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H & V News

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H&V NEWS



● **Sanbra Fyffe Today —
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The Half of It**

- **Domestic Boilers**
- **Microelectronics in
Building Services**
- **Corrosion In Underground
Pipework**

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Venue

Simmons Court Exhibition Complex,
Royal Dublin Society,
Ballsbridge, Dublin 4.

Dates

Tuesday, 15 February, 1983
Wednesday, 16 February, 1983
Thursday, 17 February, 1983

Open Time

Tuesday	12 noon – 8 p.m.
Wednesday	12 noon – 8 p.m.
Thursday	12 noon – 8 p.m.

Admission

Trade Visitors by Invitation.



Ireland's Building Services
EXHIBITION

For full exhibition details contact:

ittex

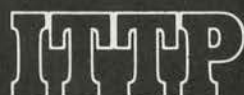
Irish Trade & Technical Exhibitions (ITTEX) Ltd.
5/7 Main Street, Blackrock, Co. Dublin.
Telephone: (01) 885001 Telex: 92258

H&V NEWS

Ireland's Building Services Magazine

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NEW ADVERTISEMENT SALES TEAM FOR IRISH H&V NEWS

Irish H&V News announces its new advertisement sales team under Sales and Marketing Director Pat Codyre. The position of Advertisement Manager is now held by Richard Byrne, one of the publisher's — ITTP's — senior Advertisement Managers. Richard fills the vacancy created by the recent departure of Victor Gibson from H&V News. Ita Moore, a member of the Irish H&V News advertisement sales team for some time, will continue her involvement with the publication as tele-sales controller.

IN THIS ISSUE

Newsdesk..... page 2

DL's Energy Report..... page 8
This month DL has a look back at the energy scene over the last few months and it seems that many of his forecasts have come true.

Sanbra Fyffe Profile..... page 12
"Sanbra Fyffe Today — Bet you don't know the half of it" that is the heading on our cover story this month and as you read our story you will see that there is a lot more to Sanbra Fyffe than meets the eye.

Ulster News..... page 14
All the latest news and information on the energy and services scene in Northern Ireland.

Domestic Boiler Feature..... page 19
Our introductory article for this feature is Part 2 of an article carried last month on Ventilation and Flues for gas boilers by Chris Davies of the IIRS.

Corrosion in Fuel Lines..... page 32
This article looks at the recently discovered problem of rapid corrosion particularly in the east coast region of the country, in fuel lines which are fitted underground.

Microelectronics..... page 34
Microprocessors and microelectronics have had a very big impact on industry in general, this article looks at the particular impact they have had on the building services industry.

New Products..... page 40
A look at some of the latest products to be launched on the market.

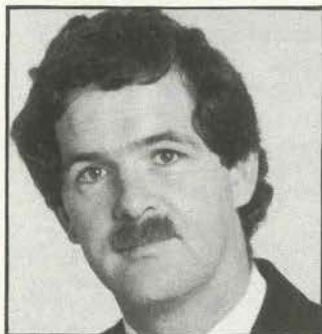
NEWS

Elga Water Treatment Formed

As part of its expansion programme, The Elga Group, specialists in the design and manufacture of water purification systems, announced today the opening of their wholly-owned subsidiary in Ireland, Elga Water Treatment Ltd.

In the water purification industry this move is significant. This is the first time that a manufacturer of high purity water treatment systems has invested and established its own local operation in Ireland.

After successfully trading in Ireland for more than a decade, and with intimate knowledge of the



● Paddy Archer

somewhat problematic water conditions, the decision to form an indigenous company has been taken in view of the increasing number of manufacturing facilities which are being established in the country. For many of these companies, a supply of purified water is essential.

Under the direction of the newly appointed General Manager, Mr. Paddy Archer, Elga Water Treatment Ltd. will offer a complete turnkey package incorporating design consultancy, supply, installation, commissioning and full after-sales service facilities.

The new company will be based at 11 James Terrace, Malahide, Co. Dublin.

Walker Appoints First Dealers

In accordance with their plans announced earlier this year, Walker Conditioning Limited, Dublin have now appointed their first dealers in Ireland.

The first agreement, effective 1st August, between Walker Air Conditioning and Shamrock Air Conditioning Limited cements a long standing association between Walker and Shamrock's Managing Director, Jack Duff, who was part of the Walker service team for almost 22 years, becoming Service Manager before leaving in 1975 to set up his own business. Jack's partner, Frank McManus, served his apprenticeship at Walker and was Senior Service Engineer before joining Jack Duff.

"We hope to provide an efficient service and back up facility in the design, installation and servicing of our Carlyle equipment" said Jack Duff. "There are many ties between our two



● Michael Buckley (left) Director, Walker Air Conditioning and Jack Duff of Shamrock Air Conditioning signing the dealer agreement.



● Above: Robin Edwards, Director, AMA (left) with Michael Buckley, Director, Walker Air Conditioning signing the dealer agreement.

IDHE PROGRAMME FOR 1982/83

The following is the advance schedule of events in the IDHE programme 1982/83:

Date	Subject & Venue	Speaker
Oct. '82	Heating Controls & Their Application	M. Melligan C. & F. Ltd.
Nov. '82	Natural Gas — Safety in Use	C. Davies I.I.R.S.
Jan. '83	Visit to Thermal Laboratory I.I.R.S.	H. Pattison I.I.R.S.
Feb. '83	Costing & Estimating for the Contractor	C. Parkes
Mar. '83	Standards as Applied to Cooker Installations	P. Naghten
April '83	Works Visit to Runtalrad	K. Kavanagh
May '83	Golf Outing	V. Madigan

companies and we are merely formalising a very longstanding and successful relationship. We both wish to fully exploit the mutual benefits available to us and I am personally delighted to be back within the Carlyle family once again" he concluded.

AMA Building Services Limited, Dun Laoghaire, Co. Dublin have also been awarded a coveted authorised Carlyle dealership by Walker Air Conditioning.

AMA, although a comparative newcomer to the Republic, is rapidly establishing a reputation as a successful design and build mechanical services contractor. The company has extensive knowledge of the application and servicing of Carlyle's air conditioning, refrigeration

● Continued on page 5

A Condensed Guide to MANOTHERM activities

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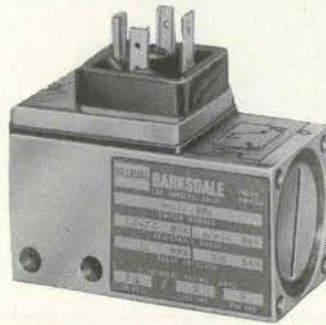


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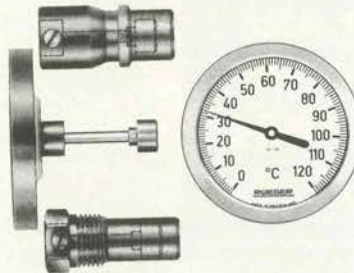
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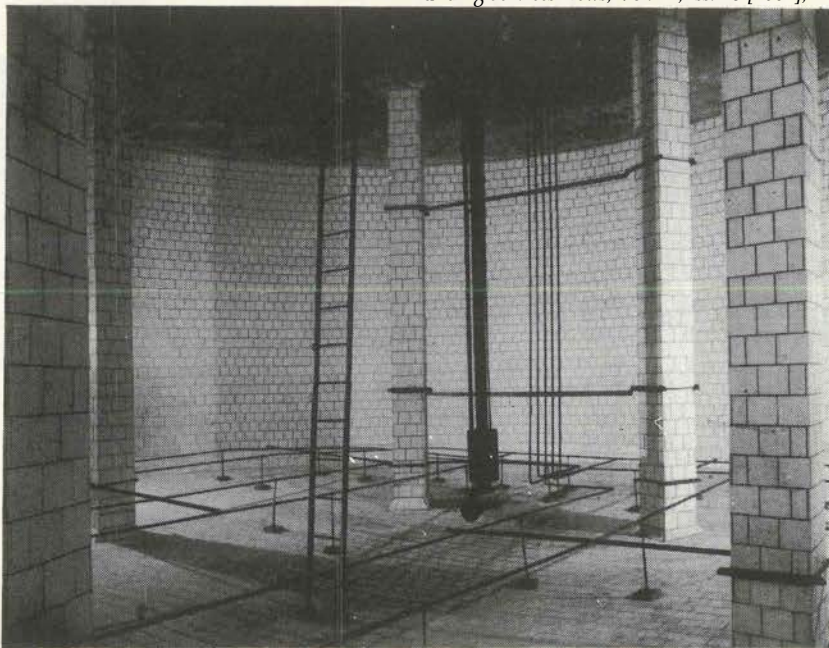
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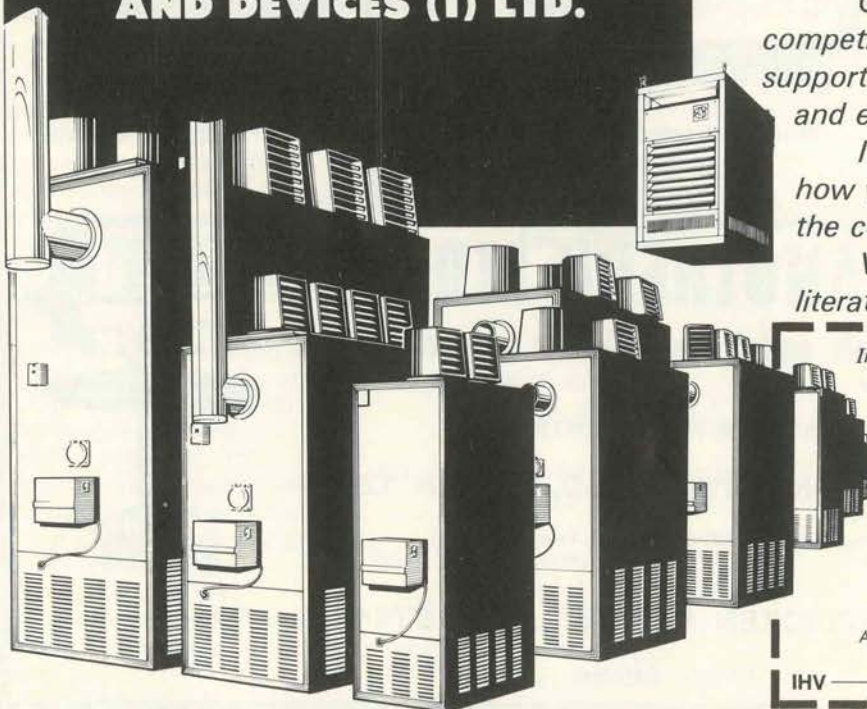
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NEWS

● Continued from page 2
and heating products through its association with AMA Air Conditioning Limited in London.

The company has several hundred thousand pounds worth of current contracts in Dublin, Cork and Shannon.

"We are delighted to get a Carlyle dealership" said Robin Edwards, AMA Director "because it will enable us to apply our considerable expertise in the field of heat pumps and heat reclaim to the extensive range of Carlyle equipment and to ensure that customers enquiring after systems utilising Carlyle equipment receive the best possible technical service at the most realistic prices."

SHK '82 Hamburg

Following the success of the two previous exhibitions of sanitation, heating and air conditioning equipment held in 1978 and 1980, the forthcoming SHK '82 promises to be even larger.

Hall 1 to 6 will be used for SHK '82 representing a total area of 35,000 sq. m. compared with 30,200 sq. m. in 1980 and 21,693 sq. m. in 1978. As with the two previous fairs, two days will be reserved for trade visitors only, the 17th and 18th November. The general public will be admitted on the 19th and 20th November so that new technologies and energy-saving systems can be brought to the attention of large sectors of the population.

The exhibition will cover all aspects of heating engineering, air conditioning, sanitation, plumbing, swimming pool construction, insulation and control techniques, presenting a wide range of materials, equipment and plant for these various sectors. The forthcoming SHK '82 should again confirm its position as leading fair of its kind in Northern Europe.

Ergas Golf Outing

The Ergas golf outing held in Blainroe Golf Club on September 10th proved an outstanding success with one hundred golfers teeing off for the very attractive Waterford crystal trophies in an open stableford competition. Pat Corcoran of Arklow Shipping emerged as the overall winner on 39 points while Jim Farrell of Citibank took a bow at par three 15th where he achieved a hole in one. A fine day, good golf, and an excellent dinner in the Clubhouse that evening ensured that a very enjoyable day was had by all.

Results:-

- 1st Pat Corcoran (Woodenbridge);
- 2nd Tony Gillen (Rush);
- 3rd Tim Donovan (Blainroe);

- 4th Frank McGettigan (Wicklow);
- 5th Tom Ryan (Royal Dublin);

- 1st Nine Dan Morrissey (Milltown);
- 2nd Nine Gerry O'Neill (Lurgan).
- Ergas Staff Prize:
Brendan McManus
- Hole in One: Jim Farrelly (Delgany).



● Pictured at the Ergas Golf Outing in Blainroe Golf Club were Ray White, Pat Codyre and Chris Byrne.



● Pictured at the recent Ergas annual sales conference were: John Flanagan, engineering inspector; Brendan McManus, technical development officer; Peter Murphy, technical administration officer; Owen O'Neill, engineering inspector and Don Tylands, industrial sales.

EC & DHAI CHAIRMAN'S REPORT

The recent agm of the EC & DHAI reviewed the progress of the association through the chairman's report. Peter Byrne has been chairman for the last six years, (the association has been in operation seven years), and by any standards the programme for last season was a credit to his dedication to the aims of the association. The report covered the technical meeting held throughout the season and

also looked at the closer link being forged between the association and the District Heating Association in the UK and Northern Ireland.

The report also pointed out there are at least four consulting engineers who are members of the association and have the ability and experience to advise industrialists on CHP/district heating installations.

On the subject of the

ESB and CHP the report pointed out that the unfavourable electricity buy-back price had in effect ignored the energy saving potential of CHPs.

A number of CHP projects in hand or under consideration were listed including a small CHP scheme at Killiney Castle Hotel and flats in Killiney Co. Dublin using Fiat Totem engines, design by J A Kenny & Partners.

NEWS

National Coal Starts Business

National Coal received their first shipment of 20,000 tonnes of Group 1 Coal at their terminal at East Wall in Dublin this week.

The coal is currently being unloaded and distributed nationwide and is selling at the same price as existing stocks of coal on the Irish market.

This first consignment initiates National Coal's assault on the Irish solid fuel market.

National Coal, situated at East Wall in Dublin is ideally located for the bulk importation and distribution of coal as their site has a deep water jetty and a rail spur onto the site.

The weight-in and hopper system for traders will be worked on a first come, first served basis. The coal to be distributed by rail will be loaded directly from the site to CIE containers and delivered to provincial centres throughout Ireland.

National Coal was formed in late 1981 by a group of Irish institutional and private investors including Development Capital Corporation, to import and distribute industrial and domestic coal on a nationwide basis.



● National Coal have appointed Mr. Leo Grogan as Operations Manager. Mr. Grogan was formerly North Eastern Area Contracts Manager with Roadstone and subsequently Manager of the Belgard Quarry, the largest stone quarry in Ireland.

CIS TRAINING COURSE



● (L-R) Jim Maher, MD, Coal Information Services; Gerry Olin; Mr. Dan Browne, Right Hon. Lord Mayor of Dublin and Pat Glynn. Gerry Olin and Pat Glynn were presented with Certificates of Proficiency at the recent CIS training course the 4th such course to be held. Not present on the night but also received a certificate was Des Healy.



● Some of the contractors and people involved with the CIS training course pictured outside the Engineers Club, Clyde Road, Dublin.

Solar Water Heating Information

The latest edition of the Solar Trade Association publication 'Solar Water Heating: What's in it for Me' examines the likely costs-benefits of systems in some detail and concludes that they will continue to be a good buy in the future, giving a better return than many alternative investments.

