, Georgia, 30329, USA (Tel: 404-636-8400).

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OUT OF

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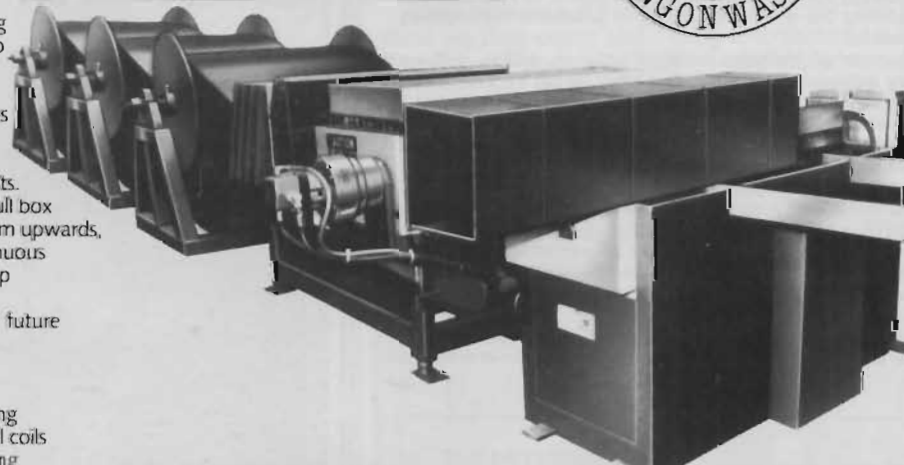
Totally automatic operation ensures optimum accuracy to give savings of up to 25% on material wastage and equally dramatic savings on labour costs.

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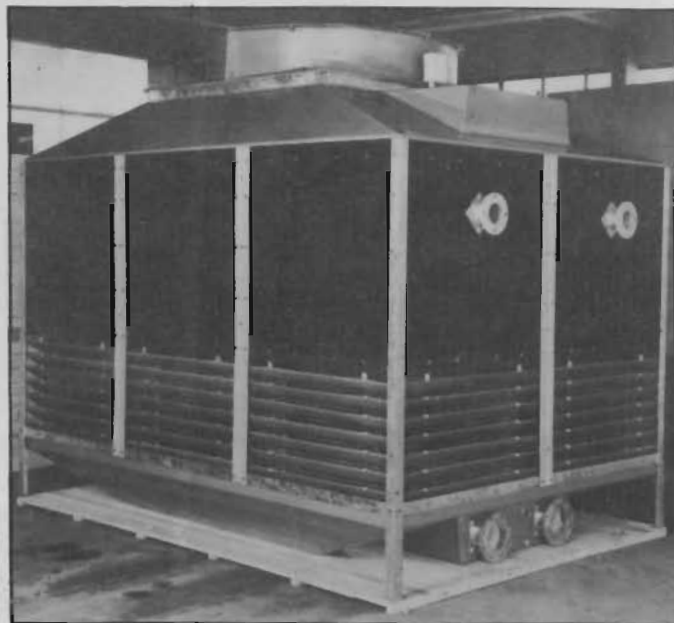
Heenan Marley Cooling Tower Contracts

Heenan Marley Cooling Towers, who expanded their trading position in Ireland through the appointment of Walker Air Conditioning Ltd in 1982, have since obtained replacement and new business contracts worth over £100,000.

A contract for the ESB involved the conversion of a concrete shell counterflow cooling tower to a cross-flow cooling tower.

Heenan Marley also converted the tower from a counterflow unit to a cross-flow tower and reduced its overall height by 9m. As a result, the tower will cool water flowing at the rate of 1440m³/h from 30 degrees C to 21.7 degrees C.

Low maintenance and high resistance to corrosion were two requirements of cooling towers ordered by Belfast Telegraph Newspapers Ltd. for inclusion in a heat



● A Heenan Marley CMA-K plastic cooling tower ready for packing prior to despatch to Dublin.

recovery system associated with its printing presses. Walker's won this contract on behalf of Heenan Marley who supplied two C1182 closed-circuit

counterflow cooling towers fitted with stainless steel coil heat exchangers.

For the extension to the Smithwicks Brewery, Kilkenny, Walker's/Heenan Marley won a contract to design, supply and construct a single cell Sigma 122-101

timber frame cooling tower with a plastic fill. This low-noise, cross-flow induced draught tower is designed to lower, by almost 7 degrees C, the temperature of water flowing at the rate of 307m³ which is used to cool condensers. An automatic temperature control device is fitted for maximum power savings.

BSRIA Establish New Group

The UK-based Building Services Research and Information Association (BSRIA) has established a Building Owner/Operator Group for which ordinary membership is open to any organisation concerned with building services.

Full details from BSRIA, Old Bracknell Lane West, Bracknell, Berkshire RG12 4AH, England, (Tel: 080344-26511, Telex: 848288).

AGENT REQUIRED—NORTHERN IRELAND

GRADA-NETALINE are the U.K. subsidiary of GRADA — one of Europe's largest manufacturers of air distribution products.

As well as full continental back-up, we have our own manufacturing base in St. Helens, near Liverpool and are rapidly growing towards U.K. market leadership in our own right.

We are looking for a highly motivated agent to represent our company, selling our extensive range of products throughout Northern Ireland.

The product range includes external louvres, grilles, diffusers and ancillary equipment as well as a new range of VAV air conditioning equipment which is already generating a great deal of interest throughout the industry.

The successful applicant must be able to consult with specifiers at the design stage of major projects as well as having established links within the contracting end of the industry. He will be of a technical disposition, probably already with some experience in air distribution or a related field.

In return we offer a first class range of products, full technical and sales back-up services together with attractive terms for an agent who is prepared to go out and obtain business.

Apply in confidence to Mr. J. Wallis, U.K. Sales Manager at the address below, giving details of current agencies and past experience.

**GRADA
NETALINE**

**GRADA-NETALINE
SUTTON ROAD,
ST. HELENS
MERSEYSIDE WA9 3DT.
(0744) 55441.**

Waterford Foundry Sponsors Kart Races

As part of the Leinster Club Speed Week-end at Mondello Park, Waterford Foundry Ltd sponsored two kart races — The Stanley 100 and the Waterford Foundry

Superkart Race (250cc) on Saturday 10th September. They were televised live by RTE and the prizes were presented by Ruch Buchanan of Radio Poperama.



● Waterford Foundry Ltd. sponsored two Kart Races, the Stanley 100 and the Waterford Foundry Superkart Race (250cc) at Mondello Park on Saturday 10 September. Pictured with Owen Conway, Director of Waterford Foundry Ltd and Ruch Buchanan of Radio Poperama fame is Seamus Deery who won the Waterford Foundry Superkart Race.

Multi-Disciplinary Design Lectures at PLAN EXPO

A two-day building exhibition of interest to all services engineers and subcontractors, PLAN EXPO, is being held in the Burlington Hotel, Dublin, on Tuesday 1st - Wednesday 2nd November 1983. The event is being organised by PLAN, The Architectural Magazine for All Ireland.

In conjunction with PLAN EXPO, two lecture sessions on the theme "Multi-Disciplinary Design and Contract Management" are being held.

On Tuesday 1st November, Derek Sugden of Arup Associates will speak on "Building Design" and on Wednesday 2nd Stefan Zachary of Stewart McColl Design Associates will talk on "Interior Design".

Arup Associates have used multi-disciplinary design teams for the past 20 years, one of their early buildings being the Horizon factory in Nottingham for John Player & Sons. One of the first buildings designed around a total energy plant, the large building with highly complex service requirements was designed and constructed in under three years and within the cost plan, with the help of a new form of management contract.

Stewart McColl Design Associates are particularly known for the 10-surgery dental practice built in London for Peter Hunter. Each surgery unit is clad in GRP panels with concealed integrated services, send-receive computerised air tube system and an ergonomically designed dental waterbed with inbuilt temperature control to maintain water at body temperature.

Details on both lectures and PLAN EXPO from Plan Magazine, 5-7 Main Street, Blackrock, Co Dublin, (Tel: 885001, Telex: 92258).



● Peter Hunter Dental Surgery, London, by Stewart McColl Design Associates.

Renewable Energy for Employment

The Glenree Centre for Reconciliation was established in 1974 as a response to the Northern problems. Since that time the concept of reconciliation has been extended to include reconciliation between man and the environment. Glenree believes that a high level of youth employment is central to the maintenance of a stable society. Employment arising out of native resources is obviously an attractive goal; the added incentive of reducing foreign debts by developing native renewable energy sources must therefore deserve the most careful analysis.

To this end the Solar Energy Society of Ireland is pleased to assist in the provision of speakers and general organisation for a weekend workshop, "Renewable Energy for Employment" to be held on October 15/16. The areas chosen for study and practical demonstration,

with a view for job creation are: photovoltaic cells, active and passive solar thermal, small and medium hydro, windpower and various biomass options.

There will be a display of renewable energy hardware and the conference will include the recommissioning of the Centre's pelton wheel and the unfurling of a new Glenree-built wind generator.

Liam Kavanagh, Minister for Labour, will open the conference while the other guests will include his excellency the Danish ambassador, distinguished Irish political leaders, and speakers and participants from both the North and South of Ireland.

The conference will take place at the Glenree Centre, Co Wicklow.

Further details can be obtained by calling Conference Co-ordinator Tony Robinson at 860962.

LANDIS & GYR LEAFLETS

Landis & Gyr have introduced a set of full colour leaflets prior to the impending launch of a range of controls for the domestic central heating market.

Four separate A4 single sheet leaflets cover the major components of the forthcoming package — the RAM21 cylinder

thermostat, RAD5 and RAD7/8 room thermostats, RWB2 and RWB3 heating programmers and SK2L and SK3L motorised valves.

The leaflets will be distributed to the trade via appointed stockists for the equipment.



● Full colour leaflets issued by Landis & Gyr for new domestic controls package.

ULSTER NEWS

Bangor consulting engineers, J Clarke & Partners have announced the appointment of three new partners. Mr Bill English will head the Mechanical & Electrical services team, Mr Brian Scott the Building Surveying with Mr Norman Burke looking after office administration.

Stewart Magee, a director of Powerair Ltd hosted their 2nd Annual Road Show at their premises in Seymour Hill Industrial Estate, Dunmurry, Belfast.

The Roadshow featured the latest range of Ingersoll round air compressors.

A regular visitor to Belfast, Mr George Foster, has given up his position as managing director of Mulvay Heating Plants Ltd but remains as Chairman of a new company called Nu-Way Ltd and chief executive of the Engineering Division of Wolsely Hughes PLC in a reorganisation of the Nu Way companies.

Ed Martin has been elected to the Board of Thorn EMI Heating, he has also been appointed general manager of Curzon Components Ltd, the spares and service company of Thorn EMI Heating Ltd.

Wholesale electrical supply company Walter Allen Ltd of Lisburn have been taken over by Barbour Campbell Ltd a member of Hanson Trust PLC.

The company are a general electrical wholesaler but have

concentrated on the lighting field and have a large showroom looked after by Mr Robert Allen who will be remaining with the company.

Barbour Campbell's other NI interests include builders and plumbing suppliers Robert Kirk & Co Ltd and Aerocrete Ltd.

Mr Trevor McClean has been appointed managing director of the East Downshire Co Ltd, builders merchants and fuel distributors and a member of the J P Corry Holdings Group.

As part of the general re-organising in Northern Ireland, BP Oil have sold their bulk and packed liquid petroleum gas business in Belfast to Calor Kosangas Northern Ireland.

Following the closure of BP refinery this latest move indicates the BP policy of rationalising its sales policy. They have however pointed out that these two changes will have no affect whatsoever on their petrol and oil sales. In fact they are looking forward to an extension of this market.

The continuing trading difficulties are illustrated with the number of small firms who are going into liquidation and rumour has it that a heating and plumbing merchant is about to announce his withdrawal from the market place.

Tom Semple of BDP was the winner of the Selkirk Trophy at the golf outing organised by Potter Cowan & Co Belfast. The prizes were

presented by Mr K Jess of Potter Cowan accompanied by Mr S Parker of Selkirk Metalbestos Ltd.

Victor Corbett has been appointed Chief Architect of Works Service Department of the Department of the Environment.

He succeeds Mr Jack Elliot who has retired from the post.

Other prominent ministry retirements which have taken place over the last few weeks have been that of the Director of Works Mr Jimmy Scott and Mr Bill Crowther a senior engineer of the M & E branch of the department.

● Items specifically intended for inclusion in this section should be sent to our Northern Ireland Correspondent, Eric McBride, or direct to our Northern Office at Suite 6, Upper Floor, Carryduff Shopping Centre, Carryduff, Co Down, (Tel: Belfast 813494).

Next Month

The Heat & Power Equipment Exhibition took place at the Alexander Hall, Balmoral, Belfast from 26 to 29 September. Exhibits included equipment for heating and ventilating, air conditioning, refrigeration, fuel conservation, pollution control, insulation, double glazing and environmental engineering. *H&V News* also had a stand and were fortunate in that we met many of our readers throughout the three-day period. Our photographer was also present and next month we will feature a pictorial review of the show.



● **IDHE OUTING AT MALONE:** On the 18 August last the Northern Ireland Plumber's Merchants sponsored outing at Malone was played in excellent conditions which produced some very good scores on the day. Pictured in the clubhouse later were (from left): Maurice McKinley, Captain with Ben Douglas, McNaughton Blair; Norman Beggs, Beggs & Partners; Victor Stephens, McLoughlin Blair; Alice Burnison, OBC; Henry Munroe, Russell Ireland; William Crane, McNaughton Blair; Brian Hamilton, Russell Ireland; and Jeremy Dowling, Central Merchants.



● Checking golf scores is a very serious business which demands the utmost in concentration. ● Next month we'll have a full report on the Captain's Prize.