The Solar Trade Association is fussy about high standards and requires its members (who, between them, cover all aspects of solar energy utilisation and sell products and services in this country and overseas) to adhere to a written code of practice, a new edition of which has recently been issued. A package consisting of a copy of both the above publications plus a list of Association members can be purchased for St£2.50 (including P&P) from Solar Trade Association Limited, 26 Store Street, London, WC1E 7BT.

CIBS Programme for 1982/83

1982

- 4th November — The Low Energy ESB Wilton Project at I.E.I., 22 Clyde Road, Dublin 4.
- 6th November — Visit to Low Energy ESB Project and new Tungfram Factory at Cork.
- 18th November — The Architect's view of Building Services at An Foras Forbatha, St. Martin's House, Waterloo Road, Dublin 4.
- 2nd December — Computer 4 — The experience of the users' at Bolton Street College of Technology.

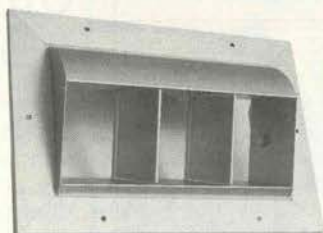
1983

- 20th January — The Practical Application of New Lighting Developments, Electricity Tariffs & Metering at An Foras Forbatha.
- 16th February — Annual Symposium — 'Feedback from Industry on Building Services' at IHVEX Exhibition.
- 25th February — Ladies Evening — Venue to be announced.
- 10th March — Process Engineering at IEI
- 14th April — Annual General Meeting and Students Awards at IEI.

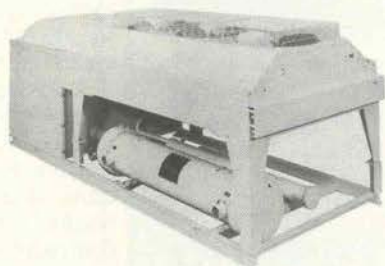


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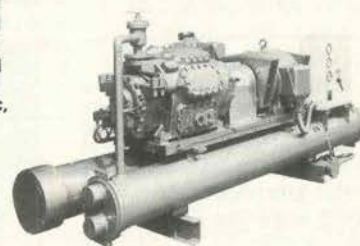
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NEWS

Salvarani Kitchen Centre Opened

A new Kitchen Centre showing the full range of 1982/83 Salvarani kitchens was opened on 6th September by the Italian Ambassador, Dr. Gugliemo Guerrini, for Executive Kitchens & Bathrooms, the company within the Loughrey Marketing Group which has acquired the sole distribution rights for Salvarani.

All the kitchens are equipped with gas and electric cookers, dishwashers, washing machines, fridges, fridge/freezers and waste compactors. Pottery, china pots and pans help complete a "live" kitchen atmosphere and all kitchens have been tiled by Rocca tiles.

Salvarani fitted bathroom furniture is also available at the showrooms at Executive House, Nephin Road, Dublin 7, which are open 9.00-5.00 Monday to Friday with Helen Sheehy and Sean Nolan providing advice and assistance.



● At the Salvarani Kitchen & Bathroom Centre launch at Executive House, Nephin Road, were Peter Fox, Managing Director, Executive Kitchens and Bathrooms, and the Italian Ambassador, His Excellency, Dr. Gugliemo Guerrini.

Performance Testing of Boilers

Comparability of type test results is the aim of Draft for Development DD 65, which gives methods of type testing heating boilers for thermal performance. Part 1, dealing with the direct method of test was published in 1979 and Part 2 giving the indirect method is now available. These standardised methods of test will ensure that measurements of the performance of heating boilers are carried out by

uniform procedures so that measurements conducted by different manufacturers or in different test laboratories, and subsequent statements of performance quoted in manufacturer's literature, will be on a properly comparable basis. The Draft will thus be of importance not only to boilermakers but to organisations responsible for boiler testing and to purchasers of heating boilers.

Part 2 describes the indirect method of performance testing for boilers having an output rating of 44kW and above for central heating and indirect hot water supply and fired with solid, liquid or gaseous fuels. It does not apply to category 2 boilers as defined in Part 1 nor to those with built-in hot water generators. It is intended that this Part will be harmonised with Part 1 and issued as a British Standard when sufficient experience in the use of DD 65 has been gained in industry.

Copies of DD 65 may be obtained from the Institute for Industrial Research and Standards, (Tel: 370101).

Thermo-Air Factory Officially Opened

The premises of Thermo-Air Ireland Ltd. were recently opened by Gerard Connolly, TD, Minister of State at the Department of the Environment. The company started manufacturing in the 6,500 sq. ft. factory formerly occupied by Transcriptors, in May last year. They plan to employ 26 people, manufacturing commercial heating and ventilation units. The IDA have worked closely with the company to find a suitable premises and to help things get off to a smooth successful start. And certainly, things have been going very well for Thermo-Air. Already, 10 people are employed in the company, and recruitment is continuing.

Thermo-Air is a subsidiary of a company which has been operating in the Netherlands since 1971, and which manufactures heating and ventilation units primarily for use in factories and offices. Since the beginning, the company has had a good track record, successfully increasing its share of the market and meeting with a continuing growth in demand for their products. It was this increase in demand which prompted the company to set up the new plant in Carlow to provide extra production capacity.

The success of the parent company seems to have been repeated in Carlow. Already, due to the continuing level of demand for their products, Thermo-Air decided to extend their factory premises to over double the original floor space. This extension is now complete.

We hope to examine the product range in greater detail in a future issue.



● Stephenson Engineering in conjunction with Stephenson Associates (Architects) is providing full engineering, design and project management services for the £¼ million extension to the new premises of Alfred Bird & Sons, Clondalkin — a subsidiary of General Foods.

This follows on from the relocation of Alfred Bird & Sons production lines from their previous premises in Ship Street.

Stephenson Engineering has, in conjunction with Stephenson Associates (Architects), been providing engineering and project management services to industry for more than seven years.

Seen at the signing of the contract for the new extension are: Seated: Tony Knott, Managing Director, Stephenson Engineering; Paddy Maguire, Managing Director, Alfred Bird and Sons; Jimmy Manning, J. Manning and Son, Builders.

Standing: Development Director and John Salmon, Project Director, Stephenson Engineering.

NEWS

SALES INCREASE

A startling 72% increase in sales is reported by HRP Walker, Dublin, the refrigeration components wholesaler subsidiary of Walker Air Conditioning. This is the increase in sales for the first half of their financial year over the corresponding half, February to July, last year.

The increase, in a largely stagnant market, has been brought about by two factors. One is the move to new 6,000 sq. ft., warehouse in Slaney Road on the Dublin Industrial Estate which, with its good location and excellent parking facilities, has proved very popular with the refrigeration trade.

The others is the increased product offering which has helped the Belfast branch of HRP Walker to record a 54% increase over the same period.

In Belfast, as in Dublin, the introduction of Searle has been enthusiastically received by the trade. Demand has been strong for the T range of compact coolers for cabinets and small cold rooms, the K range of standard unit coolers for medium or low temperature applications, the new low velocity coolers for food preparation areas, the heavy duty product coolers and the DD range of air cooled condensers.

The Comef condensing units, particularly the new CK range up to 7.5 hp, the Coplaweld hermetically

sealed compressors, and the new top quality offering Penn temperature and pressure controls have all been increasingly in demand. For cold store applications and for the marine trade, the ever reliable Carlyle 5 line open compressors continue to sell strongly.

The product offering also encompasses Isceon refrigerant; copper tubes; DMW Copeland, Danfoss and Lec compressors and condensing units; Teddington thermostats, pressure controls and expansion valves; KMP driers; Imperial Gould &

Robinair servicing tools; Watsco line valves; Ranco controls; Insultube insulation.

All these products are available from HRP Walker in Slaney Road, Dublin Industrial Estate, Dublin 11 and their Belfast premises, 9a Cherryhill Road, Dundonald, Belfast.

Michael Nolan, 26, has been promoted to internal sales coordinator HRP Walker. He joined the company in 1979 as stores controller. In his new appointment he reports to Tony Madden, field sales manager.

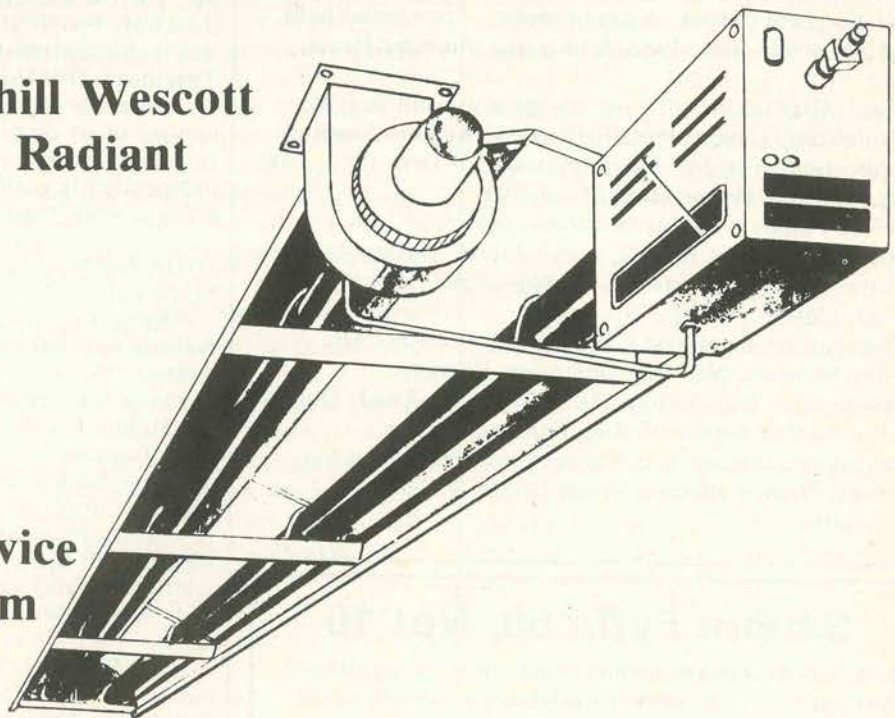


● Pictured at the Solar Heating Technology seminar jointly organised by the Institute for Industrial Research & Standards, and the Solar Energy Society of Ireland, were (L to R): Dr. Ian Cowan, Energy Services IIRS; Dr. Tom O'Flarthy, Chairman Solar Energy Society; Mr. Owen Lewis, UCD, and Dr. S. J. Wozniak, Building Research Establishment, UK. The seminar took place in Dublin at the Shelbourne Hotel.

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NEWS

Programme of Energy Management Association Meetings

Natural Gas — The Background, Safety in Use, Commercial Conversion. 19 Oct 1982, 2.15 p.m., Newpark Hotel, Kilkenny.

Compressed Air — The most efficient use of compressed air. Getting the best from your compressor plant. Energy conservation programme at Aer Lingus. 9 Nov. 1982, 2.15 p.m., Jury's Hotel, Dublin.

Fuel Alternatives — LPG, the alternative. Peat firing. The properties of industrial coal and coal firing.

Building Energy — Energy efficient space heating. Film: "This is an Emergency". This film illustrates services of the Canadian Energybus and highlights a typical industrial energy conservation situation. Energy use in commercial buildings.

Energy Management — Basic energy units and heat loss calculations. Energy auditing and surveying. Film: "This is an Emergency". This film illustrates services of the Canadian Energybus and highlights a typical industrial energy conservation situation. 21 Oct. 1982, 7.00 p.m., Mount Brandon Hotel, Tralee.

Incineration — Incineration viabilities. Industrial waste into energy. Incineration — a case history. 7 Dec. 1982, 2.15 p.m., Silver Springs Hotel, Cork.

Fuel Alternatives — Using LPG Efficiently. Radiant heating. Mini hydro schemes for industry. Waste — The alternative heat source. 11 Nov. 1982, 2.15 p.m., Ballyraine Hotel, Letterkenny.

Combined Heat and Power — Basic energy units and heat loss calculations. A coal based CHP system of 1 mW electrical output. A case history — combined heat and power. 25 Nov. 1982, 2.15 p.m., Innisfree Hotel, Sligo.

Fuel Alternatives — Basic energy units and heat loss calculations. Using LPTG Efficiently. Radiant heating. Application of hydro and wind power. 9 Dec. 1982, 7.00 p.m., Breaffy House Hotel, Castlebar.

Heat Pumps — industrial and commercial applications. 20 Oct. 1982, Jury's Hotel, Dublin 4.

Low energy cost catering. 24 Nov. 1982, Blarney Hotel, Cork.

For further details of EMA meetings contact Mr. Harry Pattison, National Organiser, Energy Management Association, IIRS, Ballymun Road, Dublin 9. For further details of IIRS Energy Seminar Programme contact Tom Doyle, Industrial Education Officer, IIRS, Ballymun Road, Dublin 9, Tel: 01-370101.

Sanbra Fyffe 50, Not 10

In our sanitaryware feature last month we mentioned that Sanbra Fyffe were manufacturing compression fittings for almost 10 years, that of course should have read almost 50 years. Most people do not like being reminded about their age but in this case it is complementary. See story on page 12.

I.D.H.E. ANNUAL GENERAL MEETING — VERY SUCCESSFUL

The recent agm of the Irish branch of the IDHE proved to be a milestone in the history of the institute. A topic which has been discussed but never acted upon for many years has been autonomy for the Irish Branch, so it was somewhat of a pleasant surprise to find a draft proposal for autonomy on the agenda.

The chairman, Victor Maddigan reported:

"During the past year, we have had discussions with Mr. Eric Farrow, Chairman of the IDHE (International) regarding autonomy for the Irish Branch. An agreement has now been reached with Mr. Farrow and copies of the Draft Proposals are now being distributed. This means that the Irish Branch will be in control of its own finances, and will deal independently with its own affairs, while maintaining our connections with the IDHE International" Mr. Maddigan continued.

"As you are aware, Natural Gas has come to Ireland. The Institute is working very closely with the Dublin Gas Company and others in this field. We have been asked by them to supply a recommended panel of members to act as contractors and we would welcome a discussion on same.

"In May 1982, a branch of the Institute was founded in Cork and an enthusiastic Committee was elected. The Irish Branch was represented by myself and the Hon. Sec. Mr. H. Pattison.

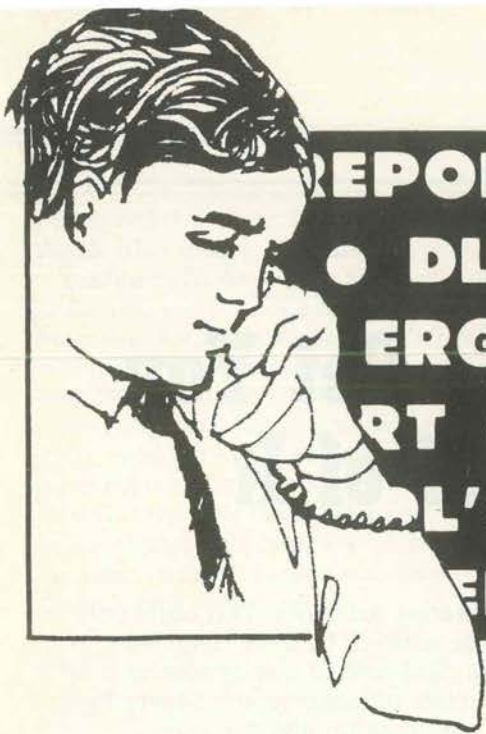
Subsequently, a press conference took place in the Imperial Hotel, Cork, attended by the Chairman, Secretary and Treasurer."

During the meeting the proposal on autonomy was accepted and we hope to give a full report on the new arrangement in the next issue.

It was also agreed to retain the existing committee for the next term as it may cause confusion to change at this particular time.

The committee is as follows: Chairman: Victor Maddigan; Secretary: Harry Pattison; Treasurer: Gerry Griffin. Committee: Colm O'Connor, Kevin Kavanagh, Christy Kane, Kevin Long, and a new member was elected, Frank Bodkin. Also elected but subject to ratification was Eamonn Kearns. In addition also subject to ratification Pascal Maguire was co-opted as PRO.

The other item of interest was the results of the recent examinations as a sizable percentage of students failed the examination for Associate Membership in one subject only. It was agreed that those who went down in one subject only would be given another chance to sit that particular paper and would be given what is termed a deferred pass. This means that they are given full credit for their marks in the other papers they have passed and if they pass the re-set paper they would pass the whole examination. Those involved will be notified of the time and place of the new examination.



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NOT A VERY ROSY PICTURE

Don't say you are not the most well informed as to the shenanigans on the energy scene in Ireland. H&V News, courtesy of myself, informed you a long time ago as to the possible monopoly of Coal Distributors. Not true, it was claimed, I got my facts wrong — we are not a monopoly — and besides, we are competitive; don't we get our price increases approved by the Prices Commission. Fair dues, I'd use the same argument myself. Somehow, however, it does seem a bit strange that for the first time in many years coal prices are dropping. Strange indeed. However, it's stranger still when for the first time in years CDL have a competitor. Could it be true that they are trying to force out the w boy with a price war? To the housewife in Kimmage it's good news, but well she may ask the question, why has she been paying over the odds in times gone by. However, don't say that D.L. did not warn you. What about me telling you months ago, ahead of the daily papers, the trouble brewing in Dublin Gas. It seems obvious now, doesn't it? Mind you, I don't blame Kinsella & Co. after all they can only win. With over 25% of the shares they can block any move by the existing board with regard to any refinancing package. Kinsella is dealing from a position of relative strength, the existing board from a position of relative weakness. So why do they fight? That's a good question. As for me, well I'll tell you, at the end of the day a deal will be done. Some of Kinsella's boys, a few of the existing board and a few Government nominees

will constitute a new board. You may well ask how do I arrive at that. Simple, gas comes to Dublin next year, who's paying for it — yes, the Government. So it will be the Government who will call in the warring factions, and then deal it's four aces. Stop fighting, do a deal or no gas! This is not according to the financial text books, not a la Wall St., or the Stock Exchange rules, but then this is Ireland and that's how things work.

When I'm blowing my trumpet I may as well tell you that yours truly was accurate as to the Whitegate hulla-baloo. I ask you 2½p a gallon! Didn't I tell you last month that the cost would be up to £40 million. In fact I said £25 million to £40 million. Now if you can get 2½p from my losses, well you really do deserve a Nobel Award or better still a lectureship in mathematics at one of the regional technical schools. So why the 2½p statement. Forget all that drivel as to the civil servants getting the figures muddled up. The truth is, you take a figure (not too high mind you) feed it to the punters on the assumption that it takes sometime for the increase to come through and that figures can be fudged by statements like "Exchange Rate Fluctuation" and "Shift in Spot Prices" etc., then you're away. This time the oil companies upset the apple cart, looked for immediate compensation, and they had the same figures as I have — so we got 6p. The scenario was all right, the execution poor.

Have you ever wondered as to the almighty mess we are in both in energy and industry. Yet they are

now in the one Department with the one Minister. Now don't get me wrong, contrary to most scribes and to general opinion I'm not anti Civil Service. I do think highly of the Kevin O'Learys in Energy and Joe Holloways in Trade & Tourism. However, it's the system that is wrong. Our civil servants are never exposed to cold commercialism. They can't sympathise with the small contractor trying to knock a few bob out of the system. So, the tax system is geared up (and costs a fortune) to catch a few nixer merchants. But, it's the bona fide operator who gets screwed. Likewise to pay for the civil service bill, pensions, etc., they have to get some money, so VAT on all imports. Who gets hurt? The punter who's in business. My theory is that the civil servants have to spend some time in private industry, it would be of benefit to everybody. And they in turn would be able to prevent, or at least advise a Minister who's going off on a tangent. The upshot of all this is that today we have in Ireland the highest cost of fuel oil, petrol, gas and electricity prices in the EEC. Who's to blame? Well, who makes the decisions? The Politicos! It is no wonder, when it's all boiled down, that Liam Connellan of the Confederation of Irish Industry is constantly moaning as to the cost of energy. Looking at it from a factory owners viewpoint, high interest rates, high inflation, high wage costs, high energy costs, together with poor demand is what they've got to cope with. It's not a rosy picture, is it?

COVER STORY

Sanbra Fyffe Today — Bet You Don't Know the Half of It

Sanbra Fyffe? Oh yes, I hear you say, that's the company up in Santry that makes compression fittings. Well you're right, but that's only half the story. Few people realise that Sanbra Fyffe have been contributing to Irish industry in one way or another for almost 50 years.

Employing over 250 people Sanbra Fyffe specialises in hot brass stamping and forging, gravity die and sand casting of non ferrous metals. They also have an automatic chromium plating plant and a recent addition is the bright finish machine which makes Sanbra Fyffe products stand out in the fittings market.

Also as part of their investment in plant over the last few years they have installed high output automatic screw cutting machines. All of these services are available to the home or export markets. Sub contract work is undertaken at an international level in the form of part, or fully

finished brass components and assemblies to customers specifications. While export work is very important to Sanbra Fyffe they see themselves as having a major commitment to the home market and in particular to supplying the largest range of pipe fittings for copper, stainless steel and polythene tube available in the country.

There are in fact over 300 different types of fittings made in a range from ½" to 2" sizes. No one else can offer this consistency of supply of the entire range of fittings including the less popular items which although slow to sell sometimes, are essential to certain types of plumbing and heating work.

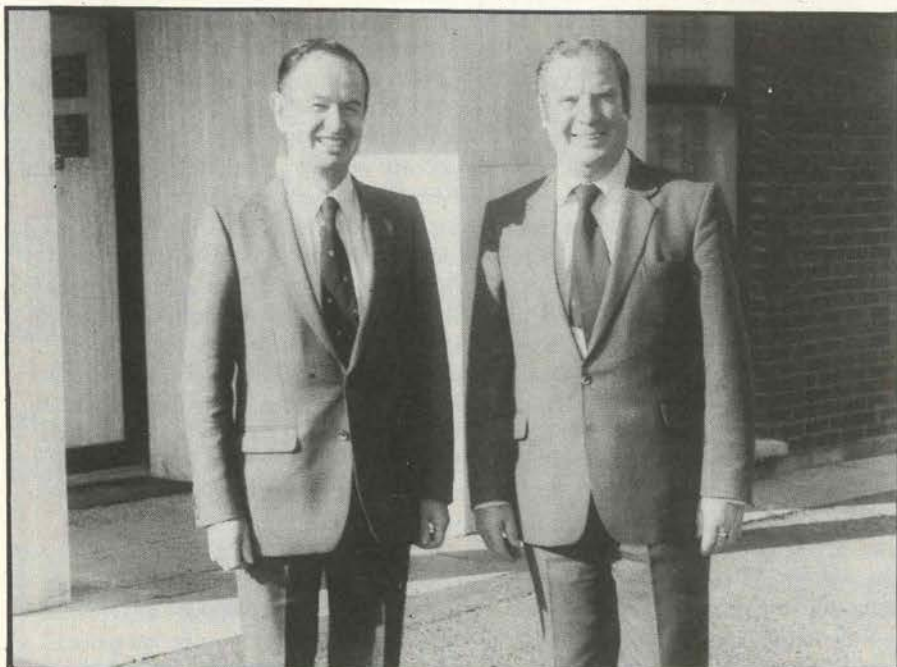
Irish Instantor Compression Couplings by Sanbra Fyffe were first introduced to Ireland nearly 50 years ago and down through the years they have fulfilled the exacting requirements of the plumbing and

heating industries. This could only be achieved by strict compliance to a rigid code of quality control at all stages of manufacture. Sanbra Fyffe have built up over the years a modern manufacturing unit consisting of hot stamping presses and chucking automatic machines designed specially for the manufacture of Compression Couplings and brassware and as a result the company is recognised and accepted as the market leader.

The Institute for Industrial Research & Standards established an Irish specification for Compression Couplings at ref. I.S. 239:1980 and Irish Instantor Compression Couplings are manufactured strictly in accordance with this specification. Under the Institutes scheme of inspection and control Sanbra Fyffe have been issued with a licence to use the standard mark on the fittings as well as literature and this will be a further guarantee that the Couplings are guaranteed and are the best available. The market has seen the appearance in recent times of imported fittings, some, says Sanbra Fyffe, purporting to comply with the Irish Standard but not rightly doing so.

Also comparing the ease of Irish Instantor joint making with solder joints, no special preparation of pipe work is necessary, they are simple to install, no blow lamps, solder, flux, etc. needed, only two spanners, and finally there is no risk of toxicity, a problem which has been well covered in the UK trade papers where solder joints are very common, as the Irish Instantor is a mechanical joint.

The easy availability from builders merchants of Instantor fittings throughout the country and the comprehensive range available will, according to Sanbra Fyffe, maintain Irish Instantor as the standard

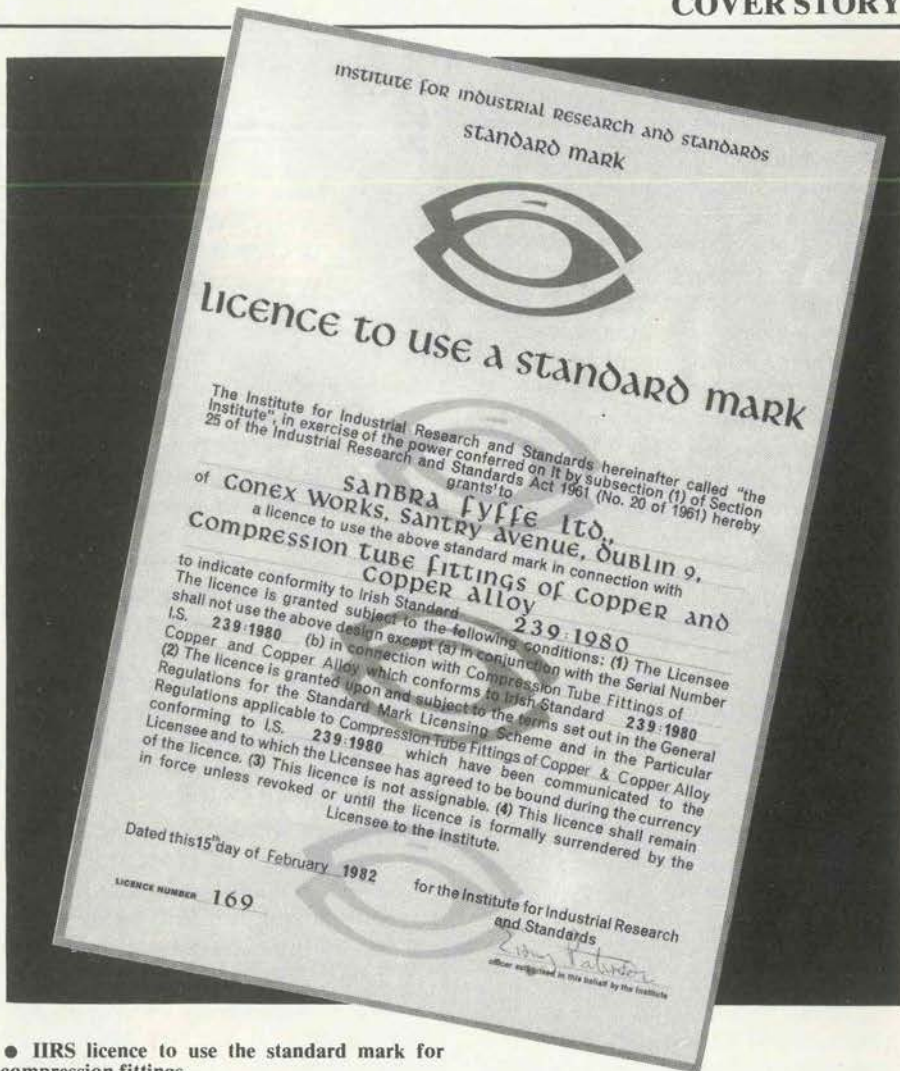


● Pictured outside the new office extension (L-R) J. F. Darcy, Managing Director, and Brendan C. Byrne, Sales Director of Sanbra Fyffe Ltd.

bearer and the market leader as the all Irish reliable couplings.

Sanbra Fyffe have been engaged in the manufacture of plumbers brassware for many years and examples of their products can be seen all over the country. Like many other indigenous industries, Sanbra Fyffe products have been affected by imports and in the last few months they have launched a new range of plumbers brassware under the trade name of Eirline and they are prepared to take on the competition. The range has been designed with flair and imagination and Sanbra Fyffe are convinced that the fittings will enhance the appearance of modern bathroom fixtures. Eirline is produced to B.S. 5412 and the high quality of the chromium plated finish is of particular merit.

Sanbra Fyffe are ever conscious of the need for change and have been adding plant and equipment over the years including increased use of automation. Where plant and machinery are involved there is also possible danger for the operators, but again Sanbra Fyffe have shown that they are more than willing to keep the highest standards when it comes to safety. They have in fact won a major safety award every year for the last 15 years.



● IIRS licence to use the standard mark for compression fittings.



● Part of the large range of compression fittings bearing the IIRS number.

In order to compliment and at the same time to give a broad coverage to the building industry, Sanbra Fyffe are in a position to supply many other products and the following are some of these:

Metiflash Roof Flashing — an alternative to lead at low cost and used on many large contracts in recent times.

Bolivar Clips and Brackets — for fastening pipe work.

Wade Couplings — for jointing small bore copper tubes.

Superspa Luxury Brassware — including gold plated items.

MNG Thermostatic Radiator Valves — sensibly priced with proven performance.

Whisperfire Heating Unit — which conserves fuel and increases heat output from open fires.

Eirline Prepacked Bathroom Accessories.

Wherever possible Sanbra Fyffe endeavours to obtain products into which added value and employment input can be included. So having proven their worth over the last 50 years heres to the next 50.



The Northern Ireland energy scene became front page news again with the announcement of the closure of the Provinces only refinery at Sydenham Belfast. The refinery owned by BP was built in the 60's and was one of the smallest in the UK. BP have made no secret of the fact that for some years now, the refinery was losing money.

In their announcement of the closure, BP have gone to great trouble to assure present and future customers that they are not pulling out of Northern Ireland and that they intend not only holding on to but increasing their share of the Ulster market.

One of the major customers was of course Belfast Gas who being sited next door to the refinery, drew their Naptha supply from their neighbour. There is however ample supplies of Naptha on the open market and Belfast Gas will not be affected, except maybe a slight increase in price.

Over the years the refinery and its staff have played a significant part in the life of the Province; particularly helping in school projects and the training of young engineers and scientists and for this reason alone its facilities and enthusiasm of its staff will be sadly missed.

McNaughton Blair, the Belfast heating and plumbing merchants have always had a reputation for encouraging their staff to partake of educational and training courses. This year George Robinson has topped the list in the Guild of Architectural Ironmongers Examination. In addition to Mr. Robinson there other members of McNaughton Blair — Mr. H. Coleman, Mr. A. Currie and Mr. S. Warnock also passed the exam as did Mr. R. J. McGaffin of James E. Ball Ltd.

Mr. Adam Butler, Dept. of Commerce Minister responsible for energy matters, appeared in a statement to cool the ardour for the Belfast CHP proposals. It seems that it can be taken as definite that Belfast has topped the selection list.

Mr. Butler has gone to great trouble to pronounce that this is a scheme — quote — for the 90's not the 80's and that it must not be considered together with or in conjunction with the CHP proposals.

He also pointed out that it would take many years to evaluate and implement the proposals and so it would appear at this stage that any talk of CHP is to say the least premature.