ANOTHER SIDE OF... ...FO EDIS REHTOMA

CHRISTY KANE

This month we kick off our new series — Another Side Of. . . — by interviewing well-known heating contractor Christy Kane. In addition to his professional work, Christy is also very well respected for his trojan work in relation to the IDHE. However, there is another side to Christy. . . or is it sides!

I'm not quite sure where Bob Couchman found the phrase, but he once wrote "Heating is an art, not a science" and this is very appropriate in the case of Christy Kane, a well known heating contractor from the Northside of Dublin.

From an early age Christy showed a talent for art and in fact won a number of child art competitions. Later he spent some time in the College of Art where his ambitions lay in the direction of commercial art. But this was not to be. About this time he was also studying for his Group Certificate in the technical college in Capel Street and, having applied for a number of jobs, he finally took to serving his time as an apprentice fitter in Dublin Gas. Now this to all and sundry at the time was seen to be a "real" job with good prospects

and the commercial art of necessity was put to the back of his mind.

NO REGRETS

There are I'm sure many such stories of early ambition being blighted by sound financial reasoning and there are many who will say "If only I had kept it up". But not so Christy. In his own way he has brought art into heating without any regrets for his chosen career. According to Christy himself, much of how he feels today about art and how it fits into his work is due to the encouragement he got in his early days from people like Jimmy O'Toole whom he served his apprenticeship under. He was encouraged to do drawings and sketches of various jobs and projects, and at one time felt that with his mechanical drawing ability he could go

into the design office in the Gas Co. But that was also not to be.

Somewhat disappointed with the lack of progress in his job, Christy saw an advertisement for a position as piping draughtsman in a petro chemical company in London and applied. At the interview the personnel officer was very impressed with Christy's drawing ability, but even more so with his ability to read and understand drawings. So, instead of offering him the job as a draughtsman, they created a job for him in their Materials Division which involved reading and listing quantities from very complex oil refinery drawings.

Before he knew what was happening he was in London in a job he was very happy in and earning £20 a week — a very

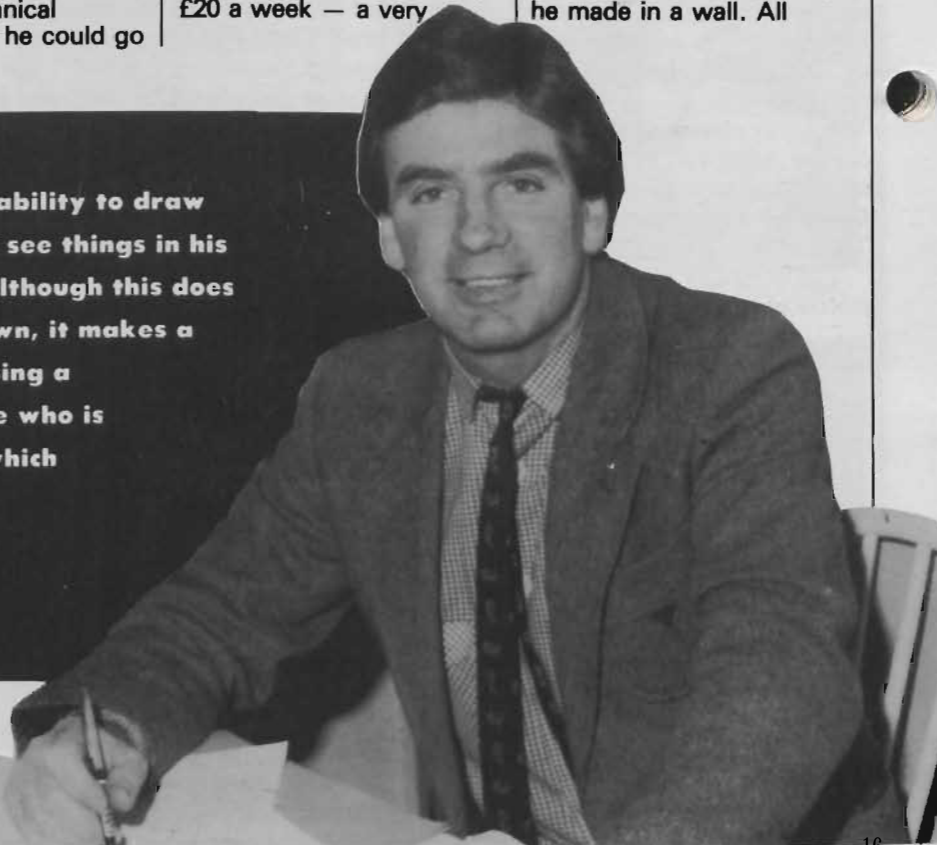
substantial increase from what he could earn in Ireland at the time. But again fate took a hand. With his wife expecting their first-born child, the family decided to return to Dublin after only six months.

Coming back to Dublin Christy found that it was not as easy to get back into the Gas Co as he thought but he finally managed to secure a position in the gas heating contracting end of Dublin Gas.

EXPRESSION

Through all this time his interest in art remained and although he had little time to devote to drawing with a growing family and a busy job, he found that he could express art as he saw it in every bit of pipework or every opening he made in a wall. All

With Christy his art is not only his ability to draw and paint but also to visualise and see things in his own mind as they could turn out. Although this does not sell many heating jobs on its own, it makes a great difference when he is discussing a proposed installation with someone who is looking for quality workmanship which Christy believes he can offer at a reasonable price.



these things have a symmetry and unity with their surroundings if undertaken with a view to the final blending in of the installation to the house and its decor.

After working with a number of contractors Christy finally went out on his own setting up his own heating contracting company.

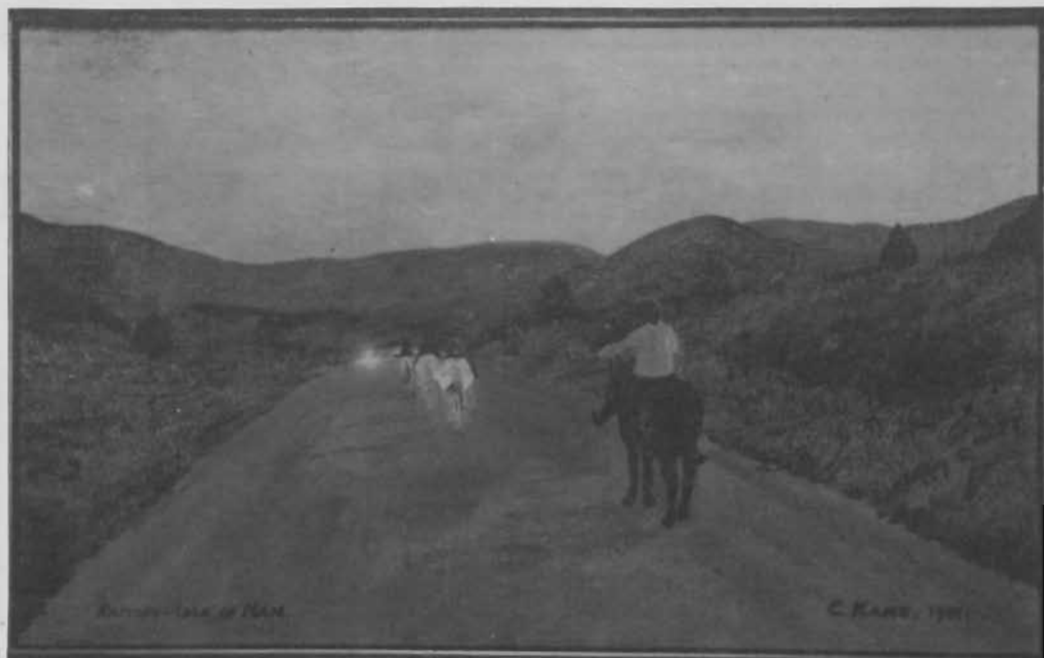
This was another pressure on his spare time as he had now very little but he still found time to encourage his own children to appreciate art and in fact they all seem to have followed his interest in their own ways, either through drawing, sculpture or music.

FRIENDSHIPS

Through his love of art and great ability to communicate Christy has met many people in the art world whom he has since made lasting friendships with and indeed many of those people he has met while installing heating equipment, a rather unlikely setting for a discussion on art you may think but not if you are Christy Kane. People he would remember especially are Bernadette Greavey and her late husband Thomas Kinsella the poet, Jack Hanlon, said to be the founder of living art, Lady Grant, a well known art collector, and Jimmy Maracami who was an artist with the Walt Disney Studios.

Such people all encouraged Christy to keep his interest in art as they could see what he could see even in the most mundane tasks as forming pipe bends to follow the contours of a not too straight wall.

With Christy his art is not only his ability to draw and paint but also to visualise and see things in his own mind as they could turn out. Although this does not sell many heating jobs on its own, it makes a great difference when he is discussing a proposed installation with someone who is looking for quality workmanship which Christy believes he can offer at a reasonable



price.

Now that his family is growing up and finding their own outlets in life, he has had some time for painting again and is now doing some oil as well as water colours. He has also used the latest idea from America — painting by

pencil. He now sees painting coming back more into his life and indeed one day hopes to have a showing of some of his works. He never regrets the time he has spent in the heating business as it brought him into contact with so many people he

might never have met and communication is almost as important to him as art.

As a throw away remark at the end of our chat, Christy said "Oh did you know I played football for Drogheda United". Well, I suppose that's another story.



PRODUCT REVIEW: SANITARYWARE

SANITARYWARE — QUALITY NOT QUANTITY

With the drop in new house building to an all time low, the emphasis has switched for the sanitaryware manufacturers from quantity to quality. Marketing is now more conscious of the existing house market and the trend, both here and in the UK, of householders up-grading their premises. This has changed the situation whereby it is now the householder who in many cases is the specifier as such. The builder or plumber is more often than not now employed merely as the installer.

To capture the imagination of the householder who is about to up-grade his house with a new bathroom suite, this "quality" image seems to be very important. It's no use ripping out the old high level cistern and replacing it with the 1983 version — most people want a close-coupled suite and may now even consider a bidet.

Colours are also more important than ever and the householder will be considering not only the colour of the suite but also the colours of the tiles, accessories, carpets, curtains, towels and in some instances, even the toilet roll. In general, warm colours still seem to be the most popular with the white satin coming back very strongly.

So what's happening with the individual bits and pieces? Well, for a start, there is a very strong energy and water conservation theme behind most of the new designs of baths and wc suites. At a fill level of seven inches, there are a number of baths which will only require 20 gallons or even

counter claims from instant shower manufacturers who point to baths as being very wasteful of both energy and water.

Experiments are still going on in the UK (as reported last year in *H&V News*) on the possible reduction of the quantity of water used in washdown in the toilets as part of this water conservation campaign. Most manufacturers are very involved with this development.

Following a similar trend in kitchen sinks, there is a growing demand for inset washbasins often referred

to as vanity basins in the bathroom. These basins can of course be used in bedrooms to take the pressure off the bathroom at peak times. This whole idea of speeding up the time that one uses the main bathroom for is very appealing to the householder as a basin in a bedroom or a second toilet is a practical enhancement to the home and also something which upgrades its value.

While the corner bath still has some attraction, its main competition for the limelight is now the whirlpool. Although usually aimed at the upper

end of the market, there is a lot of interest in this development. Again the idea is the appeal to the end-user and generate what will hopefully be a lot more business for the trade in general.

No look at sanitaryware would be complete without mention of brassware. This is one of the areas of greatest development in the bathroom with a large selection of pillar taps, mixer units, mixers for the bath and shower, monobloc mixers and bidet mixers now flooding the market. Latest offers from manufacturers include a range of different colours in ceramic tap heads which in a way is going back to earlier days of the Victorian era.

Finally, one of the big money spinners in any bathroom sales/showroom are the accessories. These range from towel rings, towel tails, toothbrush holders, mirrors, soap trays and shelves, to toilet roll holders and toilet brush holders. With all these developments, we should have more bathroom showrooms opening up and getting the message across to the public, and not, as recently, closing them down.

The following notes are based on material submitted by the companies concerned.

Sanbra Fyffe

Sanbra Fyffe manufacture Eirline in their modern Dublin factory. The range consists of basin and bath pillar taps, single and dual flow mixers, high-necked sink taps for the kitchen and, for the bathroom, a choice of bath mixers with



● Twyford's Showers, a new division of Twyford's Bathrooms, recently launched their new shower seat. Not so much a luxury, more a vital safety precaution, this robust seat allows safe showering. A strong tubular frame and easy-clean melamine seat folds safely against the wall when not in use. Either to sit on or as a support, the new seat means extra safety. Details from John Usher Ltd.

https://www.industrydocuments.ucsf.edu/docs/1616
DOI: 10.1427/D1616

PRODUCT REVIEW: SANITARYWARE

shower attachment or an independent manually operated shower control valve with attachments.

Eirline was introduced over a year ago to cater for the popular mid-stream segment of the market and also to compete with foreign imports. Success can be claimed in both areas and Eirline is now available from builders and plumbers merchants nationwide. All items in the range are manufactured to the requirements of BS 5412 and this is the guarantee of quality and reliability.

Sanbra Fyffe also manufacture Irish Instantor compression couplings which are known throughout the plumbing industry as the standard bearers. They comply with the IIRS specification IS 239 and are the only couplings licensed to use the standard mark. Under a directive issued by the Department of Environment which

became effective last July compression couplings used on grant aided projects must bear the standard mark. Always chose the standard bearers Irish Instantor.

Further information from Sanbra Fyffe Ltd, Santry Avenue, Dublin 9, (Tel: 399291).

Armitage Shanks

Essentially, the Armitage Shanks range of sanitaryware can be broken down into three distinct categories — decorative suites, of which there are four; the Wentworth range for the middle market; and finally the brassware.

Decorative suites: As already indicated, there are four separate collections.

The Versaille — a new clarendon vitreous china design; Carrice — a white decorated suite; Sweetbrier — in champagne; and Shangri

La — wild sage.