The last six months has seen Northern Ireland industry going through what can only be called a disastrous period. Closures and liquidations appear daily, small firms, large firms, international companies — it makes no difference.

It is not for us to analyse the reasons but the facts are frightening and with banks starting to limit credit the situation will not improve.

The closures have been in all sections of industry as is demonstrated by the closure of the BP refinery. It has now been announced that GEA Airexchangers is to close its Bangor factory. This German company produces heat exchangers for the chemical and process industry but has closed due to the general world recession in this field of industry.

Harvey Heating Ltd. held an open day to celebrate the opening of their new premises at Doagh, Co. Antrim.

The function, hosted by Mr. B. Harvey, was attended by customers and suppliers who got the opportunity to stage their own mini-exhibition.

Representatives of industry, consulting engineers and the coal industry were in attendance at a seminar with the title "The Coal Option" in the Europa Hotel, Belfast. The seminar organised by P.A. Management Consultants had as its object the detailing of the availability of all fuels, coal in particular, the speaker being Mr. Richard Pearce, principal consultant of P.A.'s Manchester office. He was supported by Mr. Doug Willis, Chief Industrial Technologist of the National Coal Board who spoke of the equipment available for coal burning and the costs of conversion.

Organisation of the seminar was undertaken by Mr. O'Callaghan, Energy Consultant for P.A. in Ireland.

An updated and enlarged edition of the Heating, Ventilation, Refrigeration and Air Conditioning Year Book has just been published and is available from H.V.C.A. Publications, Old Mansion House, Edmonton Bridge, Penrith, Cumbria at a cost of £17.00.



● Sponsors of the N.I. branch of the Institute of Domestic Heating Engineers golf outing at Malone Golf Club were the Northern Ireland Plumbing & Heating Merchants. Players and guests included (from left): J. McVicker; R. Jackson; V. Stephens, Chairman of the Merchants Assoc.; J. Morrison, Captain of I.D.H.E. Golf Society and W. Kelso.

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et al.: H & V News



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Because you need a smaller fixing hole size, the world's most popular heavy-duty bolts are now that important bit easier, quicker and cheaper to fix.

What's more, whilst you use less effort, you actually get more efficient expansion.

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ULSTER NEWS

Worcester Engineering's N.I. Representative Richard McDonald, 177 Moss Road, Lambeg, Lisburn, will be handling the new brick central unit "Centaer". The unit with an output of 30,000 Btu/h burns standard bituminous household coal and in addition to its warm air output it is also capable of supplying adequate hot water.

As part of a major insulation scheme being implemented in Northern Ireland, the Northern Health and Social Services Board of Ballymena are giving priority to the old and the sick by installing cavity wall insulation in their continuous care buildings, such as residential homes and hospitals.

This is the logical second stage of a conservation programme that started over five years ago with 'good housekeeping' measures such as improved heating systems and controls, roof insulation and draught elimination.

A typical example of this caring policy is Moylinney Old People's

Home, Monkstown, County Antrim, where the initial conservation procedures have now been followed by cavity wall insulation.

The system chosen was Shell bonded bead dry cavity wall insulation. In this relatively new system, introduced into the UK by Shell after four years' successful use in Holland, millions of tiny expanded polystyrene beads coated with adhesive are injected into the cavities.

Inside, the beads become point bonded, leaving countless air pockets in the mass which enable the cavity to 'breathe'. This circulating air dries any moisture and allows any water which has penetrated the outer leaf of brickwork to drain away to the footings of the building.

The original function of the cavity wall construction of preventing damp crossing to the inner leaf is therefore preserved and this unique breathing feature of the Shell infill was one reason why the Board specified the system for Moylinney.

Another reason was that

expanded polystyrene is completely inert and its use involves no chemical mixing on site and subsequent gas emission. The beads are factory produced and ready to be used straight from the delivery vehicle.

A third feature that appealed is that the beads form a cohesive mass which will not settle inside or run out should a cavity be opened up at a later date.

The Board monitors the effectiveness of energy conservation measures at all its establishments. At Moylinney, where the number of occupants and management practices are fairly constant, the Board expects to be able to calculate the benefits of installing cavity wall insulation with considerable accuracy.

Shell cavity wall insulation is marketed by Thermocomfort Ltd, a member of the Royal Dutch/Shell Group, and was installed at Moylinney by Springvale Polyproducts Ltd. of Doagh, Ballyclare.

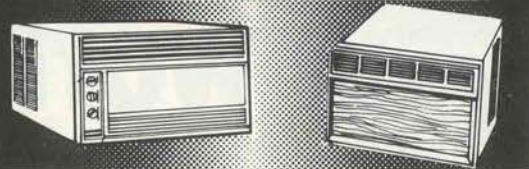


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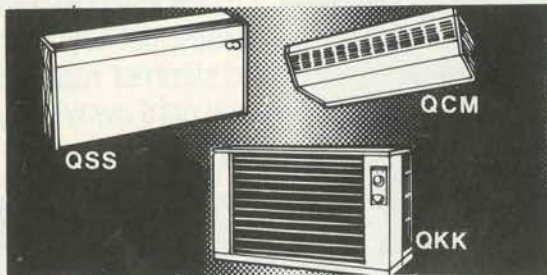
**Refrigeration and
Air Conditioning**



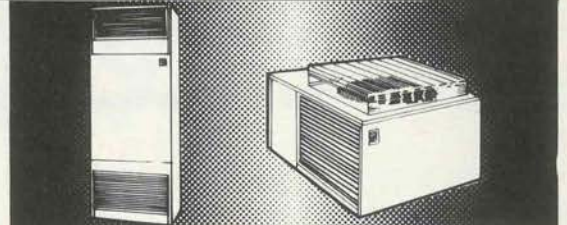
QUALITAIR AIR CONDITIONING EQUIPMENT



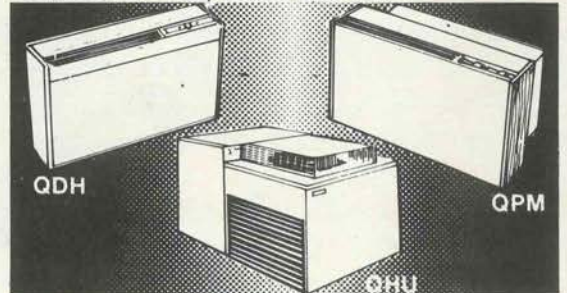
QRU/QWR window/wall mounting units. 6,000-23,000 Btu/h.



QSS split units. 9,000 - 24,000 Btu/h.
QCM ceiling mounted split units. 18,500 - 24,000 Btu/h.
QKK cool storage units. 7,500 - 14,000 Btu/h.



QBU/QCU - split system units. 50,000 and 168,000 Btu/h.



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QHU roof mounted units. 50,000-82,000 Btu/h.
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They're top quality performers — at very competitive prices!

Available with SDS plus shanks to fit direct into Hilti, Bosch, and Black &

Decker machines, and A & K tapers — in all popular sizes from 5mm to 38mm.

So switch to new Rawlbor Rotary Hammer Bits now. And be tough on the walls, not on your wallet!

For full details and the address of your nearest stockist, contact us today.

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Department of Industry & Energy

- Energy Management Association
- National Boiler Testing
- Energy Hotline
- Regional Energy Conservation Officers
- Energy Conservation Booklets
- Public Buildings Energy Management
- Publicity and Information

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- Industrial Energy Technical Consultancy
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- Gas Advisory Service
- Thermal Laboratory
- Applied Research, Development & Demonstration
- Education & Information
- Energy Economics
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For Further Information Contact:

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Telephone: (01) 370101. Telex 25449

Ventilation and Flues for Gas Appliances

by Chris Davies IIRS

PART 2

As an introduction to our domestic boiler feature we conclude this article which was read at the Gas Ireland Seminar recently held in the Burlington Hotel, Dublin.

Room-Sealed Flue Systems

All types of open-flued appliances take their combustion air from the room in which they are installed; This requires extra ventilation air to be supplied in addition to that required for the comfortable existence of the occupants of that room and this air must, of course, be heated to the desired room temperature. Furthermore, any flammable vapours which might enter the atmosphere (e.g. in a garage or factory) would run the risk of being ignited by the gas-burners. Appliances designed or otherwise installed so that their combustion circuit is sealed from the room, drawing fresh air from the outside atmosphere, would be rather more efficient in operation and much safer than their open-flued counterparts.

Balanced Flue Appliances, Natural & Forced Draught

The principle of the balanced-flue can be applied to most space and water-heating appliances. Fig. 12 shows the principle operating in a domestic natural-draught convector heater. Note that the combined combustion-chamber/heat-exchanger is sealed from the room and the air inlet and waste-gas outlet ducts are (typically) concentric. Because the inlet and outlet openings are at virtually the same point they will be equally affected by any wind-pressure, hence the term 'balanced-flue'. In order to prevent re-circulation of the combustion products, the ducts are fitted with a specially-designed terminal which together with the ducts themselves is an intrinsic part of the appliance. Such appliances must of course be fitted on an

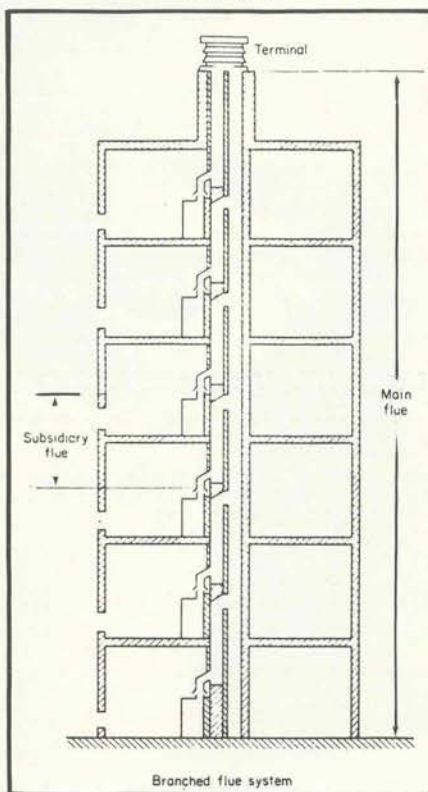


Fig 11. Branched-flue System

outside wall, with the flue-terminal in such a position that it is exposed to free air-movement and that the products of combustion cannot enter the building (e.g. not under an openable window). The terminal may become quite hot, and so a suitable openmesh guard may be fitted over it if it is within reach of children or animals.

As with open flues, the use of mechanical assisted draught may be applied to balanced flue appliances; many of the latest generation of domestic b.f. space-heaters incorporate either a fan in the fresh-air inlet or an extraction fan in the waste-gas outlet. Such fans are

an integral part of the design and cannot be optionally fitted to natural-draught b.f. equipment.

(b) Balanced-flue Compartments

The advantages of room-sealing may be conferred on conventional open-flued appliances by installing them in specially constructed fire-resistant enclosures, made

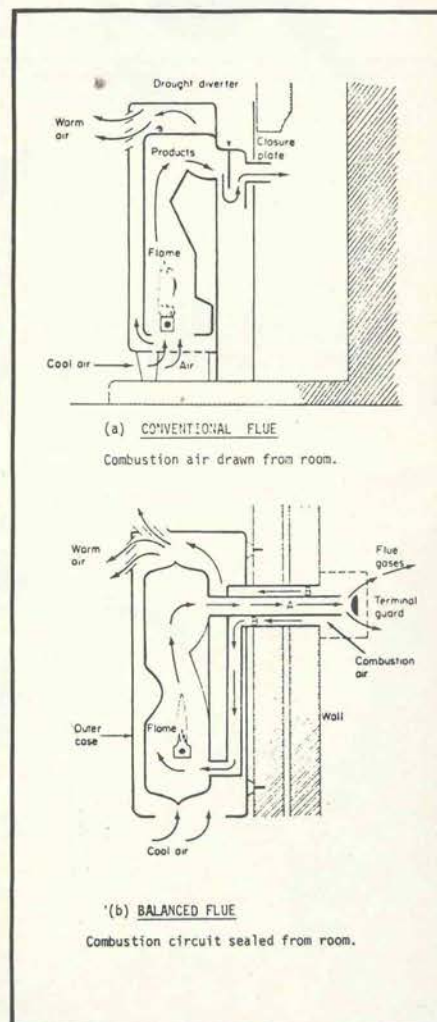
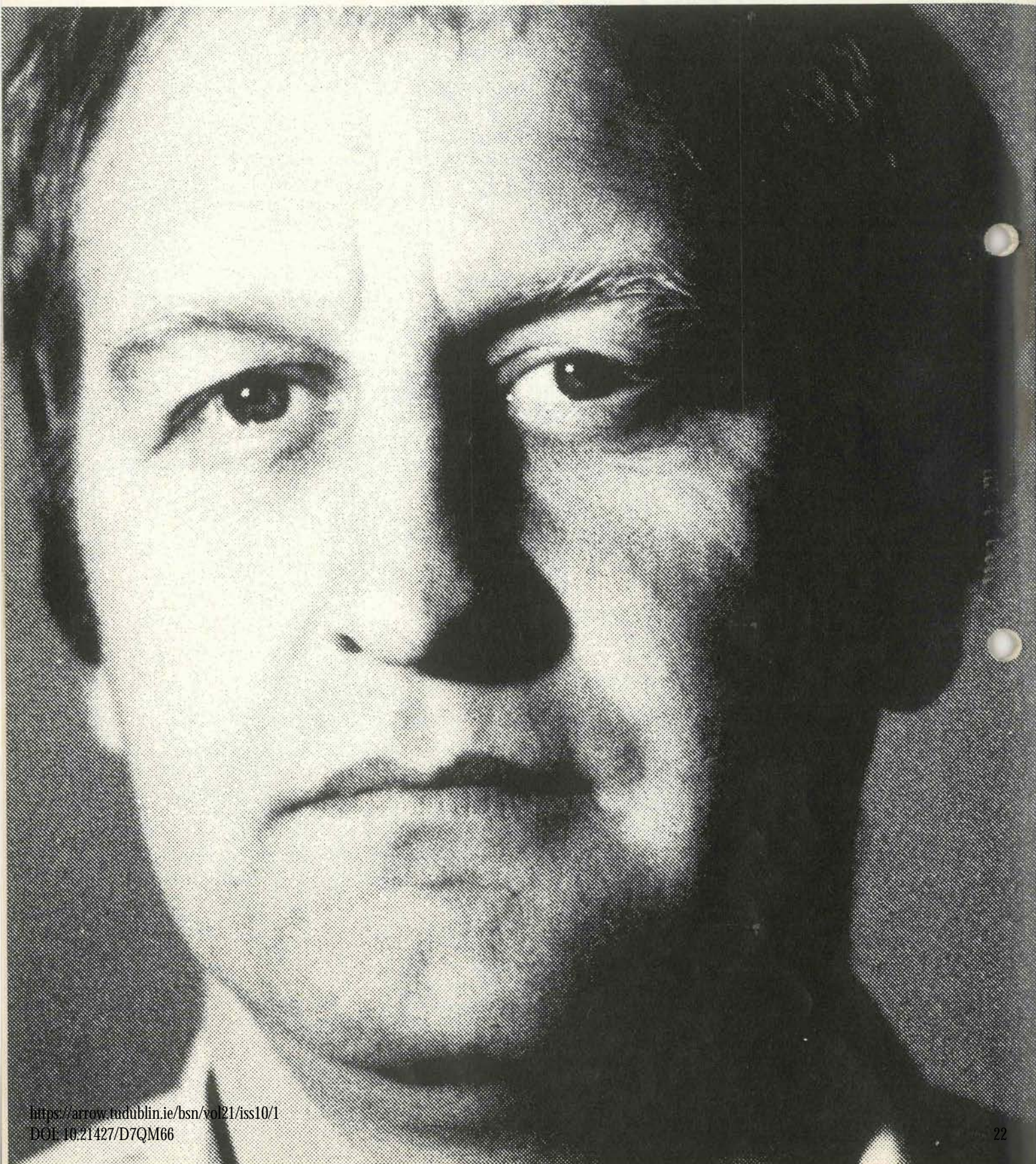


Fig 12. Domestic Convector Heaters

“How will your n help me clean u



ew Janitor boiler p on solid fuel?"

**If you can spare us a couple of minutes,
we'll tell you. Just read on.**



The Janitor gravity feed boiler has a combustion air controller that brings absolute control over forced draught combustion. It copes with flue draughts up to three times normal strength and does without a flue stabiliser.



The Janitor meets the most exact safety standards too. It has a factory tested sealed combustion system so that, if the flue becomes blocked, the fire will safely go out.

The market is ready for it-now!

Meeting strict BS requirements and DS FAAS Approved, the Janitor is available in two output sizes: either 45,000 or 65,000 Btu/h. There's a large capacity fuel hopper; convenient de-clinkering device; and ashcan that lifts out safely. And it's built for easiest possible maintenance.

Installation?

The Janitor fits together beautifully, with the boiler and white stove enamel casing coming in separate packs—keeping the case safe until it's ready to fit! Your customers will certainly go for its appearance. (White stove enamel with a black panel and neat aluminium trim).

Burning Anthracite or Sunbrite fuels, the THORN EMI Janitor offers central heating and hot water with total confidence and significant energy saving. It really has been designed to help you clean up on solid fuel. Send for the full facts now.



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Tough on the competition.

PRODUCT REVIEW: DOMESTIC BOILERS

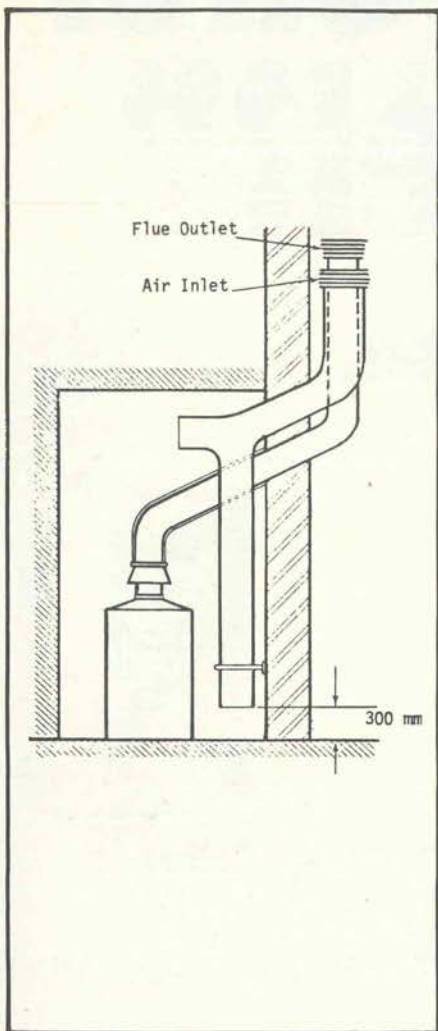


Fig 13. Conventionally-flued appliance in balanced flue compartment.

practically air-tight and with the combustion air and waste-gases being conveyed from and to the outside atmosphere via separate pipes, as shown in fig. 13. The top of the air-inlet pipe must be below the base of the flue terminal to prevent re-circulation of products. A major difficulty with such compartments lies in obtaining a sufficiently high degree of sealing. They are particularly suitable for basement installations where it is otherwise difficult to obtain an adequate supply of combustion air.

(c) Shared Flues for Room-Sealed Appliances

Two systems, popular in British practice, allow for the installation of specially-adapted versions of balanced-flue appliances (with separate air inlet and flue outlets respectively at top and bottom of the appliance) on inside walls of multi-storey buildings. Fig. 14 shows the 'Se-Duct' developed by the South-Eastern Gas Board in England, and Fig. 15 depicts the

'U-duct' system. Since the air available for combustion is progressively vitiated as it ascends the duct, sizing of such systems is critical and is normally a specialist design function.

Condensation in Flues

If the temperature of the waste gases in a flue drops below their dew-point then condensation of water vapour will occur. Excessive flue length, though increasing the chimney draught, will lead to cooling and so may cause condensation — obviously some compromise is necessary.

Insulation of a flue is effective in increasing the condense — free length proprietary insulated flues are available made from twin-walled metal sections with a layer of insulation between the walls. A similar effect can be achieved by wrapping a single-walled metal flue-pipe with a 25mm thickness of mineral wool. The graphs in fig. 16 can be used to ascertain whether condensation is likely to occur in a particular flue serving an appliance of known input rating (using natural gas). If it is inevitable that condensation will occur, despite the use of insulated flue-pipe, then special care must be taken with its construction — the pipes and jointing must be of non-permeable materials and a means allowed for the removal of condensate, by means of a 3/4" diameter non-corrodible pipe from the base of the flue to a nearby storm-drain.

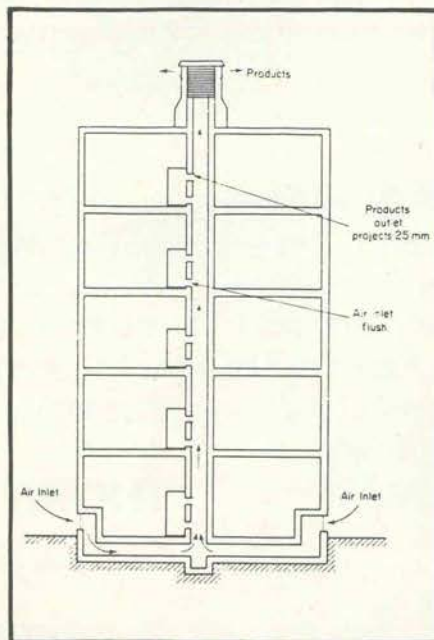


Fig 14. 'Se-Duct' System

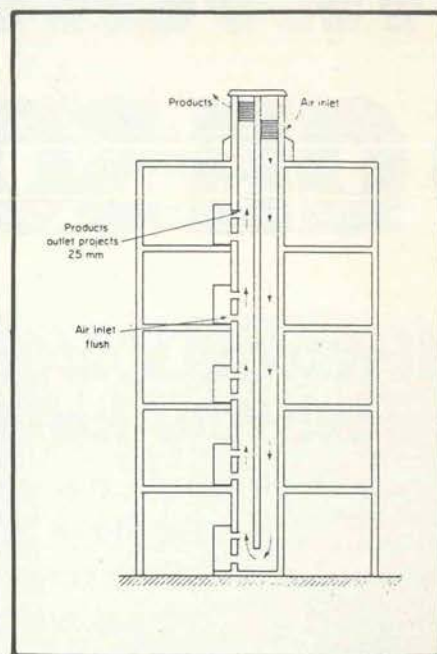


Fig 15. 'U-Duct' System

Particular care is necessary when using an old brick chimney as the brick-work will have absorbed the sooty deposits from the previous solid-fuel fires and any condensation which occurs will percolate through to the surface of the adjacent rooms, carrying with it the oils and salts from the soot. The resultant sticky black mess is guaranteed to upset the customer! The solution is to line such a chimney with a flexible metallic tube of the correct diameter unless the length of flues is less than the condense-free length given in fig. 16. Where an unlined

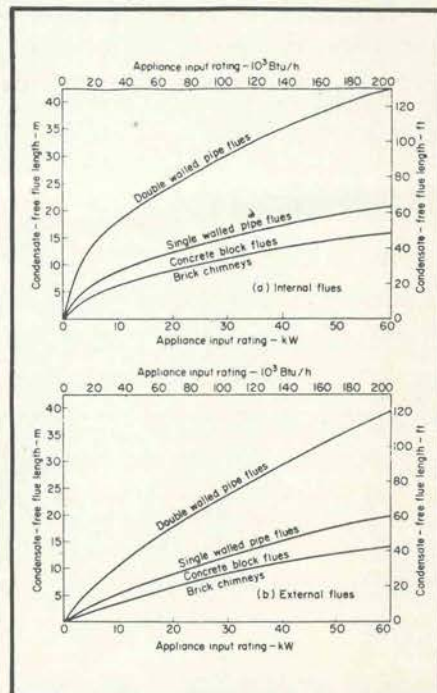
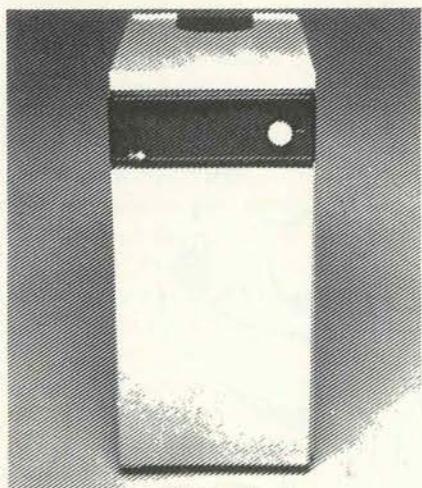


Fig 16. Condense-free lengths for various open flues.

deville

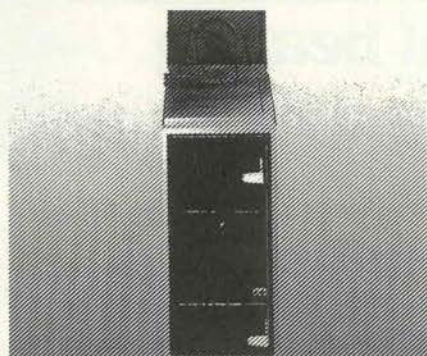
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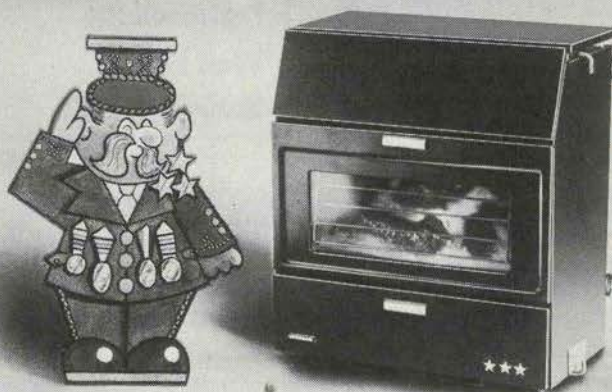
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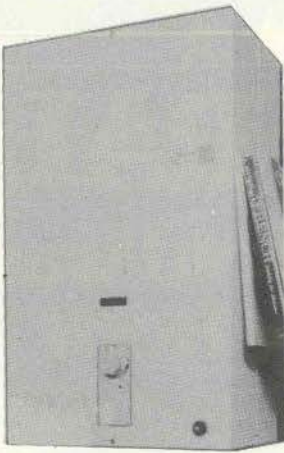
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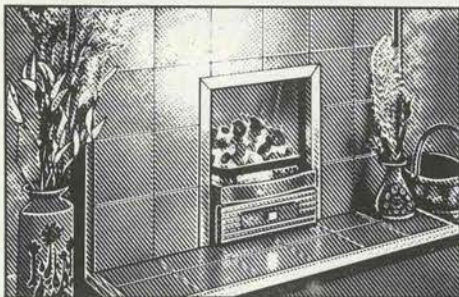
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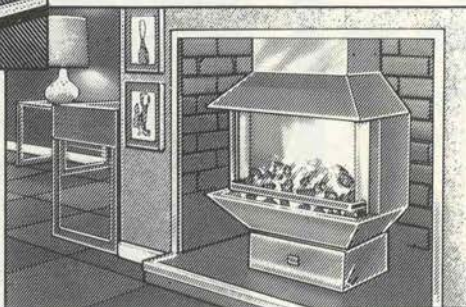
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Dunsley also manufacture several other types of fire and boiler units including a version for the Baxi underfloor fire. All Dunsley appliances are highly efficient with high-outputs for full central heating. 100% British manufacture and DSFAAS approved. 5 year guarantee.

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PRODUCT REVIEW: DOMESTIC BOILERS

brick chimney is used it will be necessary to see that a space is left below the level of the appliance flue spigot to collect any debris from the chimney, and to see that such debris cannot enter the flue-spigot.

Ventilation

We have already seen that a constant supply of fresh air is required by gas-burning appliances, and that except for the case of room-sealed systems this air is drawn from the space in which the appliance is fitted, so necessitating adequate ventilation of that space. Certain appliances are used without any flue to effect the removal of combustion products, such as cookers. Additional ventilation must obviously be provided to remove the products of combustion produced by such equipment; table 3 shows the ventilation requirements for various sizes of room containing such unflued appliances.

Open-flued appliances of more than 7 kW input rating require a special air-vent with an effective area of 4.5 cm² for every kW in excess of 7 kW; open-flued appliances with input ratings up to and including 7 kW do not generally require air-vents — unless the room is of a particularly air-tight construction (e.g., double-glazed windows, draught-stripped door) there will be sufficient adventitious ventilation to supply the necessary combustion air.

Fresh air is also required by people, as well as combustion equipment; at rest a normal adult inhales about ¼ litre of air per second, or nearly 1m³ per hour. In addition, to preserve comfortable conditions and prevent the build-up of body odours a further three to four litres of air per second (11 to 14.5 m³ per hour) will be necessary per person. Because of this, adequate ventilation should be ensured even in rooms containing room-sealed appliances.

In domestic premises the recommended air change is two per hour for habitable rooms. In older buildings there is usually no problem in providing this comfort ventilation — rather, the problem is to prevent unnecessary heat-loss due to excessive adventitious ventilation. Air changes of up to eight per hour are common if doors and windows

Type of Appliance	Maximum Input Rating (kW)	Room Volume (m ³)				
		6	9	11	21	30
		Minimum air vent effective area (cm ²)				
Cooker, oven, hotplate grill or any combination †	No limit	Installation permissible	65	35	Nil	
Instantaneous water heater	12		35	Nil		
Storage water heater	3		95	35	Nil	
Circulator	3		95	35	Nil	
Wash boiler/machine	6		95	35	Nil	
Drying cabinet	2	95				
Fixed space heater in a room ‡	50 W/m ³ of heated space	95				
Fixed space heater other than in a room ¶	100 W/m ³ of heated space	95				

* If another type of appliance is to be fitted where any of these appliances are already installed, a vent of 120 cm² area should be fitted.

† If a room containing these appliances has a door opening to outside, no vent is required for rooms of 6 to 11 m³ volume.

‡ If the input rating exceeds 3 kW, add an additional 35 cm² for each extra kW or part kW.

¶ If the input rating exceeds 6 kW, add an additional 35 cm² for each extra 2 kW or part 2 kW.

Table 3 — Ventilation Requirements, Unflued Appliances

are not effectively weather-stripped. Experimental work on the control of adventitious ventilation in new buildings by suitable designs is continuing in many laboratories — application of their results should produce considerable energy savings.

Installation of Air Vents

Air vents should be sited so that draughts do not cross areas of the room normally occupied by people. Vents should be sited as near to the appliances as possible — outside vents should not, of course, be situated near to a flue terminal because of the risk of drawing combustion products back into the building. Internal ventilators (between one room and another) should not be placed more than 0.5 m above floor level, to minimise the spread of smoke in the event of an outbreak of fire, and should not communicate with kitchens, toilets, bathrooms, garages or other odiferous locations.

Conclusion

Effective ventilation and flueing are essential for safe and energy-efficient operation of gas appliances and the flue and ventilators (where required) should be considered as part of the overall gas installation. At present the Gas Technical Standards Committee (a body on which the public gas utilities, Bord Gais Eireann, the L.P. Gas companies and the I.I.R.S. are represented) is at present drafting standards and codes of practice relevant to gas installation work, and of course the question of flues and ventilation will be covered. Until such time as these are published, all contractors carrying out such work would be advised to work to other acceptable standards such as UK Gas Safety Regulations, and B.S. Code of Practice 5440, and to refer to their local gas company, L.P. Gas Supplier or the I.I.R.S. Gas Advisory Service for advice on matters concerning flueing and ventilation of gas appliances.