Wentworth: This range of appliances is especially suitable for apartment blocks and is supplied in a full range of the group colours.

Brassware: This range — designated Starlite by Armitage Shanks — comprises luxury bathroom fittings which will co-ordinate with any suite and decor. The fittings are finished in Lustron gold or chrome plate and are available with a choice of eleven different handwheels. Select the style and colour to suit each colour scheme. 'Lustron' offers real gold plate with a hard protective coating at a cost which is little more than chromium plate — real luxury at a realistic price.

Armitage Shanks design features include easy grip, non-rising headworks, aerators on monoblocs, anti-splash flow straighteners on taps and

mixers, and efficient pop-up wastes. Starlite is designed for the bathroom of today — and tomorrow.

Details from Armitage Shanks (Ireland) Ltd, Cookstown Industrial Estate, Tallaght, Co. Dublin, (Tel: 510731/510951).

Ideal-Standard

K M Reynolds are sole agents for Ideal-Standard, one of Britain's leading bathroom equipment manufacturers who have won wide acclaim for the quality and design of their products — acrylic baths (most available with the exciting whirlpool feature) and shower trays, vitreous china wash basins, water closets, bidets and accessories, and a wide range of bathroom brassware.

Ideal-Standard now offer five co-ordinated bathroom suites, Michelangelo, Linda, Brasilia, Tulip and

Bathrooms to appreciate...

Ideal Standard



Agents in the Republic of Ireland

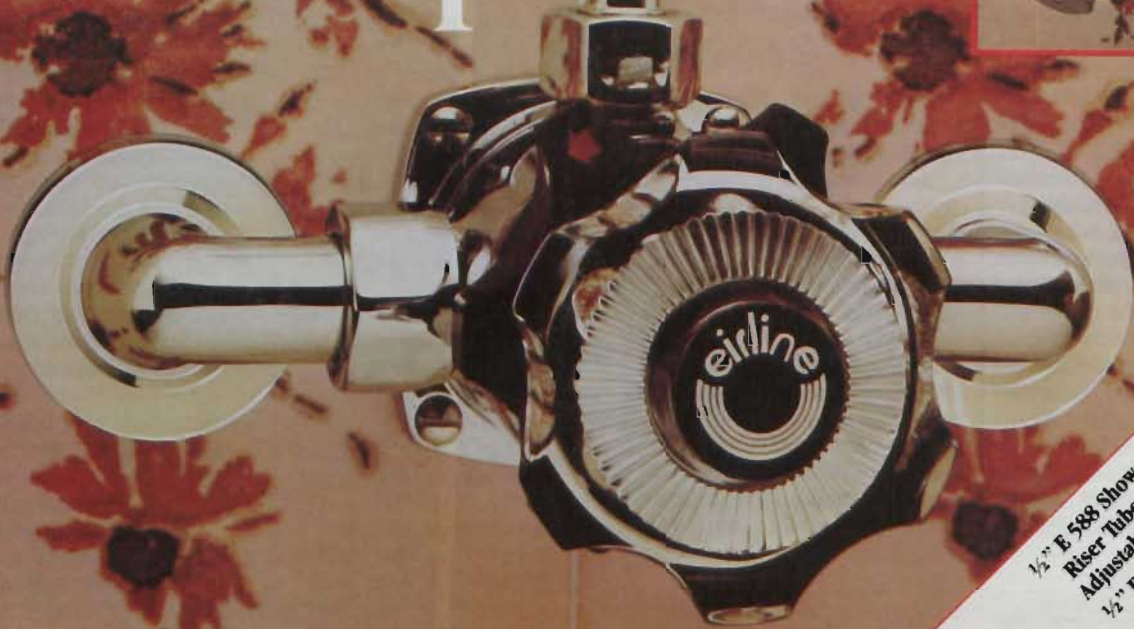
K.M. REYNOLDS LTD.

Unit 2, D.C. Industrial Estate, Knockmitten Lane, Naas Road, Dublin 12. Telephone: 520333.

EIRLINE[®]



Top of the Taps



**½" E 588 Shower Mixer with
Riser Tube, Bracket and
Adjustable Shower Rose.
½" E 589 Recessed Type
also available.**



**¾" E 587/TP C.P. Bath Mixer
with C.P. Flex Tube,
Bracket and Handspray.**

Guaranteed Irish with style from Sanbra Fyffe.

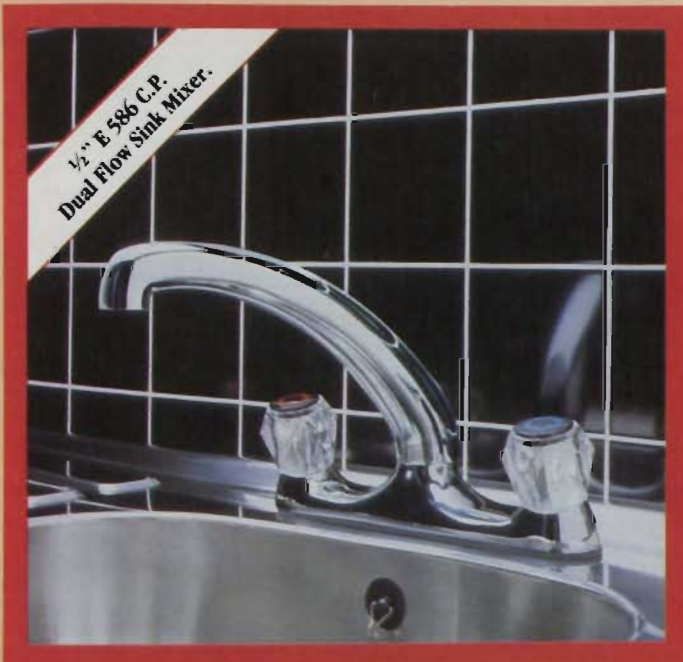
Eirline® is a gleaming new range of taps and mixers for Irish bathrooms and kitchens.

Developed and manufactured by Sanbra Fyffe, Eirline® superbly meets all the requirements of BS 5412.

For the kitchen, choose either sink taps or mixer. For the bathroom you have a choice of bath taps, bath mixer or an independent shower mixer unit – all beautifully complemented by matching basin taps.

The taps are topped by 'stay cool' acrylic handles and backed with a five year guarantee.

They speak eloquently for your good taste. And volumes about your faith in Irish craftsmanship.



Sanbra Fyffe Ltd.,
Santry Avenue, Dublin 9.
Tel: 379291. Telex: 25325.



PRODUCT REVIEW: SANITARYWARE

Tiara 2. Michelangelo, Linda and Brasilia are established successful suites, while Tulip and Tiara 2 — introduced earlier this year — have been enthusiastically received.

Quality engineered brassware includes the Monolux, Dualux and Jetline ranges. The Monolux range, also introduced earlier this year, is, like Dualux, based on the advanced no-wear and no-drip ceramic disc valve principle and contains single lever control on fittings, for wash basins and bidets.

Further details are available from K M Reynolds Ltd, Unit 2, DC Industrial Estate, Naas Road, Dublin 12, (Tel: 520333).

Peglers

New from Peglers in their constant policy of improving their quality product range is the new, 25-round delay, non-concussive tap (No 877). This will run alongside the old reliable 876 non-concussive Prestex tap.

Peglers' engineers have been designing and testing this tap for two years now and already the reaction has been very good from consultants and specifiers.

This model is also available in a spray tap — another product from Peglers with energy saving in mind. This month also sees the new Danum, Goldline range of basin, bath, and bidet fittings in lustre gold and acrylic solid head. The range is complete in both 8" centre and monoblock (one hole) fittings and complements the successful range of Danum taps in chrome and gold plate. Wastes and bath overflow assemblies are available ex stock. Royal Bathrooms, formerly Royal Doulton, is the new name for old reliable and new products and quality goods.

Manning & Usher are carrying a large range of



● The design relationship between Ideal-Standard's new Tiara wash basin and new Tiara bath — taps offset to the left which allow for a generous soap recess — is clear in this photograph. The wash basin and bath have been grouped together with the existing Tiara toilet and bidet to form the self-contained Tiara 2 bathroom suite.

Royal Bathroom products, including corner, straight and sunken baths.

The new Aurelia will soon be in stock, and like the Courreges and Cressida can be supplied with a whirlpool kit. Vitreous china is available from the specified material for schools, hospitals, homes for the aged, through the housing range to the top end of the market with the Sovereign and Courreges suite.

In fireclay there are slab urinals, kitchen sinks, cleaners' sinks, shower trays, slop hoppers, Paxton pans for disabled persons and grab rails. Manning and Usher can supply the complete bathroom, a Royal Bathroom with Peglers



● Left: The distinctive shape of the wash basin is attractively related to the design of the bath, wc and bidet in the new Tulip suite of bathroom furniture from Ideal-Standard.

PRODUCT REVIEW: SANITARYWARE

fittings. The aim of Manning & Usher is to supply these quality products with a fast, friendly and dependable service at a price which is value for money.

The Manning and Usher team of Phyllis Mooney, Frank Hyland and Mike Usher are at your service Unit C2, Ballymount Industrial Estate, Ballymount Road, Walkinstown, Dublin 12, (Tel: 509761). Also available from McGregor & Manning Ltd, Connswater Industrial Estate, Belfast BT4 1AH, (Tel: 084-731816; Telex: 748136).

Twyford's Showers

Twyford's Showers, the new division of Twyford's Bathrooms recently launched their new shower seat.

Not so much a luxury, more a vital safety precaution, this robust



● Top design for the smaller bathroom — that's the new Tulip range from Ideal-Standard. Details from K M Reynolds.

seat allows safe showering. A strong tubular frame and easi-clean melamine seat folds safely against the wall when not in use. Either to sit on or as a support, the new seat means extra safety in the shower.

The new Twyford's shower seat comes complete with screws and wall plugs for fixing to solid wall only within the shower enclosure.

On the Twyford's Bathrooms side, the company reports a massive increase in sales of their more up-market baths since they introduced their new whirlpool fitting as an option on Astral, Debut and the Balmoral corner bath.

"We were surprised and delighted with the way the whirlpool bath has taken off", said Terry Henwood, Homes Sales Director, Twyford's Bathrooms.

With chrome or gold fittings, the whirlpool

New From *Peglers* *Prestex* Self-closing Taps

Vandal proof self-closing non-concussive taps specially designed for use in industrial, educational, travel and leisure areas and any situation where washing facilities are subject to heavy usage or possible abuse. They are ideally suited for installation in such environments, and provide savings in water and fuel, considerably reducing the risk of accidental (or intentional) spillage and flooding, and improve hygiene — users do not need to touch the tap again after washing.

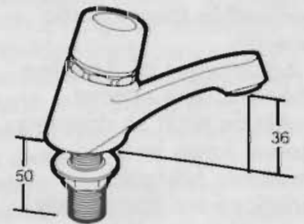
High quality materials and precision manufacturing techniques have produced tamper proof and vandal resisting fittings to ensure maximum reliability and minimal servicing. All taps are heavily chromium plated on highly polished brass.

The range has now been extended to include elegantly styled touch operated taps with water flow controlled by a diaphragm seal which gives extra long trouble free service.



- Light, finger-tip operation
- Many years maintenance free service
- Built-in shut-off delay between 20 and 30 seconds approximately
- Tamper-proof, all metal, pre-assembled actuator cannot be externally dismantled
- Unique rubber seal ensures extra long service life.

877 Diaphragm pattern self-closing basin tap, 1/2in size



878 Diaphragm pattern self-closing basin tap with spray nose, 1/2in size

M MANNING & USHER LIMITED

Unit C2, Ballymount Industrial Estate, Ballymount Road, Walkinstown, Dublin 12. Tel: 509761 Telex: 90285

Also available from

McGREGOR & MANNING LIMITED

Connswater Industrial Estate, Belfast BT 4 IAH.
Tel: (084) 731816. Telex: 748136

PRODUCT REVIEW: SANITARYWARE

device pumps a pleasant mixture of air and water around the bath through a series of port hole outlets. The mixers are adjustable and can be varied to suit the individual by turning the air control knob.

Twyfords' whirlpool addition comes factory fitted for ease in use, but all electrical connections are to be made by qualified electricians in accordance with IEE Regulations.

Further details from John Usher Ltd, 34 Island Street, Usher's Island, Dublin 8, (Tel: 779510).

Chloride Shires

An extensive collection of Aqualisa shower systems has just been introduced on to the Irish market by the newly-appointed distributors, Chloride Shires Ireland.

These shower systems, including shower heads and stylish fittings, combine attractive modern styling which give the type of showering performance which makes all other gravity-fed shower systems seem rather ordinary. "No other shower can match the performance of an Aqualisa", commented a spokesman and it has taken just five years to acquire a dominating 30% of the UK market for plumbed-in thermostatic showers.

Advantages of Aqualisa Showers: The normal problems such as dripping shower roses and unreliable hot/cold variations are completely overcome with the Aqualisa system.

These showers provide twice the flow of any other shower, in fact two gallons per minute from only a one metre head pressure. Aqualisa's thermostatic temperature control is accurate and efficient to a tolerance of +1°C for absolute safety. These systems provide safety shut-off on all thermostatic showers within 1-2

seconds in the event of

failure. There will be no lime scale problems in hard water areas as both the valve and shower head have self cleaning and self draining devices respectively. And there is a

generous 3-year guarantee with Aqualisa systems.

Thermal Pacemaker: One of the unique features of the Aqualisa shower system is the 'Thermal Pacemaker' which is positioned at the very

heart of the thermostatic valve. This responds to pressure changes (caused by other appliances within the domestic water system being used) as much as eight times faster than ordinary valves. This enables it to control far higher volumes of water safely and accurately.

A simple range of flexible hose and fixed-head shower systems are offered with either thermostatic or manual control and with chrome or gold plated finishes.