PRODUCT REVIEW: DOMESTIC BOILERS

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

Waterford Ironfounders

Waterford Ironfounders has launched a new product which improves dramatically the heat efficiency of the open fire. Called the Stanley Fire-Front, it will increase open fire efficiency up to 65%. It can be used with or without a back boiler, and will improve boiler output by as much as 30%.

A huge proportion of the heat from an open fire goes up the chimney thus virtually eliminating draughts.

The Stanley Fire-Front provides both convected and radiant heat. Room air enters the cast iron convection chamber through two side vents. It is then heated and passed back into the room through an air grille at the top of the unit. The fire itself provides glowing radiant heat.

The unit utilises all types of solid fuel: house coal, anthracite, coke, phurnacite or similar manufactured fuels as well as turf and timber. The rate of burning is controlled by the setting of the air control, thereby allowing fuel to burn slowly all night if necessary, and heat output to be regulated to meet particular temperature requirements.

It is constructed in durable cast iron with a glass door through which the fire is visible, and it comes in a handsome design with either a pewter or a copper vitreous enamel finish. It is extremely safe in operation as there is no naked flame, but the door can be opened if required.

The Fire-Front is easily transportable and can be taken away from the store when purchased. Most



● The new Stanley Fire-Front from Waterford Ironfounders.

able to carry out their own installation. It is a simple and straightforward operation and the installation procedures are covered comprehensively in the booklet provided with the unit.

The unit is suitable for use with rectangular fire openings measuring 16 inches or 18 inches wide by 22 inches high with a flat facing surface around the fire opening of two inches minimum. The recommended retail price of the unit is £260 including VAT.

Megahey

Now the highly successful range of "Heatpak" twin flueway open fire boilers can be a realistic proposition. This boiler is designed to obtain the utmost from your fire. Note the "Heatpak" grate section design which consists of cross flow water ways to extract the maximum of heat from the fire. Under test the grate section proved capable of producing domestic hot water on its own accord. An obvious advantage of the "Heatpak" boiler is

that it fits any standard grate. No longer are you confined to one specific model or grate type, but can choose from a complete range of various styles and designs from any of the leading grate manufacturers. The twin flueways have also been modified for better efficiency resulting in the minimum of maintenance. No special cleaning tools are needed, all that is required is a brush down each morning. "Heatpak" boilers are installed in housing schemes

throughout the country heating efficiency 8-12 radiators and providing lashings of domestic hot water. They were tested by the Department of Commerce & Science Northern Ireland and are presently being tested by the National Coal Board Great Britain in conjunction with the Firemaster drop front grate.

The twin flue system and combustion area is protected by copyright and Patent No. 7210271 British, No. 2413/77



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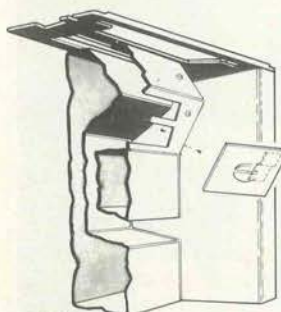
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This is the Boiler designed to obtain the utmost from your fire. Note how the cranked flueway retains the hot gasses as long as possible to extract maximum heat before passing up the chimney. The removable flue plate gives complete unrestricted access to the inner flueway for cleaning, enabling the boiler to maintain its efficiency and performance throughout the life of its installation. Now available in 16" & 18" with inset or underfloor fires.



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 Distributors for Eire. Paramount Distributors Ltd.,
 26 Montpelier Hill, Dublin 7. Tel: Dublin 777474.

PRODUCT REVIEW: DOMESTIC BOILERS

pending Ireland. The "Heatpak" standard range of boilers include 16", 18", 20", 24" models which are also available in a range of underfloor draught type. The full range of "Heatpak" is available from heating merchants throughout the country and will be on display at the London Building and Home Improvement Exhibition, Earls Court, 12th-27th October. A full range of 25 approved Firemaster styled grates are available with "Heatpak". These are on the official list of approved appliances issued by the Domestic Solid Fuel Appliances Approval Scheme for the National Coal Board. All these outstanding features allied to an extremely competitive price structure, make "Heatpak" boilers a must for discerning householders.

Firemaster

Firemaster introduced the new Coalburn 31, a combined 16" boiler and fire. This appliance is designed to burn bituminous coal with greater efficiency than a conventional open fire and high output back boiler.

This increase in efficiency is obtained in the damper open condition, by burning a proportion of the volatiles produced in the specially shaped boiler flueway. Smoke reduction is obtained in this way, but is not sufficient to allow the appliance to be used in smoke control areas, but will reduce by about 20% the smoke output when the boiler is burning down draught.

In the damper closed condition the combination is similar to a conventional open fire and high output boiler combination.

A fire brick is located at the back of the boiler which will increase the flue gas temperature entering the specially shaped boiler flueway and will help to reduce the smoke emission,

whilst also keeping the flueway clean when burning bituminous coal.

The total output of the Coalburn 31 is 31,000 Btu/hr (9.3 kw). Under test condition the Coalburn will give the following (Damper open): Water 25,500 Btu/hr (7.4kw), Direct Room Heating 5,500 Btu/hr (1.6kw).

The Coalburn is also approved to burn smokeless fuels and is available with a choice of six interchangeable fire fronts. The fire is fixed directly to the boiler so no fire fixing is needed.

The boiler and fire fits any standard 16" fire opening.

This appliance has taken over three years in design, development and testing to bring to the market, and is specially designed to burn coal with high efficiency.

The Regal 1550 Canopy Dog Fire — a strong newcomer from Firemaster and is an amazingly versatile appliance. Superbly attractive as a free-standing fire with interchangeable fire fronts giving a choice for every user — plus cast iron canopy, ashpan, removable firebricks and bottom grate.

The 1550 is available with a High Output Boiler for central heating and domestic hot water.

The 1550 is ideal for link up with oil or gas or central heating which enables you to use either your existing boiler or the 1550 Canopy Dog fire to heat the radiators and hot water. It may be necessary to turn off selected radiators when using the 1550 because open fires with high output boilers have lower heat outputs than many gas or oil boilers.

The non-boiler model and the boiler model are truly distinctive fires constructed of all cast iron.

The fire fronts that can be interchanged with the 1550 are the Regal Baron, the Regal 90 or the Regal 100 front.

Fuels: House coal or

PRODUCT REVIEW: DOMESTIC BOILERS

smokeless fuel.

The Chatsworth, Freestanding Stove — A most efficient and economical modern design stove from Firemaster — this is a new freestanding stove which offers an easily serviced and efficient internal arrangement, a special firebrick lining with riddling attachment and an ashpan.

There is a well designed primary air control at the base of the fire to control the burning rate. When this primary air control is closed the slow slumbering allows long burning periods without attention.

There is a small window of mica glass in the door to allow a view of the fire inside. The stove can be supplied with different side panels, ie screen printed or aluminium panels with designs on the panels.

The Chatsworth offers a blend of elegance with present day technology, designed to grace the centre piece in any room.

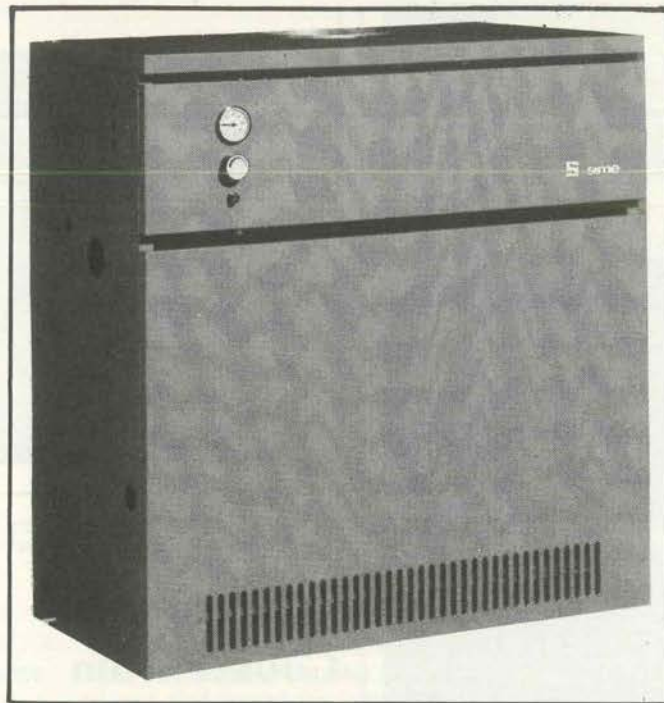
Fuels: Coal or smokeless fuels.

Hevac

Hevac Ltd. have recently announced the addition of the new RMG atmospheric gas boiler to compliment their existing range of RIO-Sime boilers. This RMG series will eventually replace the existing SGP range. This boiler is available in three models. The RMG 8 output 262,000 Btu/hr. The RMG 9 output 302,000 Btu/hr and the RMG 10 output 342,000 Btu/hr.

The Sime RMG is a range of three sectional boiler, each approved by DIN-DVGW for natural gas and LPG. The range of outputs is suitable for small and medium sized commercial premises.

The RMB boilers are suitable for central heating systems and indirect hot water supply at working heads up to 42 metres (4 bar gauge — 138 feet) and working temperatures up to 110°C (230°F) with standard equipment. The boilers must not be used



● The Sime RMG gas boiler.

for direct hot water supply and are only suitable for use with fully pumped systems.

Control is by a softlite-opening combination gas control incorporating a thermocouple type flame failure device and a mains voltage gas valve. The electrical box includes a terminal strip with connections for the mains inlet, circulating pump and a mains voltage room thermostat if required and also incorporates the mains voltage thermostat.

A boiler limit stat is operating in the thermocouple circuit. Electricity supply failure will shut down the main burner; it will automatically resume operation when the supply is restored.

The strong boiler body comprises cast iron sections assembled with push nipples and tie-rods.

It is equipped with atmospheric stainless steel burners. The burner bars are easily lifted out of the boiler for servicing. The combustion chamber, fully watercooled, avoids radiation losses, ensures a high efficiency and a reduction of the gas consumption, and obviates the need for a refractory foundation.

The external draught diverter is of sheet aluminium and the easily assembled casing is of steel stove enamelled and blue. A drain cock with the

necessary pipe fittings is fitted on a 3/4" tapped plug.

Safety of operation in all circumstances and the notably smooth and quiet ignition is ensured by the specially designed control system.

The boiler body, complete with burner, gas controls and casing is supplied assembled in a wood crate for transit. The draught-diverter is supplied in a separate carton.

Glow-Worm

With the increasing interest and awareness in the supply of Kinsale Gas for many purposes including heating, it is worth noting, particularly at this time of the year, that Glow-Worm Ltd., the largest manufacturer of Gas Boilers and Heaters in Europe, are advantageously placed, to supply boilers for use on LP Gas. The Glow-Worm boilers and gas fires are

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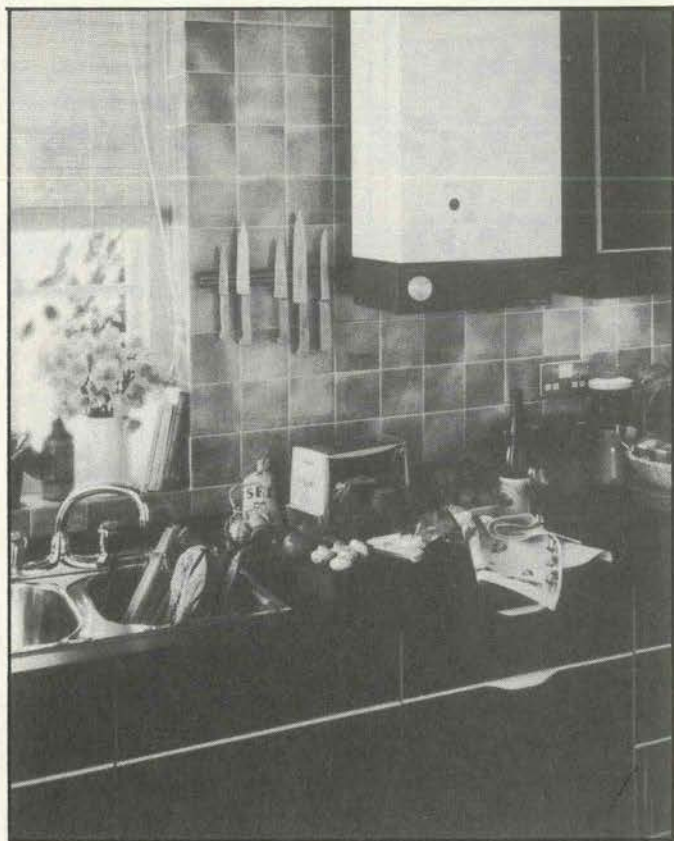
Our solar heating equipment has taken off in a big way in Co. Wexford. We are about to bring our own heat pumps into Ireland.

For further information contact:-

Tarm Central Heating Ltd.

Clonee, Co. Meath. Tel: 255443/251408

PRODUCT REVIEW: DOMESTIC BOILERS



● The Glow-Worm Space Saver.

available through their Irish distributors here, C&F Ltd., Glenside Industrial Estate, Palmerstown.

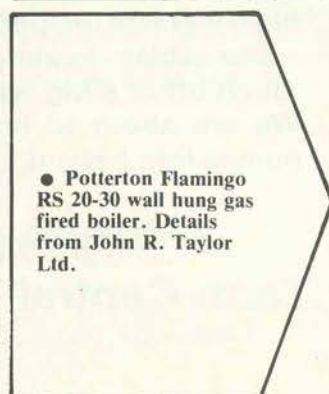
Glow-Worm Ltd., part of the giant T I Group, manufacture wall mounted, free-standing and back boilers in addition to their stylish range of six gas fires. C&F will be offering both wall hung and free standing boilers available on LPG, this range giving outputs from 38,000 Btu/hr to 100,000 Btu/hr.

Glow-Worm wall hung category comprises three versions: The Space Saver 38 Balanced Flue and Conventional Flue. Space Saver 50 Balanced Flue and Conventional Flue and the Space Saver 75 also designed in the Balanced Flue and Conventional Flue formats.

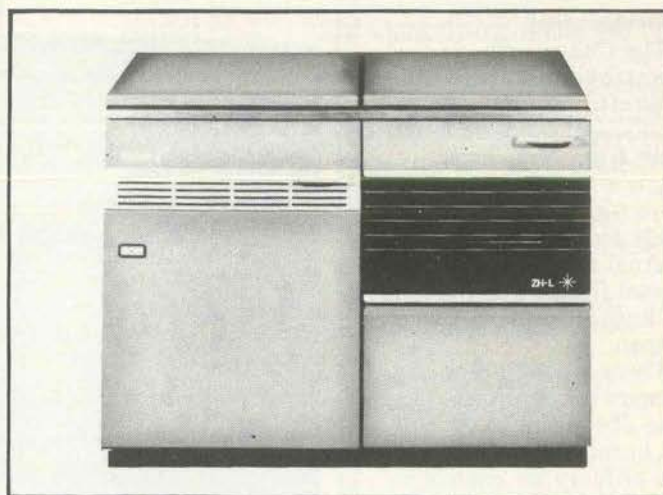
In the floor standing category, Glow-Worm are offering through C&F their 45/60 Balanced Flue and Conventional Flue; model 65/80 in Balanced Flue and Conventional Flue and their 85/100 also in the Balanced Flue and

Glow-Worm's wall hung space saver boilers are especially suited to apartment block heating, while their floor standing models are more applicable to the traditional home heating market.

Ask for Glow-Worm's new literature 'The Seal of Approval in Gas Central Heating' which can be obtained from C&F Ltd by phoning the local distributor at 265831 and C&F will be pleased to supply further information on the complete Glow-Worm collection of boilers and gas fires suitable to the domestic, home heating market in Ireland.