Further details from Chloride Shires Ireland Ltd, Broomhill Road, Tallaght, Co Dublin, (Tel: 515877); Tel: 24325.

Saldeban

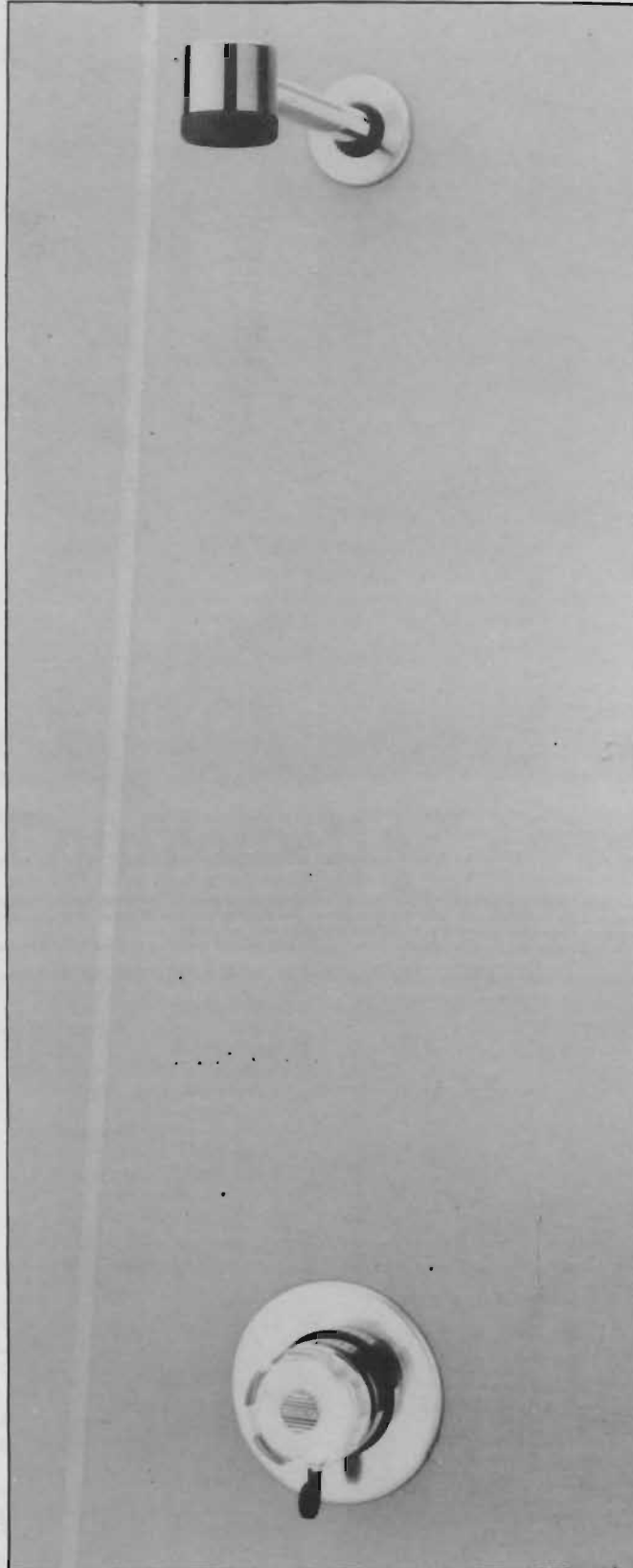
Saldeban Distributors Ltd has recently taken on the agency and distribution of Metlex products.

Metlex have for many years been the foremost manufacturers of chrome and gold bathroom fittings including the well known 'O' range of chromium plated accessories, the luxurious 24-carat gold range and the popular reliable Valba contract fittings. Mirrors, always a strong Metlex feature, bathroom stools, linen boxes, telescopic shower rails, shower screens, and hotel and hospital fittings are also available.

Wooden cabinets in many styles and a variety of sizes are now an established favourite. Their excellent quality, neutral appearance and the possibility of easily decorating them to blend with the bathroom decor, have made them consistent best sellers.

The new Metlex winners are of the usual high standard set many years ago and comprise Contour; Medallion; and Natural Choice.

Catalogues, brochures and price lists are available from the sole agents Saldeban Distributors Ltd, Eden House, Eden Quay, Dublin 1, (Tel: 787159); Telex 31273.



● The newly launched Aqualisa fixed head which has just been introduced by Chloride Shires Ireland.

Spring Bathrooms

The market for bathroom equipment has undergone many significant changes in the last five years, but perhaps the most important marketing change is that the bathroom is now a room where the homeowner reflects his or her own taste in colour and design. In short, the market is swinging away from the old trade-orientated range to a consumer led market which is influenced by fashion trends.

Spring Bathrooms, now a leading manufacturer of bathroom equipment, were quick to realise this change, and their entire product range has been designed with 'consumer appeal' firmly in mind.

Branded 'The Spring Fashion Collection', the company manufacture a wide range of Perspex baths, bath panels, shower trays, vanity furniture and bathroom suites, in a wide range of fashion colours. A selection of the products is reviewed below.

Perspect Baths

1. Tigris — A stylish twingrip bath in two sizes, 1500mm x 700mm and 1700mm, offering tremendous value for money in installation, and a low cost is important.

2. Genesis — Luxury features combine with a compact size in the Genesis bath. Cast handgrips, flowing lines and a specially shaped backrest are some of the plus points that have already made this bath a resounding success with Irish customers.

3. Marquis Corner Bath — A beautiful Perspex corner bath, sculptured to accommodate large bathing area, built in seat, dipped front for ease of access, and twin soap dishes. Despite all these features, the Marquis measures a compact 1400 x 1400mm.

All Spring bathrooms Perspex baths carry a 20 year guarantee, backed by ICI, the manufacturers of



● The luxury of the 'Marquis' corner bath combined with the 'Genesis' basin and w.c. suite from Spring Bathrooms.

Perspex. This is an extremely good consumer confidence builder, when selling to customers who have previously owned a cast iron bath.

Turbo Tubs

Spring Bathrooms manufacture a range of whirlpool baths, branded 'Turbo Tubs', which offer the homeowner the facility of a hydro-therapy bath, ready fitted at the factory. The merchant or bathroom showroom can therefore offer the customer bathroom suites complete with a whirlpool bath, without the complications of arranging for the bath to be drilled, plumbed and wired.

The Genesis Suite

Launched in Ireland only this Spring, the Genesis

Suite is a new departure for Spring Bathrooms. For the first time, the company can offer a complete fashion package in the bathroom, with co-ordinating sanitaryware and baths.

Available in six fashion colours (Champagne, Wild Sage Almond, Damask, Bermuda Blue and Kashmir Beige) the Genesis Suite features a luxury close coupled WC and matching bidet, and a compact washbasin and pedestal.

Vanity Furniture

Spring manufacture a well-priced range of vanity units and basins which are also available ex-stock in Ireland. The Tunis vanity basin is manufactured from ICI Perspex, and is

designed to team up with either the Economy or DeLuxe Vanity Unit. Both units are delivered in flat-pack form for easy assembly, with the countertop ready cut to accept the basin.

Shower Trays

Showering is a growth sector within the bathroom market, and Spring offer two types of shower tray, depending on the different requirements of the consumer.

For those customers who prefer a top quality Perspex tray, with the facility for easy maintenance, the Paris tray fits the bill. Available in two sizes (760 and 800mm) the Paris features an extra deep showering base, wide rim for enclosure systems, and separate moulded panels for easy installation and maintenance. For those requiring an attractive integral panel shower tray at a keen price, the new Memphis tray (also available in the same two sizes) is perfect — Attractive packaging, robust construction and straightforward installation method are all features of the Memphis shower tray. Both types of shower tray are supplied complete with waste.

Availability

All the Spring products mentioned above, together with a range of attractive moulded bath panels, are available from stock in the North and South of Ireland. Ferguson Factors (a division of Ferguson Ireland Limited) have depots in Tallaght, Dublin, and Mullusk Co Antrim, both with comprehensive stocks for the merchant and bathroom specialist.

For further information, call Pat Black on Dublin 521533, or George Hughes on Glengormley 48331.



● The Genesis bathroom suite from Spring Bathrooms.

Analysis of the Ducting and Ventilating Industry — Part 2

INDIVIDUALITY MOST IMPORTANT FEATURE

In this, the second part of Ian Sweeney's analysis of the ducting and ventilation industry, Ian examines the number of firms in the sector, the products provided and the marketing of said products.

Number of Firms in the Sector

There are approximately 40 firms in the country whose main business is ducting and ventilation systems. Most of the larger firms are based in Dublin. There are two ways for a firm to obtain work:

(1) A firm can be employed directly by the owner or builder to install a new ventilation system or repair sections of the old system;

(2) A firm can subcontract from the main mechanical contractor.

The biggest mechanical contractors in Ireland are: Jones Group; H A O'Neills (a subsidiary of the Jones Group); Climate Engineering (a subsidiary of the Jones Group); FKM Ltd; T Burke; Lynch's; McGrattan and Kenny; Lynsky's; M F Kent; McKeon Bros; and P J O'Reilly.

Some of these main contractors have their own metal working shops so they must be considered among the biggest duct producers even though it is not their main business.

List of Major Firms

Climate Engineering: They are based in Clonskeagh, Co Dublin and used to be one of the largest firms around employing 70 men. However, they subcontract out a lot of the work and are now concentrating more on the role of main mechanical contractors.

They still employ about 10 metal workers and are a medium sized operation.

Truflow: These are an old established firm and are one of the five biggest, employing about 30 men. They are based in Walkinstown.

Ryans: This is probably the oldest ventilation firm in Ireland and still one of the five biggest in terms of production, even though they only employ 12 men. They are based in Arbour Hill, Dublin.

Sweeney Sheet Metal: This is another established firm and again one of the top five in terms of duct production. The firm employs 21 men and is based in Fairview, Dublin.

FKM Ltd: Although their main business is as mechanical contractors, they have their own metal shop and one of the five largest producers. They employ about 20 metal workers and are based in Stillorgan, Co Dublin.

Denhu Ltd: This firm was, until recently, the largest producer of all. They did a lot of the subcontracting from Lynch's and from McGrattan and Kenny. However, in the last few months they have closed down. They are based in Walkinstown and employed about 40 men.

P J O'Reilly: This is another firm who are mainly mechanical contractors but have a metal shop. They employ 18 metal workers and are probably now one of the five biggest.

GFW: This is an established but small firm. They are based in Fairview and employ about eight

men. They do a lot of their work for Lynsky's.

Woodside Engineering: This firm used to be fairly large but are now relatively small employing 10 men.

They are an old firm based at Grand Canal Place.

Lyn Far: This is a new company who do most of their work for Climate Engineering. Indeed, many of their men used to work for Climate. They employ about 13 men and are expanding. They are based in Cork Street. They also subcontract for the McKeon Bros.

Airterm: This is another new firm based in Terenure, Co Dublin. They are medium sized, employing about 15 men. They, like Lyn Far, do most of their work for Climate Engineering and H A O'Neills.

The only other shops of a decent size that I know of are the following: Browns (Medium sized); Jackman (Medium sized, based in Wexford); Kelson Sheet Metal — (Small sized); Swift Sheet Metal (Medium sized); Metwell Ltd (Medium sized); Gorman Engineering (Medium sized); Crossflow (Small sized).

Products Provided

The product provided by this sector is heating and ventilation systems. The product itself can come in many shapes and forms depending on the customer's requirements. Probably the most important feature of each

product is its individuality. All heating and ventilation systems are custom built to specific requirements and each one has different requirements.

The list of products come under the following two main headings:

Supply: The basic job of this product is to supply hot or cold air as required. The system can be made with rectangular or round duct. It can be made of galvanised metal or aluminium or even stainless steel depending on whether it will be seen or hidden. The product can be high or low powered as required. It can be loud or quiet, depending on whether there are attenuators built in.

Extract: The job of this type of system is to extract harmful fumes or dust. It can come in all shapes and sizes like the supply system.

The products' main job is to provide a safer and more pleasant working environment for the people in the building, whether they be in a hospital or an office block. This sector provides other services such as design and one-off jobs.

Many heating and ventilation firms will not only manufacture and install a system, but also design it for the customer's requirements.

Firms may also be called on to provide specialised systems to fit unusual requirements. For example, Science

Laboratories requiring very high powered extraction units and a 100% sealed system. Power stations requiring very large and powerful attenuators to keep noise levels bearable.

Marketing of the Product

There is no export in this sector. All production is for the home market. It is not feasible to import duct work, mainly due to transport costs. English and European firms in this sector can acquire the raw materials on their home markets at a lower cost and, therefore, their finished product is cheaper than ours, even without taking the transport cost into account.

The home market can be broken down into many segments in a lot of different ways (eg size, location of job etc). I think one of the most helpful segmentations is by type of job. There are two broad categories which can be subdivided.

Public work: This can be subdivided by type of work: Office Buildings;

Hospitals; Power stations and Services (eg courts, libraries etc).

Private Work: Again, this can be subdivided according to type: Factories; Service (eg hotels, restaurants, shops etc); Office buildings, and Housing and apartment complexes.

Each one of these segments will require different types of ventilation and heating. Firms can attempt to specialise in one particular field, and this is generally what happens when the construction industry is doing well. However, times are bad and most firms are going for any work which is available.

Changes Taking Place

The product itself has not changed to any great extent over the past 10 years and it is unlikely that it will be in the foreseeable future. There have only been two changes of any importance, namely (1) the introduction of mezz flanging and (2) standardisation of the duct

work sizes. These changes have led to improvements in productivity of manufacture and installation, but have not really changed the product itself.

The standards used by Irish firms for manufacturing and installation were up until recently, governed by American and British standards. However, the CIBS (Chartered Institute of Building Services) have recently become more involved in setting out standards and guidelines.