● Potterton Flamingo RS 20-30 wall hung gas fired boiler. Details from John R. Taylor Ltd.



● Windhanger ZH-L 25 multi-fuel cooker from Grantaid Limited.

Windhanger Cooker from Grantaid

The new Windhanger central-heating cooker, from Grantaid Limited, has been developed to meet the increasing demand for a wood/turf/solid-fuel cooker with a sensible central heating performance — 100,000 Btu max.

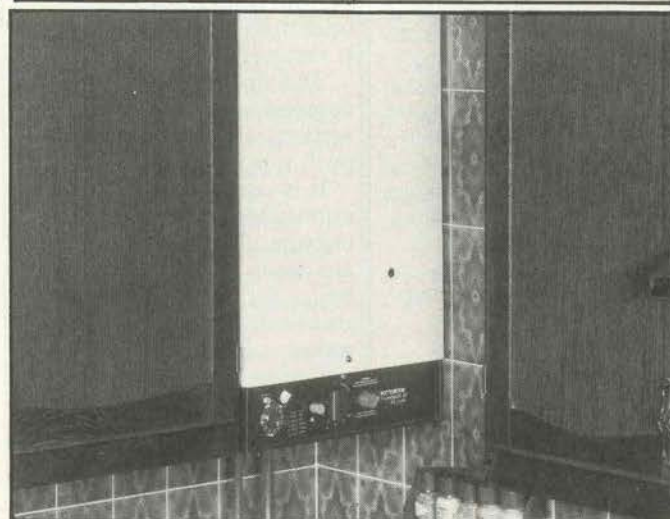
The unit is a multi-fuel boiler allowing the user to burn wood, turf, coal, anthracite, coke and manufactured fuels. The grate in the burning chamber is adjustable in height so that the size of the chamber is altered and the output of the stove can be varied to cope with different requirements throughout the year.

The unit is equipped

with a thermostatic control for automatic regulation of the rate of burning, two hob covers, a warming drawer and a double-glazed see-through over door with thermometer. There is also an oven by-pass and boiler temperature gauge.

The Windhanger has four possible flue outlet positions — so no more stocking left or right hand oven options — and all at a sensible height. The unit is designed for easy access for cleaning by the householder and for any servicing that may be necessary; for example the complete boiler can be removed and replaced without moving the cooker or disconnecting pipework.

The Windhanger is supplied in brown with white as an option and all units are supplied with a strap-on 'stat'.



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- * In Process of NCB Approval

Corrosion of Fuel Lines

The article was written and presented by Mr. A. Horan and Dr. J. S. Smith of the Metallurgy Department of the Institute for Industrial Research and Standards.

Over the last six months, seven cases involving the rapid perforation of steel fuel lines have been brought to the attention of the corrosion group at the IIRS. Whilst the actual value of the material affected is low, since the pipework is only small diameter mild steel, the ancillary costs of detrenching, removal, replacement and loss of fuel oil are considerable. Leakage is often not detected before a major loss of fuel oil has occurred, since the pipework is all underground and leakage often soaks away.

COMMON FACTORS

The significant common factors are that the pipework is always plain steel, wrapped with a petrolatum impregnated fabric material and buried in the heavy boulder clays which appear to be common in the Dublin area. The corrosion takes the form of isolated corrosion pits which are very broad, but clearly defined, the metal often appearing bright and clean on the sides of the pits. Perforation is rapid, typically less than two years, and the pits are usually numerous although random. In rare and severe cases of attack, a pronounced smell of rotten eggs may be associated with failure. Careful examination of pits (particularly where perforation is incomplete) may reveal a black material which is iron sulphide and will release a smell of rotten eggs if acidified. Caution, the gas which gives the smell is hydrogen sulphide which is extremely toxic, avoid inhaling more than a very small amount.

The pipework, as has been observed, is invariably wrapped in fabric tape with a petrolatum

impregnation, and in some instances the trench has been backfilled with sand in an attempt to promote drainage. However, the wrapping has frequently suffered some damage during installation or service, and the trenches have remained waterlogged in spite of the sand backfill. Even in cases where the wrapping has not been significantly damaged, there are examples of pits under apparently good wrapping.

In each of the cases examined, the reason for failure appears to have been the same. The cause of the damage being a class of bacteria, known as 'sulphate-reducing' bacteria. This is a class of bacteria which thrives under wet, oxygen-free conditions such as are found in a heavy clay several inches below the surface. As part of the life process of the bacteria, it effects a chemical change on sulphur compounds in the soil, reducing them to the sulphide ion. This sulphide ion will react with any dissolved or metallic iron in the soil to produce the very insoluble, but corrosive compounds known as iron (ferrous) sulphides. The iron sulphide tends to be produced very close to the surface of buried steel and sets up a local 'corrosion cell' where severe pitting of the steel takes place.

MIXED CULTURE

The petrolatum tape used for the wrapping is not entirely waterproof when used in waterlogged underground conditions and allows contaminated water from the soil to reach the metal surface. The water is quite likely to be infected with sulphate-reducing bacteria, which can produce a colony within the

wrapping adjacent to the metal surface and hence the pitting which they cause. It may be that the organic materials in the wrapping provide a source of nutrient for classes of bacteria which live on hydrocarbon materials. This may lead to the establishment of a mixed culture of bacteria with the sulphate-reducers living on the waste products and decaying matter from other bacterial types.

A sand filled trench without adequate drainage provision will become waterlogged if the heavy clay soil surrounding it prevents soakaway. In effect the soil environment of the pipe under these conditions differs very little from a simple clay trench.

CATHODIC PROTECTION

There is one technique which can prevent the corrosion of steel entirely under all soil conditions irrespective of the wrapping or coating used (or not used). This is the use of cathodic protection which produces an electrochemical change on the protected steel such that its tendency to go into solution (ie corrods) is entirely removed. The technique relies on the use of separate electrodes (anodes) in the soil which are electrically connected to the steel and produce the electrochemical change either by a specific property of the anode material (sacrificial protection) or due to the imposition of an electrical direct current (impressed current). No further details of the principals of cathodic protection will be given here save only to mention that it can be used to protect an existing line (without major excavation) and requires careful design and installation by specialists.

Other measures can be taken at the installation stage which given adequate care can prevent corrosion for many years.

ISOLATION

Basically these measures involve a physical isolation of the pipe from its environment by the use of a completely waterproof barrier.

(a) Waterproof pipe wraps can be obtained which are similar to the petrolatum impregnated fabric wrap in the method of application, but are made up of a heavy plastic tape with a bitumastic or rubbery adhesive/sealer.

(b) Pipe sleeves can be obtained in heavy duty plastic which is slid onto the pipe before assembly is complete, the joints in the sleeve being sealed by the use of welding or wrapping with waterproof tapes.

(c) The pipework can be protected with heavy duty coatings such as pitch epoxies or bitumastic materials. Considerable attention should be given to surface preparation and correct application of this method. Coatings of dense, good quality ordinary or

sulphate-resisting portland cement concrete will give good protection provided that the concrete itself is not susceptible to degradation in the conditions. The concrete should be free of chloride-containing additives and a minimum cover of 70mm is recommended for optimum performance. The concrete would be most readily applied by the use of reusable formers to fit around the pipe, providing an annular ring for casting the concrete.

(d) Running the pipework through dry ducting, either by building concrete ducts or by using a plastics pipe as a duct will give very good protection provided that the duct is not prone to flooding due to inadequate design or damage.

All the measures of protection are susceptible to inadequate installation or damage in service. Of these, cathodic protection by impressed current can most easily be monitored and adjusted to take account of damage during service.

The surest protection which can be given to underground steelwork is cathodic protection. The most economical use of cathodic protection is likely to lie in the use

of this technique together with a coating or wrapping.

Suitable waterproof barriers can give adequate protection providing that the barrier is not damaged either during installation or subsequent service.

Petrolatum impregnated fabric tapes do not give adequate protection to underground pipework unless combined with cathodic protection.

CONSIDERATION

All the technology required for the safe installation of underground pipework is available in Ireland, an assessment of the extra costs of installation with adequate protection against the possible costs of re-excavating an inadequately protected and subsequently affected pipe would merit very serious consideration.

There is every reason to believe that other areas of Ireland could be similarly at risk from this form of soil corrosion. The important factors are the soil type and the inadequate protection commonly used.

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Microelectronics in Building Services

The Building Research Establishment in the UK have recently published a paper by D. J. Fisk MA, PhD, on the potential impact of microelectronics in the building services industry. We publish an extract from the paper below and the complete paper is available from the Building Research Establishment.

The case of substitution of the existing logic circuits of microelectronics can be viewed as a case of product development, and will not be discussed in detail here. Instead the main purpose is to identify those developments which require properly organised research effort for their most efficient implementation. Any survey of this kind is faced with the difficulty arising from the great diversity of the building stock. Even the apparent uniformity of the domestic sector is illusory, because once in their own home occupants form anything but a homogeneous group. It is easy to confuse the function of controlling the supply of heat to a building with the control function used in process heating. The major difference is that in the first case there is not in general a well defined 'target' temperature. The temperature sensed by a given type of sensor will vary over the room space, and the nature of that variation will depend both on the heat emitter and the location of the major heat loss surfaces. For many conditions a sensor can be specified which will register the effective comfort temperature of the enclosed space². However competition for space within the room means that any sensor in practice has to be relegated to the room walls surface. In general a systematic difference will exist between sensor and the room's comfort temperature and the systematic difference will vary with the heat load on the room.

There are at the moment no consistent experimental results of the effect on the occupants of the temperature in the room fluctuating about its mean value. It can therefore be argued that except

control of temperature probably adds little benefit to the occupants. Indeed there is little evidence at the moment that the level of precision of control realised in good practice causes any systematic elevation of the desired average temperature. However, much of the existing work on thermal comfort does not relate directly to the problem of control design. A rethink of the objectives produced by that work may well be in order, and at least one tentative new approach has been made³.

A clearer case can be made based on time of day control. Most buildings are occupied intermittently, and outside the occupation period the only constraints on the internal temperature are physical ones concerned with condensation and frost protection. The 'optimum start controller' is intended to exploit energy savings in plant operation from this pattern of occupation. Although it represents a considerable improvement on the cruder controls which preceded it, many of the first generation of optimum start controllers, which were electromechanical in nature, offered little flexibility in commissioning. Nor are they in principle completely free of the need to define a user need. The true optimum start would require prediction of future weather, and therefore any practical realisation has implicit risk assumptions in-built in its design. Nor is it clear that an acceptable target temperature at the beginning of the working day need actually be the temperature normally required throughout that day. However the gains from closer attention to these subtleties are probably second order compared with the possible gains from improving the effectiveness of system commissioning. One control already based on a microelectronic device includes an element of self-adaptive tuning of its 'switch-on' criterion based on its previous success in meeting the target temperature at the right time.

It is not at all clear that optimum start control would offer anything

but convenience to much of the existing domestic stock, since the pattern of intermittent heating appears to be closely related to the realisation of a form of temperature depression. This arises from the manner in which occupants try to perform a comfort versus cost trade-off. In such cases true optimum start would actually increase fuel costs, if its target temperature was set as the equilibrium value. The rooms of the dwelling are usually found to be occupied in a rough sequence, but it is only in exceptional circumstances that these represent well defined thermal zones. There is no reason why some version of optimum start control of individual rooms should not develop and be marketed as an expensive novelty but it is difficult to rationalise great energy savings over current modes of behaviour in the majority of the housing stock. This market would also require the development of an appropriate actuator for wet system heat emitters. This is an interesting, if somewhat subsidiary issue, mainly whether existing actuators represent the right control principle for the type of signals that could be most easily extracted from a micro-electronic controller. As far as input is concerned, if PRESTEL is as successful as its advocates claim, then the television screen already exists as one useful candidate for the 'man/machine' interface.

One obvious application of rather less sophisticated microelectronics is for the automatic controls commonly used in central heating systems. Here, when independent control of both hot water and space heating by a divertor valve is employed a relay logic module has to be incorporated. This logic function could easily be absorbed into an electronic programmer's internal circuitry, offering savings in both cost and installation complexity. At least two microelectronic based heating programmers are available on the United Kingdom market, and both offer substantial improvements in the flexibility of use over preceding mechanical devices. A far more ambitious programmer which includes programs which run for a week has recently been made available in the USA by a major manufacturer. Whether in fact the great flexibility offered by these new

devices is actually exploited by the occupants regularly will be a matter of some interest. Regular use would probably be the major prerequisite for realising significant energy savings compared with conventional programmers.

Commissioning

Apart from the domestic temperature sensor, only in a minority of buildings is use made of internal temperature sensing in control systems. This implies that systems have to be commissioned to operate even approximately within their designer's intentions. However the act of commissioning very often is restricted to ensuring that the heat emitters operate at their design output, without careful reference to the internal temperatures that result. However when the plant engineer attempts to rectify discrepancies between realised and desired internal temperature that arise during the building's lifetime it is often true that the system departs from its commissioning specification. This is because, although the motive for this secondary commissioning is essentially only two valued, 'too hot' or 'too cold', the number of controls available to the plant operative often provide a much wider degree of freedom. Autocommissioning by a programmed controller offers a potentially useful alternative by using adaptive control. The missing link is a clear behavioral model of how the users of existing buildings relate their internal temperatures to the settings of an outside-weather sensor, which can be implemented as an algorithm.

Central plant

The automatic control of centralised heating plant is becoming increasingly common. Many existing systems which are electro-mechanical in nature, obviously present a potential market for direct microelectronic substitution. However, it is possible to extend the control principles beyond this level. This possibility has arisen for example when a multi-boiler installation is being employed in which the number of boilers operating at any given time can be controlled to optimise the running efficiency. Some form of automatic control has always been employed in central conditioning plant, simply to fulfil the needs of safety and plant protection. More

recently control applications have been employed which go beyond this stage to perform an optimal control of the system, ie to minimise energy consumption for a given load. For many types of plant this problem does not have a straightforward solution, and once again, as with intermittent heating, true optimality would imply an accurate knowledge of not only the present load, but the future load. Examples of such systems are to be found in multi-boiler installations where the control system decides on the number of boilers to be in operation to meet a given load. Where heat pumps are employed which may require a defrost cycle, control of logic may again be applied to improve the use of energy, and one such device is already available on the market. A second application already available is automatic monitoring of flue products of combustion and control of excess air in boilers.

Much of this area of application is straightforward in the sense that the control logic is more easily identified than in the thermal control of spaces. In existing practical realisations for controlling central plant electromagnetic or analogue electronics are commonly used, but the complexity of the control may well make it feasible for the economic use of microelectronics. These applications might however offer one new advantage. Fault finding in a complex interlocked system can be extremely difficult and require a high level of logical reasoning by the maintenance operative. It is quite feasible in microelectronic design to incorporate self checking facilities which would provide the operative with a detailed diagnosis of the likely error. This mode of operation is already available in many modern data logging systems. Such a design philosophy can go some way to suppress the natural tendency to blame any fault on the 'black box' rather than search more deeply into the system for faults.

One point is of special note. The plant and its control system in such instances will have been designed as a single product, so that it should follow that the control algorithm employed will actually be appropriate. This is in distinction to say an intermittent heating controller where the thermal behaviour of the buildings to which

it could be applied may vary considerably and where competent installation and commissioning become vital.

The existence of distributed plant, as occurs in air conditioning systems or at a widely spread site, has naturally led to the use of centralised monitoring systems which enable one plant engineer to know the simultaneous state of all the plant in the building complex and possibly to provide him with control of positions of valves, dampers, and set points from the single control. Once the number of data points is established the marginal cost of improving the efficiency of the control function becomes quite small and systems as small as a few hundred data points can be made to include more than the simple control functions that go together with energy management, such as maintenance schedules, security and elements of fire detection.