The standards of work in this sector in Ireland are extremely high, a lot of credit for this must go to consulting engineers, who have demanded these standards. This has led to a situation where there is no real need for any major change in the quality of the product.

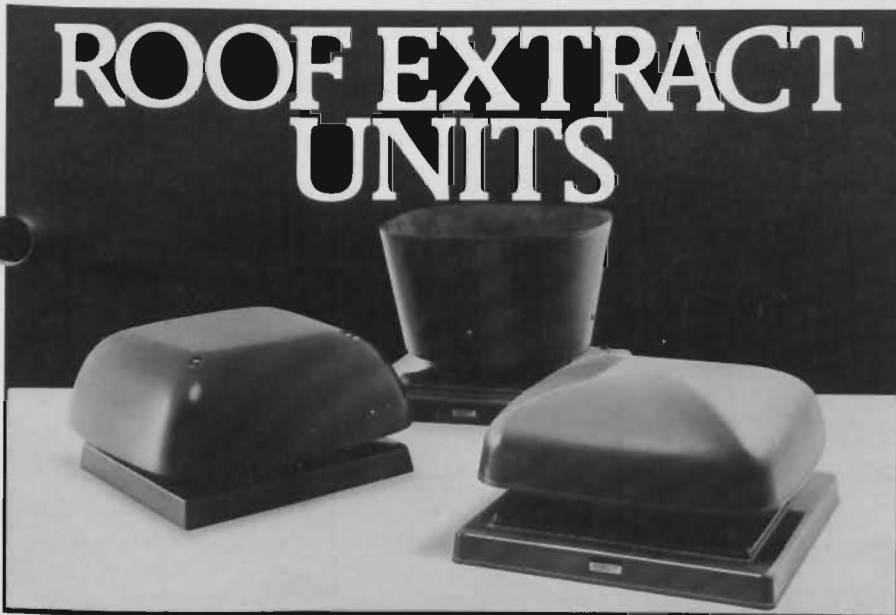
Customer requirements have been changing over the past few years, especially with regard to specialised factories. More powerful systems have been demanded for safety

reasons, where there is any danger to employees or the public.

Distribution

There are only two main channels of distribution: *Owner — Producer*: The owner may be the Government or a private individual. This channel of distribution is only used where the building is already constructed and the owner requires a new ventilation system or an extension to the old one. With a Government building, several firms will be asked to tender a bid and one will be picked. An individual may, if he wishes, ask one firm for a bid, usually a firm he has dealt with before. In both cases, the owner is also the final consumer, and he is in direct contact with the heating and ventilation firm.

Owner — Main Contractor — Producer: This channel is used when there is a new building to be constructed. With this channel, there is a set procedure whether it be



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for the public or private sector.

Owner:

The owner will ask some main building contractors to tender bids.

Building Contractor:

Each building contractor will ask some mechanical contractors to tender bids. He usually asks the firms whom he has dealt with before successfully. Most main building contractors have one or two mechanical contractors who they always use.

Mechan. Contractor:

Each mechanical contractor will ask some heating and ventilation firms to tender bids. As above, most of these contractors have firms which they usually employ.

Producer:

The firms who are asked tender a bid. From the producer's point of view, a lot depends on which main contractor gets the job.

There is a lot of politics involved in these channels of distribution, see Table 1.

A situation could arise where one of the highest bids of the 12 will get the job. In reality, two main builders may ask the same mechanical contractor for bids and several mechanical contractors may ask the same heating and ventilation firm for bids. However, the example highlights the fact that giving the lowest bid does not necessarily mean that a firm will get the job, it also highlights the fact that who you know, and how well you are established are of vital importance to survival.

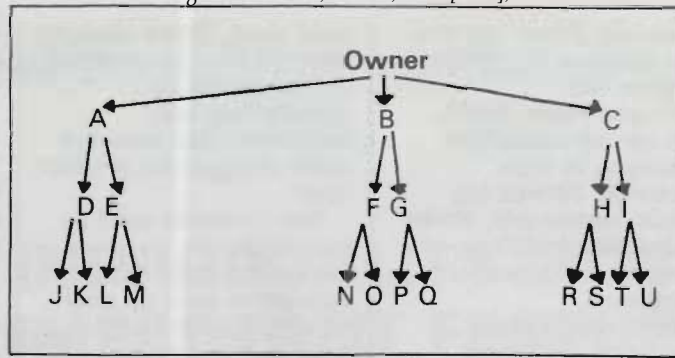


TABLE 1

Promotion

There is very little promotion within this sector. There is practically no advertising, unless a firm has a new innovation. Most consulting engineers know all the major firms and have favourites, whom they usually use. Most promotion is done by direct contact. The sector is like a system of families, and the most important promotion is to stay on good terms with the parent group. Most of the larger firms have different techniques for promoting this particular firm. For example:-

- (1) Specialise in one particular type of job;
- (2) A reputation for always finishing the job on time;
- (3) The firm may have its own engineer who will sort out problems without troubling the consulting engineer (who usually does not want to know anyway).

These promotion techniques are important to a firm's survival, especially in hard times, when these attributes, or the lack of them, may be the deciding factor in getting or not getting a job.

Pricing Practices

There are two methods of pricing used by most firms.

(a) Per Square Foot (Metre) of Metal: The steps involved are: (i) The length of duct is abstracted from the drawing in linear footage.

(ii) This length is converted into square footage.

(iii) For bends, square to round pieces, change pieces etc there is a double count of footage.

(iv) There is a price table per square foot. This price depends on the following:

- (a) Location of job.
- (b) Position of duct, eg height from floor.
- (c) Size of a job, ie if the job is small there will be an increase in price per square foot.
- (d) The gauge (thickness) of metal to be used.
- (e) Type of metal, eg galvanised, aluminium.

A normal price would be approximately £2.50 per sq ft of duct.

(v) The price of fans, grilles, louvres, fire dampers, attenuators etc are calculated with a % of profit.

(vi) The price for their installation is also

calculated (dependent on approximate labour time involved).

(vii) The final price is calculated. The profit margin is already contained in the price per square foot of metal.

This method is probably the most popular, but most firms have slightly different techniques.

(B): Price per pound of duct: This method follows the same steps except price per pound as opposed to per square foot.

Many firms will price a job using both of these methods and the two final prices should be approximately the same. It is a method of checking their calculations.

The pricing of a job is usually done by the boss or engineer and is one of the most important aspects of the business. Over-pricing can cause a firm to lose the job and under-pricing can cause losses. Bad pricing has caused many firms to go bust and in this field, experience is vital.

● **NEXT MONTH** — In the concluding article in the series Ian Sweeney will discuss the production of the products in this sector and examine them under eight separate headings.

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CIBS BULLETIN

As one can see from the programme of events listed below, the CIBS plans a very active series of events right up to the AGM in April of next year. However, there are two points worthy of note at this stage, the first being the venue for the Annual Dinner.

The Committee must be congratulated for recognising the times that are in it by making every effort to keep the cost to a minimum. The venue is ideal though not over-priced, while the evening will also be informal — again minimising cost. Do acknowledge the gesture and support the event.

Secondly, another breakthrough is the holding of a technical evening in Cork on 7 October. This is the first time this has been done and will hopefully be the forerunner of many to come.

Technical Evening

Subject — Recent lighting developments and their application by Jan Cunen, Philips Lighting Design Centre, Eindhoven, Holland.

Venue — Engineers Club, 22 Clyde Road, Dublin.

Date — Thursday, September 29th, 1983.

Time — 6 pm for 6.30 pm

Lighting technology is advancing at a fast pace with the availability of new light sources, the scheduled commercial introduction of high frequency ballasts, integrated lighting control systems, lighting programming for pocket calculators, optical improvements in luminaire performance etc. All these factors are likely to have a great influence on both the use and specification of lighting and also on the lighting industry as a whole in the future.

These aspects and their applications will be dealt with in detail by Mr Cunen, a speaker with international experience. Special demonstration equipment is being flown in from Holland to make the presentation as informative as possible.

The content of this technical evening has been carefully chosen and it is hoped that the excellent attendances enjoyed in recent years at lighting evenings will be repeated. Whatever your involvement in lighting, whether you are an architect, consultant, contractor or student, the evening should prove of great interest.

Philips have sponsored the evening and have also kindly agreed to provide savouries and refreshments following the presentation.

CIBS — Programme of Events 1983/'84

DATE	DAY	ACTIVITY	VENUE	CONTACT
29.9.83	Thurs	Lighting Evening — Developments in lamps, luminaires, calculation and control systems.	Engineers Club, Clyde Road, Dublin. 6.00 pm	Michael Moloney 771821 Bert Taylor 775413
7.10.83	Friday	Technical Evening — Natural Gas and its Utilisation	Cork 6.00 pm	Hugh Munro 684736 Greg Traynor 765012
20.10.83	Thurs	Technical Evening — Lifts and Escalators	Engineers Club, Clyde Road, Dublin 6.00 pm	Steve McLoughlan 975716 Eamon O'Brien 685607
28.10.83	Friday	Annual Dinner	Law Society, Blackhall Place.	Tony Knott 756871 Paddy Clonan 373637
17.11.83	Thurs	Technical Evening — Beaumont Hospital — Presentation on Services	Engineers Club, Clyde Road, Dublin. 6.00 pm	John Gilbert 69430 Steve McLoughlan 975716
19.11.83	Sat	Site visit to Beaumont Hospital	—	—
8.12.83	Thursday	Computer Evening — Computer Programming V	Bolton Street, College of Technology 6.00 pm	John Cuthbert 694300 Tony Knott 756871
16.12.83	Friday	Hot air/bright lights Christmas drink-in	Engineers Club, Clyde Road, Dublin.	Paddy Clonan 373637 Shay Diggin 975616
19.1.84	Thurs	Half day seminar: The New Lighting Code Presented by Dr Peter Boyce	Conference Centre, ESB, Dublin.	Michael Moloney 771821 Bert Taylor 775413
2.2.84	Thurs	Technical Evening — Designing with Commissioning in Mind	Engineers Club, Clyde Road, Dublin.	Greg Traynor 765012 Eamon O'Brien 685607
23.2.84	Thurs	Annual Seminar — Process Engineering	To be decided	Michael McDonagh 903311 Tony Knott 756871
15.3.84	Thurs	Annual Student Awards	Engineers Club, Clyde Road, Dublin. 6.00 pm	Don Byrne 749913 Hugh Munroe 684736
19.4.84	Thurs	Annual General Meeting	Engineers Club, Clyde Road, Dublin 6.00 pm	Tony Knott 756871 Michael Moloney 771821

All general enquiries to Gerry Palmer, Secretary, CIBS. Tel: 975716/608266

INSTITUTE OF PLUMBING NEWS

The Annual General Meeting of the Irish District Council of the Institute of Plumbing was held in the Gresham Hotel, Dublin on 10 June last. The Irish District Council was inaugurated in November 1981 by the Irish members of the Institute of Plumbing who, up until then, had been included in the overseas section of the Institute. By setting up the Irish District Council, which caters for the 32 counties of Ireland as a whole, the present and future members of the Institute here can enjoy the full benefits and facilities of membership, something which had not been possible previously.

The aims of the Irish District Council are basically the same as those of the Institute itself as set out in its introductory booklet — "A Guide to Better Standards". But for the immediate future here in Ireland the Institute is concentrating its efforts in the following areas:-

(1) Building up membership of the District Council by encouraging as many plumbers as possible from all sections of the industry to join the Institute;

(2) Keeping the membership up to date with the technological changes taking place in the industry today by arranging technical lectures and demonstrations by manufacturers and agents;

(3) Informing the general public of the advantages of statutory registration for plumbers being as it is the only sure way to protect both the general public and the qualified crafts person.

Chairman's Report

In his opening address to the meeting Chairman Seamus Murrán welcomed the new and existing members of the District Council and the representatives of the Plumbing and Heating Contractors Association of



● At the technical lecture held in College of Technology, Bolton Street, Dublin, on Natural and Manufactured Gas Equipment we pictured Tomas Byrne (centre) of Inland Gas Ltd, Dublin who gave the lecture.

attending the meeting as observers. He then gave a report on the previous year's events, the response to which had been very satisfactory, a fact borne out by the good attendance by members. Membership in all categories of an Irish District Council was increasing the awareness of tradesmen to the need for better standards.

The Chairman then went on to say how pleased he was that, during his term of office, contact had been established with Allied Irish Banks Ltd, Capel Street, Dublin who have agreed to award an annual prize to the leading plumbing student. This year's prize was awarded to Matt Graham of Aer Lingus who achieved the highest grades in the City and Guilds of London Advanced Level Plumbing Examination in hot and cold water supplies, gas and oil systems. He then outlined to the meeting some of the future technical topics which were being considered for the forthcoming year.

Secretary/Treasurers Report

John Smart, Secretary/Treasurer, reported on his recent visit to Brighton to attend the Golden Jubilee Conference and Exhibition of the Institute of Plumbing. At the conference a number of very interesting technical papers were read which provoked some very worthwhile discussion, not least of which was an illustrated talk given by a member of the American Plumbing Association on Backpressure and Backsiphonage. The films used to illustrate this talk have now been purchased by the Institute and it is hoped to show them at one of the forthcoming technical evenings.

The exhibition, which is held in conjunction with the Annual Conference, attracted a larger than usual number of exhibitors as it was the 50th Anniversary of the exhibition. The Secretary reported that many useful contacts had been made

OFFICERS FOR 1983/'84

Chairman	Seamus Murrán, FIOP, College of Technology, Bolton Street, Dublin.
Secretary/Treasurer	John Smartt, MIP, College of Technology, Bolton Street, Dublin.
Officers	Frank Treacy, RP, T E Lynskey Ltd; James Bartley, RP, College of Technology, Bolton Street; Ronnie Saunders, RP, Industrial Training Authority, Ballyfermot, Dublin; John Brady, MIP, Varming, Mulcahy, Reilly Associates, Dublin.



● Jimmy Carr of Ridgid Tools Ireland Ltd (left), who hosted the Annual General Meeting of the Irish District Council, with members of the Institute.

among the exhibitors for possible future technical evenings hosted by manufacturers and agents anxious to increase their market share in Ireland.

Foremost among these were manufacturers of natural gas equipment and copper tube and capillary fittings.

On behalf of the



● Mary Dunphy, Student Officer, presenting the Allied Irish Banks Ltd annual award to Matt Graham, Aer Lingus, at the Annual General Meeting of the Irish District Council.

Chairman and members of the Irish District Council the Secretary then wished the new President of the Institute, Ray Hall, who was elected at the

conference in Brighton, every success in his term of office. John Smart then gave the Treasurer's Report reminding the members of the need to pay their annual subscription promptly which greatly helped the running of the Institute.

As all the officers were outgoing, Joseph Bernie, Head of School of Construction Trades, Bolton Street, Dublin chaired the meeting for the election of the incoming officers.

The following are some of the proposed technical evenings for the Autumn/Winter programme. Grant Engineering Solid Fuel Appliances; Veba Radiators Ltd; J H Donnelly Ltd; McAlpine traps.

For further information contact the Secretary, John T Smart, MIP, 247 Blackhorse Avenue, North Circular Road, Dublin 7, (Tel: 309661).



● Elected at the Annual General Meeting of the Irish District Council were (from left): Seated: Seamus Murrin, Chairman; John Smartt, Secretary. Standing: Frank Treacy; James Bartley; Ronnie Saunders and John Brady, Officers.

Published by ARROW@TU Dublin, 1983

new products

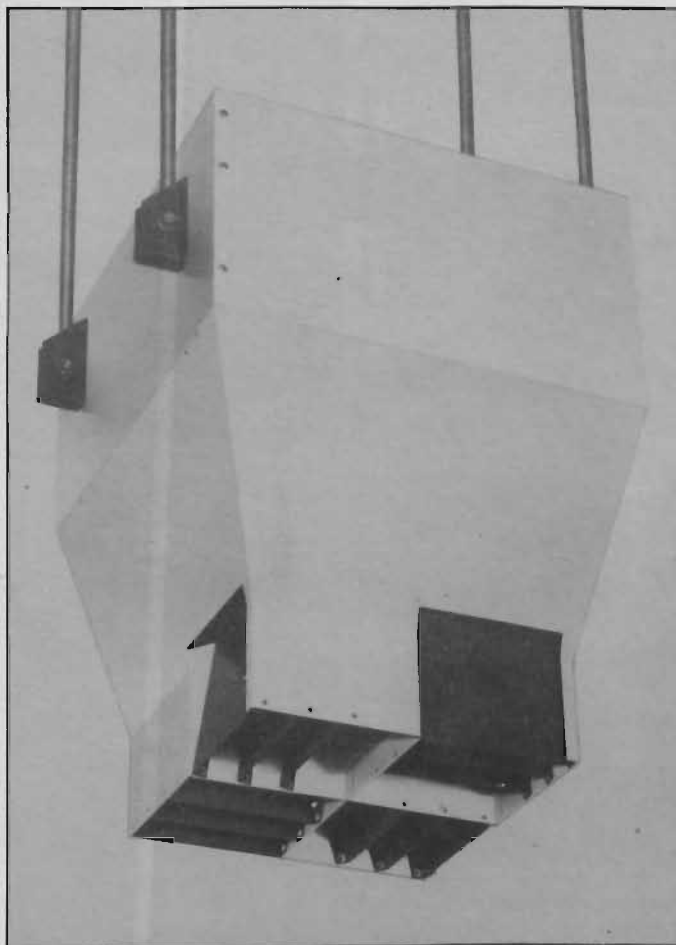
Cirrus Flameproof Overhead Heaters by S & P Coil Products

A range of flameproof fan-assisted overhead heaters, designed for connection to steam or hot water heating systems in hazardous areas, has been developed by S & P Coil Products. Typical applications include space heating of chemical storage areas, fuel depots, warehouses and factory production lines processing materials with flammable vapours.

Called the Cirrus FLP Series, these industrial duty unit heaters consist of one or several heat exchange coils mounted within a stove enamelled steel casing. A guarded flameproof motor, rated for Group II gases, is fitted on the rear of the casing which drives a fan forcing an air stream across the hot water or steam-fed coils. Outputs range up to 120kW (400,000 Btu/h).

Three different roof-suspended casing styles can be specified to discharge heated air horizontally or vertically. Louvres are fitted to the discharge grille giving control over direction and spread of heated air.

Depending on heating needs, up to three copper coil heat exchangers can be fitted for operation on low,



● Fitted with flameproof motors, Cirrus FLP unit heaters from S & P Coil Products can safely be used in hazardous areas.

medium or high temperature hot water or steam heating media at up to 150psi. All models are usually supplied for recirculated air heating, but spigots for connection to fresh air inlet ducts can be

specified.

Further details from S & P Coil Products Ltd, Evington Valley Road, Leicester LE5 5LU, England, (Tel: 0305334-730771, Telex 341868).

Focal Stoves

Focal Stoves, which promise "big reductions to home heating costs with style" have been launched on the market.

The stove has been developed in Ireland to provide low-cost central heating from peat briquettes, sod turf, lignite and wood fuels, and the developers, Quality Engineering Developments (QED) are convinced they have created just the right stove to meet the heating requirements of the average to larger size Irish home.

Average heat outputs

obtained from a test at the IIRS were 44,000 Btu/hr to water, and 15,500 Btu/hr to space when heating peat briquettes — an average total of 17.5 kW/hr. Because this output is an average rated output it is claimed to be a realistically attainable output.

As for looks, the stove appears to be well placed at the quality end of the range: the integral hot water boiler and radiant canopy are 6mm steelplate of all-welded construction, and finished in matt black with solid brass fittings and motifs.

The Focal Stove provides low-cost heating and utilises our large secure reserves of turf. Turf harvesting is now a growth business with literally hundreds of private owners developing their bogs for the domestic fuel market.

The advantages of this stove are an attractive feature fireplace stove with high outputs to water, homely radiant heat and enjoyment of the real fire in the living room through large ceramic glass windows, plus significant reductions to central heating fuel costs. Rear flue Focal Stoves also have a handy ceramic tile hot plate. For an example of cost reduction, with the stove burning peat briquettes, fuel costs are half those of oil fired central heating (for equal heat outputs).

Focal Stoves are in the output league above back boilers but may be installed in their place or interlinked with existing systems.

Further details from Quality Engineering Developments Ltd, Skerries, Co Dublin, (Tel: 490760).

Ridgid Groove-Bevel-Cutoff Machine

The 950 Groove-Bevel-Cutoff machine from Ridge Tool (UK) is for the engineer who needs



● The Focal stove from Quality Engineering Developments, which provides low-cost central heating from peat briquettes, sod turf, lignite and wood fuels.

new products

production type penetration of large pipe of various lengths. Efficiently, and with speed, this machine will groove, cut and bevel pipe up to 8", easily.

Another high quality, work-saver machine from Ridge Tool (UK), the 950 is electric motor driven. Completely portable, it is track mounted to accommodate various pipe lengths. An integrated re-circulating oil system prevents wastage and a foot switch with magnetic contactor enables easier, safer use.

Ideal for pipe and sprinkler fabricators, mechanical and plumbing contractors.

Virak Portable Pipefreezer from Combex Engineering

A portable pipefreezing system for small diameter pipe applications is now available from Combex Engineering Ltd.

Known as Virax (registered trade mark) it comes complete in kit form and comprises two fully insulated freeze clamps suitable for use on pipes from 10mm to 60mm (3/4 in to 2 in) dia.

Used in conjunction with a conventional CO₂ (carbon dioxide) gas bottle with syphon tube, the Virax unit is simply clipped over the pipe and held firm by spring tension — no additional tools are necessary. If two freezes are required, then the two clamps are positioned either side of the work area.

Further details from Combex Engineering Ltd, 3 East Road, East Wall, Dublin 3, (Tel: 748371/2).

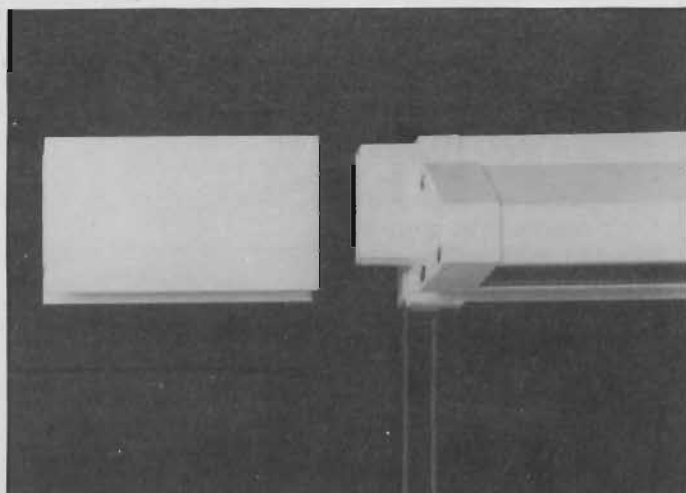
Permavent from Greenwood Airvac

Greenwood Airvac Ventilation Ltd have a new version of their Permavent window ventilator, the S2S, which has croppable

extruded aluminium detachable end flanges to allow on-site trimming to fit varying window sizes. In this way, only five sizes of S2S cater for glazing widths from 450mm to 1200mm, the units being available off-the-shelf from glass merchants and the like.

The S2S is particularly appropriate for use in the rehabilitation and upgrading of existing dwellings, as it provides a controllable source of trickle ventilation to reduce condensation problems. Obviating the need for opening lights, the S2S provides locked window security, and, therefore, is especially suitable for use in ground floor dwellings, such as old people's flats, or in buildings where a secure form of night ventilation is required. When installed into a fixed pane of glass, cost savings can be achieved by use of the S2S Permavent compared to the cost of an opening light and associated locks.

The S2S unit is suitable for most single glazed aluminium, steel, uPVC



● The S2S Permavent window ventilator from Greenwood Airvac Ventilation with croppable aluminium detachable end flanges to allow on-site trimming to fit varying window sizes.

and wooden window frames, fitting easily and unobtrusively on top of the glazing, with a minimal interference of the day-light area.

Complementing Greenwood Airvac's S range of Permavent, the S2S units are assembled from white electrophoretic painted aluminium alloy extrusions with pale grey plastic mouldings.

Further information on the S2S Permavent and stockists from Greenwood

Airvac Ventilation Ltd, PO Box 3, Brookside Industrial Estate, Rustington, Littlehampton, Sussex BN16 3LH, England, (Tel 0309062-71021).

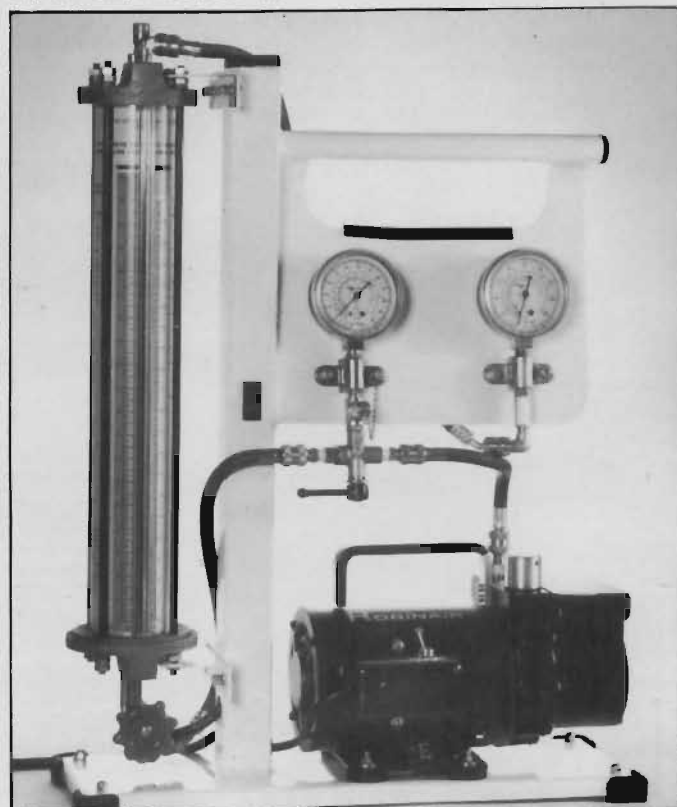
Refrigeration Service Station from Robinair

Robinair have introduced a new service station designed to meet the specialised requirements of the domestic refrigerator and freezer service engineer, including light weight, minimum overall dimensions and foolproof operation.

Known as model 30143, the "Domestic" Station is based on Robinair's new Robbi Black two-stage vacuum pump. A simplified refrigerant measuring cylinder with a single scale avoids the risk of error while a lever operated three-way valve is foolproof in use. The basic station is available at under St£350 showing a considerable saving in cost as well as weight compared with more sophisticated models.

All Robinair products carry a 12 month warranty.

Details from Robinair Division, Kent-Moore UK Ltd, 19/21 Stockfield Road, Acocks Green, Birmingham B27 6AJ, England, (Tel: 032-707 6955, Telex: 339338).



● The 30143 Domestic service station by Robinair for service engineers.

PRODUCT REVIEW: INSTRUMENTS AND CONTROLS

INSTRUMENTATION — A MEASUREMENT OF PROGRESS

Virtually everybody uses instrumentation sometime during every day. The alarm clock wakes us in the morning, the hot water for our early morning ablutions as often as not is controlled by a thermostat. We read the temperature on our cookers and tap the barometer hopefully on our way to work in our cars equipped with tachometers, rev counters, tank level indicators and temperature indicators.

As I said, everybody uses instrumentation.

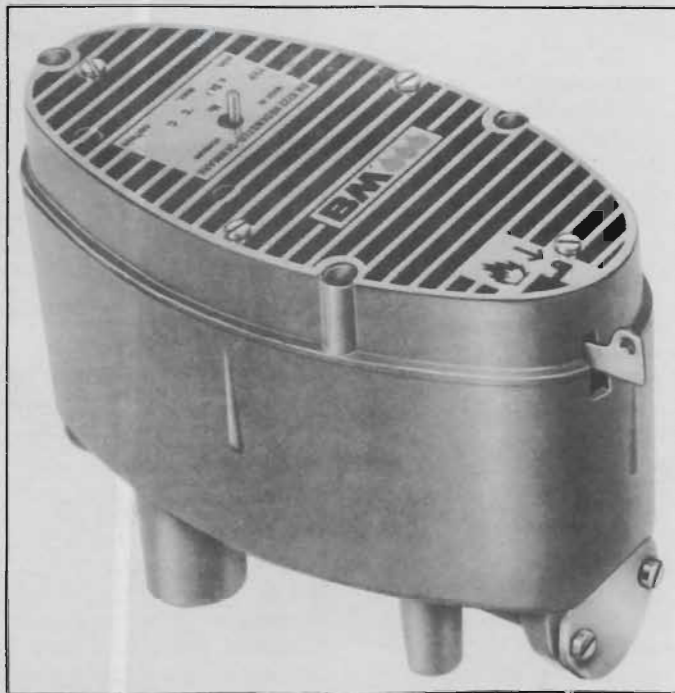
In industry of course these uses are more sophisticated and complex than most one meets in normal domestic use. With the advent of the ubiquitous micro processor, these uses increase and multiply to an incredible degree.

Years ago the manufacturing plant had very basic instrument requirements. It was important to know the temperature and pressure of the product, and maybe its flow or level.

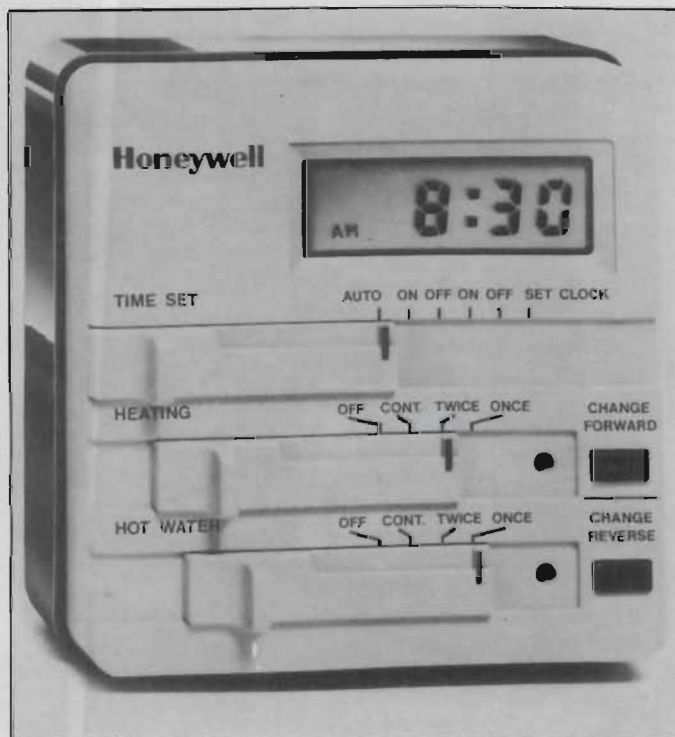
Then the plant manager decided that he would like to automate the plant somewhat, whereas before when the temperature or pressure was too high he turned off his heater or opened a relief valve. Of course he needed to be there to watch the indicator and this wasn't always possible; so, by introducing contacts and relays the first indicator/controllers were born.

Gradually it became possible to measure other parameters, chemical analysis, vibration, conductivity and other more esoteric measurements.

Of course this type of automatic control was limited. It was not very flexible. One type of input



● BM oil control valve, type 30B, from Campbell & Cooke Ltd., Aga Cooker Centre, 16 Rutland Place, off Parnell Square, Dublin 1, (Tel: 786099); and Ian A Kernohan, Balloo Industrial Estate, Balloo Way, Bangor, Northern Ireland.



● Honeywell's ST699B microelectronic central heating programmer from Dwell Controls.

and one type of control was all that was permitted. Gradually through the years new electronic advancements made these instruments more flexible and useful. They became smaller in size and less complicated to operate.

Digital indication swept through the industry like a whirlwind with little regard in many instances for the actual requirements of the customer who requires repeatability rather than accuracy of reading. The bar graph indicator was a new instrument which suited this user better.

All these instruments are excellent for individual applications decided upon at the time of specification but, in the event of a change, costly alterations and even complete replacement of instruments was still required.

Then the microprocessor arrived followed about three years ago by the first multipurpose controller.

This is a controller which will take any measuring signal the user tells it to take and will do anything (well almost anything!) it is asked to do with that signal.

This is a wonderful advance on earlier instrumentation since the user may standardise on a single type of controller on all applications. The controller can be changed as required.

A picture of one of the first of these controllers is shown, the Eurotherm 810. This shows the digital indicator and to the left is an analogue deviation indicator which shows how close the measured variable is to the desired value.

A flap underneath the display holds the adjusting button for changing the control variables up and down. A small calculator like instrument is used for

<https://www.tandfonline.com/doi/10.1080/00071724.1983.10437170>
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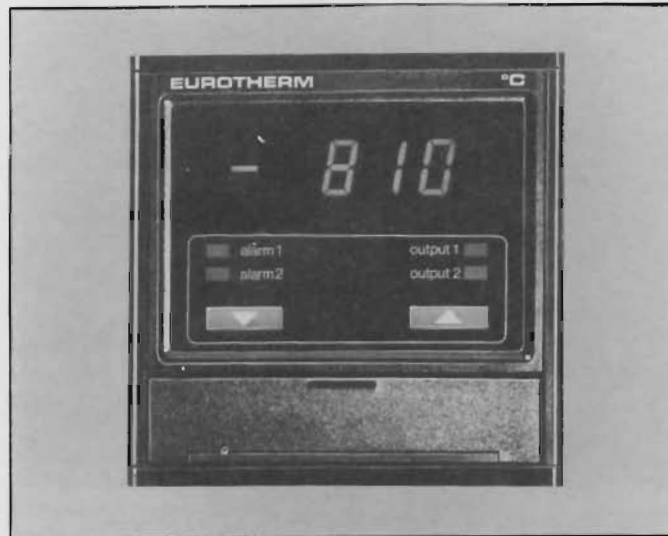
PRODUCT REVIEW: INSTRUMENTS AND CONTROLS

changing the ranges and/or function of the controller.

The most astounding thing about these instruments is that despite their versatility, the prices are comparable with conventional instruments. This is because due to lower material cost, price rises are limited to rates below the rates of inflation.

So we see how microcomputers are helping developments in instrumentation no less than in the office equipment or automotive industries.

New developments in this discipline are monitored by many organs, perhaps the most comprehensive being "Intech" — the journal of the ISA — the leading instrument body in the world. The very active Irish Section will be organising a conference next May in Dublin in association with the International Exhibition



● The Eurotherm 810, one of the first multipurpose controllers.

"Instrumentation Ireland '84". This is the first exhibition organised by the ISA central body outside the United States and promises to be most comprehensive and instructive.

We can also expect many more exciting advances in this field

helped by space and medical technology and moulded by the requirements of mankind.

● This article was specially written by Eoin O'Riain, Managing Director, Industrial Instruments Ltd and President Elect of the Irish Section of ISA.

The following notes are based on material submitted by the companies concerned.

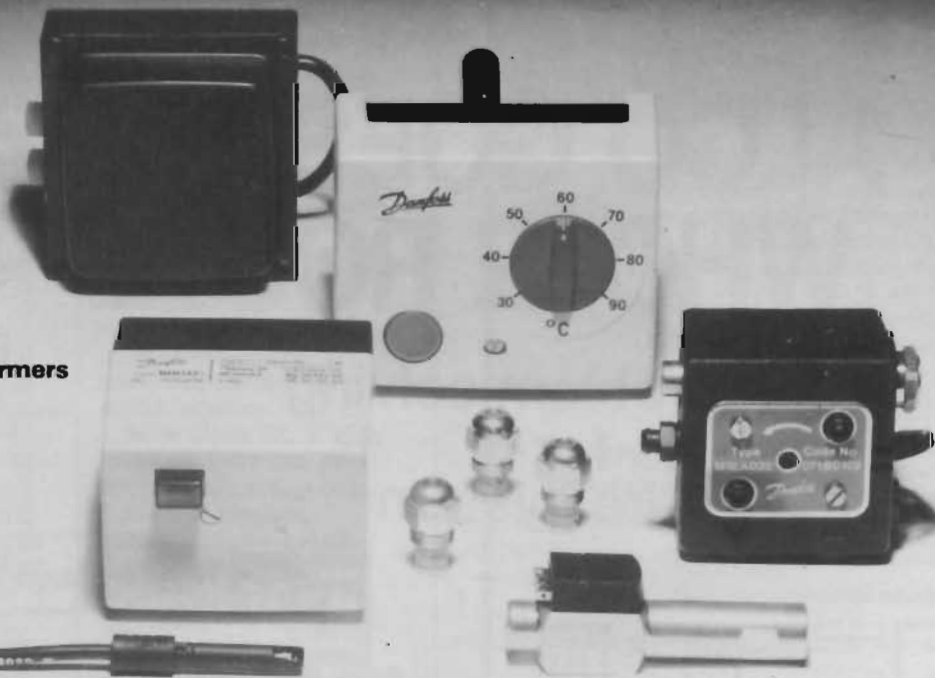
Danfoss

The Building Services Group of Danfoss announce the introduction of a new series of time controllers and a new motorised valve to complete their total control package for domestic heating systems. Advice on combining these new controls with other Danfoss controls is available in the form of a set of control application plans.

Designated the 3000 series, the time controllers are available in two versions: Type 3001 time switch — a single circuit, four programme unit, designed to give householders reliable and accurate time control; and Type 3002 programmer — a twin circuit unit offering

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PRODUCT REVIEW: INSTRUMENTS AND CONTROLS

16 different programmes for fully pumped systems, (including independent programming of heating and hot water) and 10 programmes for pumped heating/gravity hot water systems.

The new Danfoss 3000 series time controls can be used with any combination of Danfoss radiator thermostats, RAVI hot water cylinder controls, CEPS boiler interlock switches, and the new ABV/VMT motorised valve, to provide total control of heating systems, as recommended by the Department of Energy.

Ease of installation, with simple setting and operation and styling to blend naturally with any domestic decor, were the major design requirements of the new Danfoss 3000 series time controllers.

Each unit plugs into a separate flush mounting or wall mounting back-plate, designed to meet British Gas specification,



● The new Danfoss tyre 3000 programmer from J J Sampson.

simplifying wiring before fitting. Adjustments for fully pumped systems or gravity hot water/pumped systems are made with a simple interlock on the selector switch.

By combining the new 240V version of their ABV thermal actuator, with a low-cost two-port valve type VMT, Danfoss have been able to introduce the

new ABV/VMT motorised valve which can be used for automatic isolation and programming of heating and hot water services — an alternative to the traditional motorised valve which will prove more reliable than its electro-mechanical equivalent. Compact, easy to wire and competitively priced; One actuator fits

all Danfoss RAV and MVT valves, the latter being available with 15mm, 22mm and 28mm compression copper fittings.

Details from J J Sampson & Son Ltd, Unit 71, Cherry Orchard Industrial Estate, Ballyfermot Road, Dublin 10, (Tel: 268111).

Alpha Controls

Since its formation in 1982, Alpha Controls Ireland has been marketing Landis & Gyr Comfort Control Group Products and Johnson Controls McClaren Products which include pneumatic controls, Penn Products and the new Johnson electronic range of controls Deperm H3.

Up to now, Alpha have been mainly involved in the industrial market, and are currently concentrating their efforts on heating products and energy

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Unit 6M, Kinsale Road,
 Industrial Estate,
 Cork. Tel: 021-967221

conservation systems.

In recent months, two further agencies have been secured with Belimo Automation and JEL Energy Conservation Services Ltd.

Belimo Automation is a Swiss manufacturer of damper actuators and valve motors, which can be used either with their own range of controls for simple ventilation systems or alternatively can be used with most of the major control manufacturers products i.e. Honeywell, Satchwell, Johnson, Landis & Gyr and Staefa.

Belimo products are used extensively throughout Europe by the major control manufacturers and OEM's for inclusion in their systems.

JEL manufacture a range of energy conservation products which include 4-zone time programmers; Combined time programmers and optimum start/stop controllers; Combined optimum start/stop controllers and compensator controllers; Advanced calander programmers; Boiler sequence step controllers; Maximum demand controllers (15 zone) and Energy management systems.

All of the above can be interfaced with the JEL Star energy management system.

For further details contact Alpa Controls Ireland, Unit 28, Corrig Road, Sandyford Industrial Estate, Sandyford, Dublin 18, (Tel: 952310).

Manotherm

As acknowledged experts in all aspects of industrial temperature control, West Division have been able to combine a wealth of specialist experience with the latest advances in microprocessor-based technology to produce Opus 70, the ultimate in performance and cost-saving convenience in

temperature control.

Although fundamentally a purpose-designed instrument, strongly housed for industrial applications in a compact metal case, the Opus 70 nevertheless offers high standards of versatility and adaptability in use.

Further, in spite of its low cost, it offers high control specification plus an enviably simple system of range changing, which does not involve recalibration, giving maximum flexibility. A variety of output options are available to allow for heat/cool applications, together with a choice of independent and/or deviation alarms.

Construction features splash and dust-proof front panels, with rear-mounted, multi-use terminals fully conforming to international standards. Front panel displays are designed for maximum clarity with easy and complete access to data — a design priority.

Opus 70 has full anti-tamper security, with lockable parameters retained without power for periods of up to 5 years. The control and alarm options offered are normally associated with high-cost equipment, another typical aspect of West Division, high-specification but economical planning.

West Division are confident that Opus 70, and its companion Opus 72, will prove the forerunners of a line of highly successful, microprocessor-based instruments which will transform control standards throughout world industry.

With Opus 72, a wide range of users can now buy, at reasonable cost, a high-performance, microprocessor-based, single-loop, 3-term controller which can be used with thermocouple, resistance thermometer, current and voltage inputs which can generate relay, logic for solid-state relay, or DC linear outputs.

With a wide range of standard features,

CHAMELEON

Process Microcomputer

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Chameleon is a universal microcomputer that is easily adapted to a wide variety of measurement and control systems for as many as eight frequency or analog, and four contact inputs. Through a powerful set of software operators and constants, it can be programmed by the user to execute automatically the arithmetic and logic functions that are commonly used in process measurement systems.

Functions

- linearizations and characterizers
- ASCII communications interfaces
- frequency-to-current transducers
- transmitter power supplies
- square root extractors
- function generators
- signal selectors
- alarm relays
- high-low signal limiters
- adder-subtractors
- multiplier-dividers

For further information contact

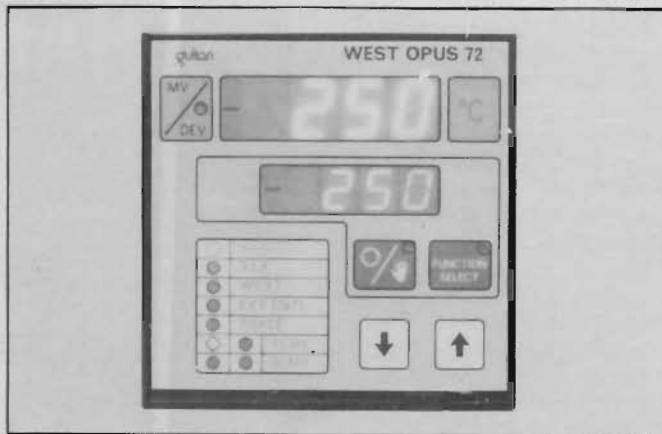
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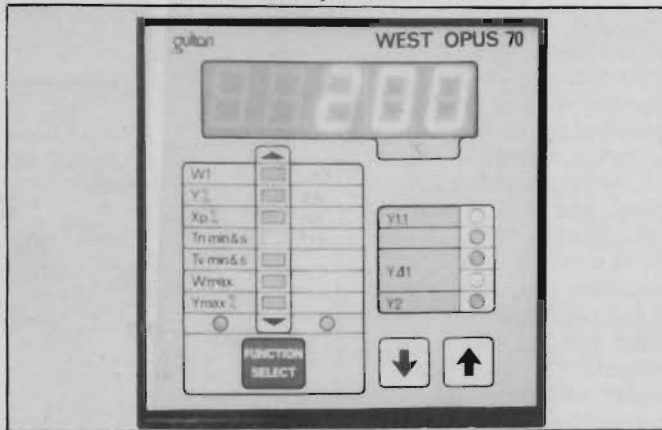
including fully adjustable PID control with integral lockout, auto/manual operation with bumpless transfer, flexible alarm options and linearised recorder outputs, Opus 72 offers high-specification basics within a flexible overall package. With further features such as external set point selection and suitability for cascade, ratio or other remote control functions, Opus 72 offers virtual tailor-made characteristics to a variety of users.

In fact, not only is the instrument ready for the latest aspects of today's technological needs, but also for the more demanding requirements of a wide cross-section of future customers. Opus 72 can also be made suitable for supervisory computer control or data acquisition applications, via an optional RS422 port.

To sum up, it differs mainly from its companion, Opus 70, in offering more refined,



● West Division Opus 72 from Manotherm.



● West Division Opus 70 from Manotherm.

Honeywell

Honeywell's emphasis on appealing design for its residential products has been rewarded not only with high volume sales, but also the recognition of The Design Centre, London.

The company's ST699B time controller and its T6160B room thermostat, have both been awarded the Design Centre's Selection accolade.

The ST699B microelectronic central heating programmer is silent in operation, easy to install and simple to programme. It was designed to blend-in and achieve functionality in the domestic environment.

The T6160B reflects the trend towards a family appearance of Honeywell domestic heating controls. The room thermostat again was styled very much with the consumer and installation trends in mind.

The high level of acceptance by the installer and consumer is convincing proof, that Honeywell's product design and development is paying dividends.

For further information contact Dwell Controls Ltd, Cookstown Industrial Estate, Belgard Road, Tallaght, Co Dublin, (Tel: 511144).

Alpha Controls Irl. suppliers of **Landis Gyr Controls** and **Johnson Controls McClaren Products** are also sole Irish agents for:

JEL ENERGY CONSERVATION PRODUCTS

- Zone Time Programmers
- Advanced Calendar Programmers
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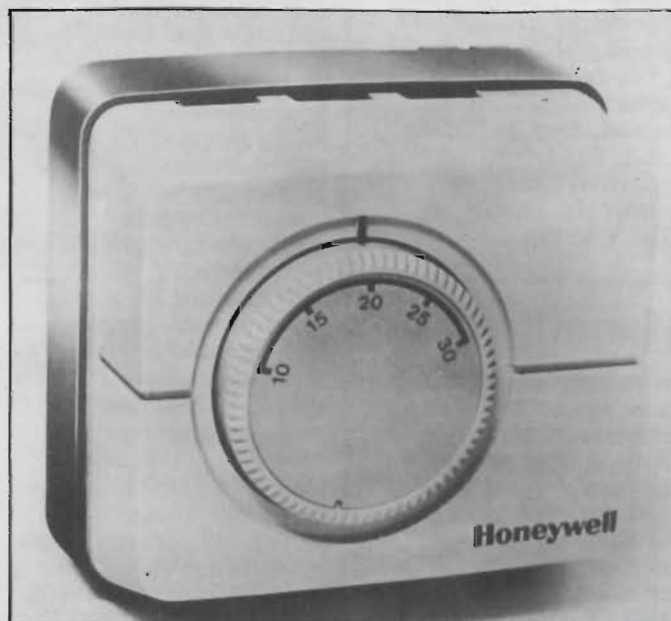


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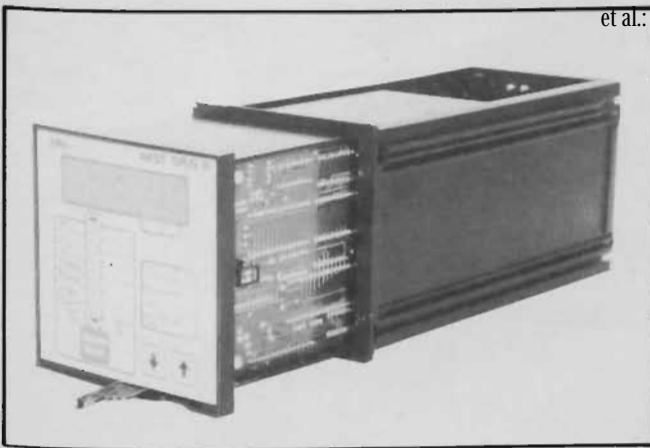
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DOI: 10.21277/D73D7C

critical standards and greater scope, wherever these are needed.

Further details are available from Manotherm Ltd, 4 Walkinstown Road, Dublin 12, (Tel: 522355 Telex: 4467). Also at 10 Knockbracken Park, Belfast, (Tel: Belfast 645966).



● Honeywell's T6160B room thermostat from Dwell Controls.



et al: H & V News

- ☆ Low cost, high specification instrument suitable for heat only and heat/cool applications.
- ☆ Fully adjustable PID control with integral lockout.
- ☆ High performance – reference accuracy $\pm 0.25\%$ of span. Excellent temperature stability.
- ☆ Easy and complete data access and adjustment from front panel.
- ☆ Comprehensive display of process temperature including both actual and deviation indication.
- ☆ All standard input ranges in one set of memory components facilitates unique simplicity of range changing.
- ☆ Control parameters lockable to prevent tampering and retained without power for 5 years typically.
- ☆ Up to two flexible alarm options.
- ☆ Metal case with splash/dustproof membrane front panel and large, safe rear terminals.

INTRODUCTION

The West Opus 70 is a microprocessor-based, single-loop controller for use with thermocouple, RTD, current or voltage inputs and which generates linear or time-proportioned control outputs. In addition an optional serial interface port (RS 422) can allow communication with external control computers or data

loggers. The use of state of the art microprocessor-based technology has enabled Opus 70 to meet demanding industrial requirements whilst incorporating an unrivalled price/performance ratio.

SPECIFICATION

INPUT

Input types: Thermocouple, RTD and DC linear.
 Common mode rejection: Negligible effect at up to 260V 50/60Hz.
 Series mode rejection: > 1000% of span (at 50/60Hz) causes negligible effect.
 Thermocouple break protection: Upscale fitted as standard (downscale available as an option).
 Thermocouple calibration: Complies with BS 4937, NBS 125 and IEC 584 standards.
 RTD (Pt 100) calibration: Complies with BS 1904, and DIN 43760 standards.

OUTPUTS

Output 1.1 (e.g. Heat)
 Relay: SPDT contact rating 5A resistive at 120/240 VAC.
 Relay life 10^6 operations.
 SSR drive: 0-5V DC into 40 ohms minimum (TTL Compatible).
 DC Linear: 0-20mA, 4-20mA, 0-5V, 1-5V, Isolated up to 240V AC.
Output 1.2 (e.g. Cool)
 Relay: as output 1.1.
 SSR drive: as output 1.1.
Auxiliary relays (Alarms 1 and 2)
 Relay: SPDT contact rating 2A resistive at 120/240 VAC.
 Relay life 10^6 operations.

CONTROL

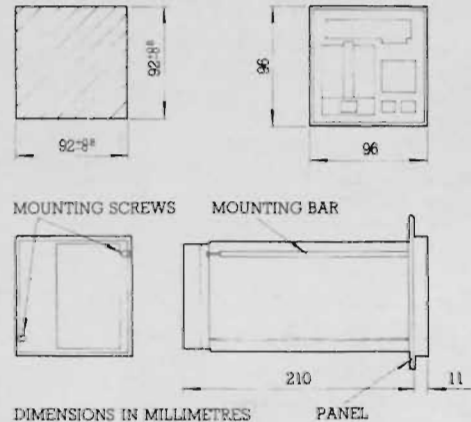
Proportional Band: 0.5-100.0% and ON/OFF
 Proportional time: 2, 4, 8, 16, 32 or 64 seconds.
 Integral time: 1 second – 99 minutes and 59 seconds and OFF.
 Derivative time: 0-99 minutes and 59 seconds.
 Underlap/Overlap: $\pm 20\%$ of proportional band.
 Relative Gain of output 1.2: 0.02 to 1 and OFF (giving ON/OFF control).

ENVIRONMENTAL

Reference Conditions
 Ambient temperature: $20^\circ\text{C} \pm 2^\circ\text{C}$.
 Supply voltage: 220 or 240V $\pm 1\%$ 50/60Hz.
 Source resistance: Thermocouple – < 10 ohms
 RTD (Pt 100) – < 0.1 ohm per lead.

Operating conditions
 Ambient temperature: 0-50°C operating, -20 to +80°C storage.
 Supply voltage: 193-255V, 50/60Hz – 100-132V, 50/60Hz.
 Maximum source resistance: Thermocouple < 1000 ohms
 RTD (Pt 100) < 5 ohms per lead (equal resistance in each limb).

MOUNTING DIMENSIONS



PERFORMANCE

Reference accuracy: $\pm 0.25\%$ of span ± 1 LSD.
 Temperature stability: 0.01% of span/ $^\circ\text{C}$ change in ambient temperature.
 Cold junction compensation error: 0.075°C/ $^\circ\text{C}$ change in ambient temperature.
 Supply voltage influence on accuracy: Negligible effect within operating range.
 Source resistance influence on accuracy: Thermocouple – 100 ohms – < 0.1% of span error. 1000 ohms – < 0.5% of span error. RTD (Pt 100) – 5 ohms/lead – < 0.5% of span error.

GENERAL

Display, digital: 4 digit, 7 segment, decimal point and negative sign display.
 deviation: 7 bar LED coarse setting: -5%, -3%, -1%, 0, 1%, 3%, 5% (of span). fine setting: -2%, -1%, -1%, 0, 1%, 1%, 2% (of span).
 Dimensions: 96 x 96 x 210 (mm).
 Weight: 2kg maximum.
 Front Panel protection: IEC 144 IP 54.
 Power consumption: 10 VA maximum.
 Data retention (standard option): Lithium battery 5 years typical.

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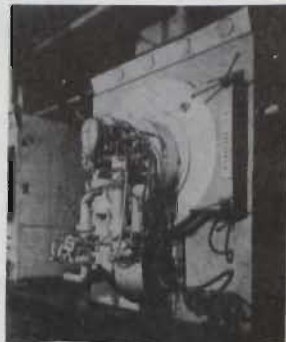
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Industrial: 300,000 to 5 million btu/h
Also full range of Francia Hoval steel panel radiators.



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"Rio" Domestic and Commercial oil fired boilers 60,000 - 604,000 btu/h Rio Gas Boilers (Atmospheric Type) 60,000 - 400,000 btu/h

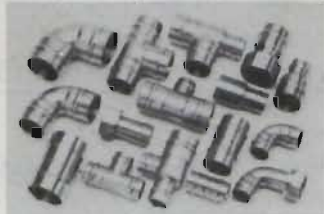


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New natural gas burners
60,000 - 24 million btu/h.



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