The microprocessor offers two changes in this area of application. One is concerned with computer technology itself in the exploitation of the advantages of distributive processing. The second advantage is simply that of a more cost effective match of computing power to the fairly simple problems that occur in buildings. Some particular type of computation can be mentioned which refer to building energy use. The first and often the most important is concerned with the nature of the electricity tariff structure applied to large buildings. Exceeding the preset peak electrical demand can be very costly and 'non-essential loads' can be profitably shed as the building's load build up towards peak. This can be performed by a simple algorithm which sheds load in a prescribed order, using a simple forecasting procedure for load growth, to avoid 'panic' shedding. This application is ideally suited to a 'low powered' computing facility.

In fact several building management systems are available which only perform this load control function. The central control can also perform optimum stop or start controls using the same algorithms that an intermittent heating controller would employ. There have also been air conditioning systems on which so called enthalpy economisation routines have been employed. These are used where the humidity of the

Microelectronics in Building Services

internal air is to be conditioned, and they enable the maximum use of outdoor air for the cooling load. Finally some systems provide the facility that is sometimes known as load cycling. A heating or cooling function is periodically turned off say for 10 minutes in every hour. This approach provides some energy savings where the pumping or fan costs are considerable and are not variable with building load. In other cases closer examination of the physics of the problem reveals that load cycling is essentially one particular way of lowering the average level of conditions in the building. Once again there is no established basis of user studies to indicate whether load cycling as opposed to permanent depression of a set point represents a preferable environment to the occupants. The other potential areas of application of central monitoring systems will be dealt with later in this paper.

Attention must be drawn to the fact that the advent of the microprocessor and in its wake distributed processing has enabled the substantial change in the way in which such systems can be constructed. Each 'ou station' can be microprocessor controlled to perform a great deal of its control function locally thus leaving the central processor to get on with the essential analysis. It also enables the system to be built up in a modular fashion. The significance of this advantage will depend on manufacturers maintaining their present integrity in ensuring product continuity. Distributed processing enables easier fault finding in the complexity of the system, and provides a system more robust to component failure. Building services can be classed as an area in which it is more essential to identify a fault quickly than it is to be able, at a considerable cost, to guarantee total reliability.

Conclusion

The thermal control of buildings represents a rich area for microelectronic and microprocessor applications. Many of these are direct logic replacements for existing control algorithms. Their potential computational power probably exceeds the present understanding of the underlying control objective that would reasonably satisfy the building occupants' and owners'

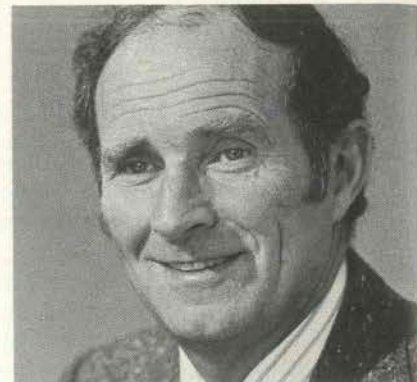
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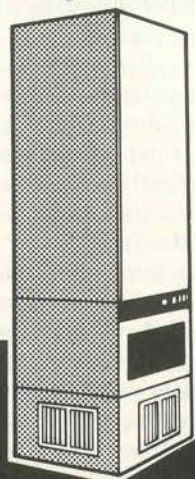
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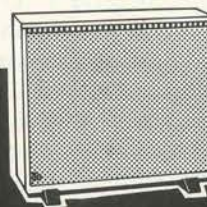
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Businesses pay the same price per unit for night rate electricity as domestic customers. It's actually **cheaper** than last year—and under 40% of the ordinary day rate for electricity in commercial premises. It's very competitive with other fuels, and remember that because electricity is generated from many sources, supply is secure. For businesses, night storage heating and water heating makes especially good sense.

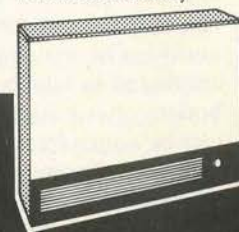
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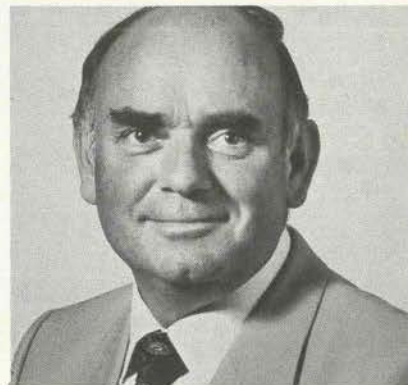
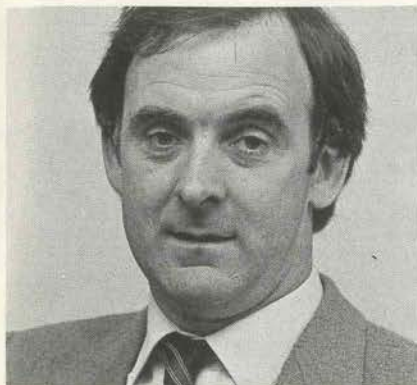
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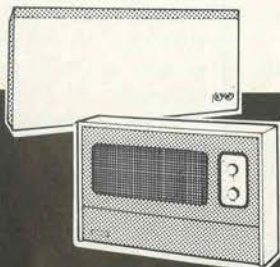
The ESB’s qualified staff are ready with advice and information on all commercial uses of electricity and will provide designs, free and without obligation. There are detailed information leaflets available on all types of space and water heating. Contact your ESB District Office or the Commercial Advisory Unit, Commercial Department, ESB, Lower Fitzwilliam Street, Dublin 2.



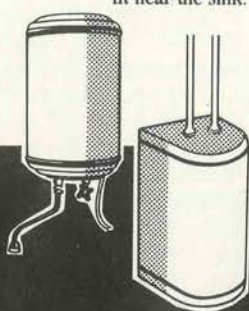
Bord Soláthair an Leictreachais

Remember, electric heating and waterheating systems are easier and cheaper to retrofit than other systems.

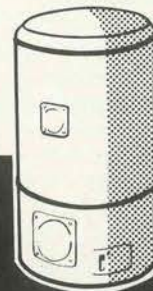
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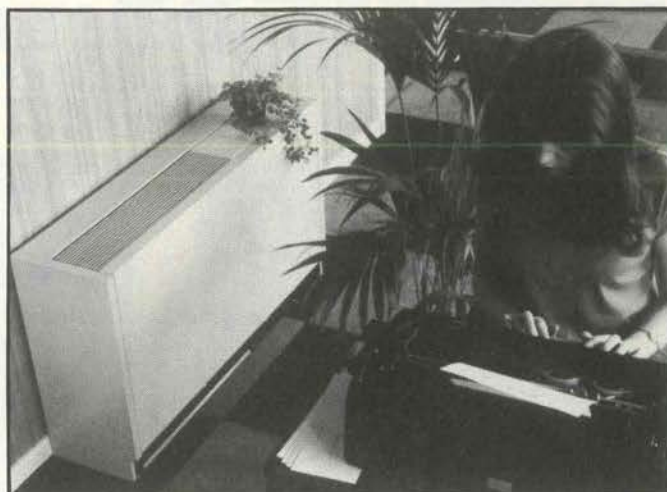


NEW PRODUCTS

AAF Enercon Console Heat Pump

In an age of diminishing resources and rising energy costs the AAF EnerCon console heat pump system is the most cost effective up-to-date approach to air conditioning in multi-room buildings. It can give all-season comfort in both new and refurbished accommodation, being particularly suitable for hotels and large office blocks where individual comfort levels are wide and varied.

The system is essentially a reverse cycle water to air heat pump arrangement made up of individually controlled units. These are linked by a simple water loop that picks up, stores and redistributes the heat that a lot of other systems waste. It is so efficient that energy savings of 25 per cent can be easily achieved by, for example, taking heat from the sun-warmed side of a building and 'giving' it to the shaded areas. It can also fully utilise the heat produced in such areas as computer



● An AAF EnerCon console heat pump in a typical office setting.

rooms and catering facilities.

Its flexible design allows units to be mounted anywhere, including ceilings, cupboards or as attractive unobtrusive consoles in the air conditioning space itself. As large central plant rooms and air ducts are now required, the system is ideal for an add-on arrangement where machines can be installed unit by unit, floor by floor thus spreading capital costs over a number of years.

Since its introduction into in 1974 over 2,500 units have been installed in a variety of commercial properties.

New Tools from Ridge

The Ridge hinged pipe cutter is a very useful tool especially designed for use in awkward areas to give rapid cutting through cast iron and steel. There are six models to cut from 4"-12" pipe.

Each model is made of a cast iron frame, long feed handle for better leverage, pipe guides, four cutter wheels and a pipe handle for extra leverage if necessary.

Additional cutter wheels for cutting cast iron, standard steel pipe and heavy-wall steel pipe are available separately.

What tradesman could not find a use for Ridgid metal cutting snips? Excellent for cutting a wide range of materials from sheet metal and screening to leather, cloth, gasket material, rubber and linoleum to roofing materials and plastics etc. Handles designed for left or right hand use.

Straight snip — three models — 780, 781 and 782. To cut 1 3/4", 2 1/2" and 3" respectively.

Duckbill Snip (Circular) — also three models — 783, 784 and 785. To cut 1 3/4", 2 1/2" and 3" respectively.

Light metal cutting shears — perfect for cutting wire, sheet metal, rope, yarn etc. No. 789 to cut 1 1/4".

Ridgid hexagon wrenches are specially designed for a non-slip grip on all hexagon and square nuts, unions, valves packing nuts, flange bolts etc. Thin smooth jaws will not mark plated finish also makes for easy working in tight places. The No. 35 hex wrench illustrated has a capacity opening of 4 7/8" across the flats with a nut capacity of 1 1/4"-3". The smallest wrench (No. 9) in this style has a nut capacity of 3/16" to 5/8". Wrench housing carries same guarantee as Ridgid pipe wrenches.

Also new are three very practical hand saws from the Ridgid range. The hack saw is extremely versatile made from rugged steel and aluminium, the frame is only 16" long yet holds a 12" blade. The special lever action gives greater blade tension for straighter cuts.

The job saw is especially handy for the hard-to-get-at sawing jobs. The handle is made of tough aluminium and the back bone and clamping insert are tempered steel. The saw comes equipped with a Ridgid hack saw blade but any make or size

Toshiba's Multisystem Heatpump

With the further recent increases in fuel prices and uncertainty in the cost of general energy price increases in the future there is more reason to consider using a heat pump running on electricity for domestic heating than ever before.

The new Toshiba RASM40 Multisystem, first four to one split system now available in Ireland can provide up to 44,000 Btus of heating or 32,000 Btus of cooling, effectively a complete heating and airconditioning system for the modern dwelling.

The system consists of a twin condenser circuit outdoor compressor unit which can drive up to four floor standing or wall-mounted indoor heating and cooling units.

The unique feature of the Toshiba Multisystem is the RBZ23HE mixing unit, which allows two indoor units to run off each condenser circuit in what Toshiba describe as the "lead lag arrangement".

Whichever one of the pair of units is switched on first becomes the lead machine and while it is providing heating and cooling, the other runs on

fan only. Once the lead machine has achieved the desired temperature the mixing unit automatically switches in the lag machine until it also achieves the desired temperature. The system then becomes self-balancing as required.

Designed to operate at temperatures well below freezing, at -5°C the system operates with an efficiency of 182%.

Several Multisystems are being installed in homes and commercial premises throughout the United Kingdom and Europe. Details from Saireco Ltd, (Tel: 521355) Telex: 30820.

The Z-lock of Crown Pipe Insulation proves yet again that the best always has a distinction that sets it apart from the ordinary – because this unique heat-saving joint gives the Fibreglass product a better performance than any comparable pipe insulation.

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NEW PRODUCTS

of blade will fit, even broken blades can be re-used.

The Compass saw has an aluminium handle designed for easy use and is strong and rust resistant with thumb and finger grips that fit left or right hand to allow for a two handed operation when needed.

The pointed blade is easy to use in small holes and has a time saving mounting slot for fast blade changing or reversing.

Bathroom Book from Shires

A new full colour booklet illustrating several of Chloride Shires bathroom suites, sanitary ware together with the latest acrylic baths and accessories has just been introduced on the Irish market.

The stylish bathroom suites featured in this attractively designed guide to modern bathroom planning include shires new Opus Suite which features the new Largo bath with its unique double-bathing area, the Allegro Suite coupled with the elegant 3-corner Eros bath, the Balmoral Suite is displayed and paired with a symphony bath, a further Shires bathroom suite is their Naiad which is illustrated with an Arena bath and to complete the collection of bathroom settings there is the Denbigh suite with a Melody bath while the Allegro bathroom is again pictured and incorporated in this 4-piece suite is the matching Allegro bath with its unusual circular shower area plus an Allegro syphonic WC plus a matching washbasin + pedestal and a bidet.

The Shires collection of acrylic baths featuring 10 designs together with their

sanitary ware collection is colourfully illustrated piece by piece together with the manufacturers two new shower screens called Cantata and Cadenza. The Columbia overtray screen, plus Shires two shower trays, the Samson and Delilah in addition to several Vanity Basins and the eye-catching Horizon Vanity furniture complete the comprehensive range of Bathroom furniture displayed in this new book.

The Da Vinci collection of brassware is also illustrated and Chloride Shires Ireland have just announced the introduction of their new Comisa range of elegant taps, mixers and various fittings which is now available to the building merchant and plumbing trades here.

Shires are noted for their dominance of the acrylic bath market and this new bathroom booklet bears this out while also highlighting the large collection of bathroom suites, together with individual pieces of ware which are pictured in several of Shires new colours, including the duo-tone Rosette Lilac and Rosette Gold plus their single shades such as Burgundy Kashmir and Harmony.

Chloride Shires Ireland distribute their bathroom products through most builders and plumbers merchants and their

showrooms and warehouse are located at Broomhill Road, off Airton Road, Tallaght, Co. Dublin, telephone 515877. Shires have just opened their new fully fitted and furnished showrooms in their head office and invite the trade to call and see the impressive collection of suites displayed.

Indicating Totaliser from IIL

A new indicating totaliser from Fischer & Porter was introduced and demonstrated in mid-November at the Food and Dairy Expo in Atlanta, Georgia. The versatile new totalizer is useable with almost every type of flowmeter currently manufactured.

The Model 52FT#000 Totaliser is said to be unique in that it provides both rate of flow information and flow totals — simultaneously — as a true two-wire device. Accuracy levels for both displays are an improvement of two to five times that of the present state of the art.

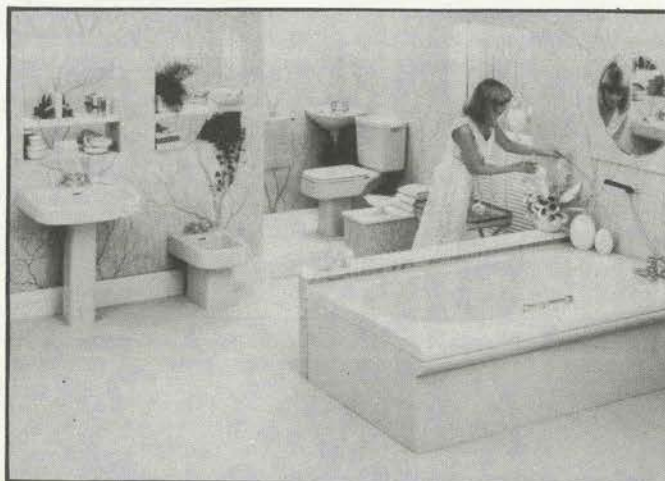
The totaliser's energy requirements are minimal as its operational power is derived from the flow signal itself. The signal can

be any 4-20 mA flow measurement output, either linear or square. Electrical installation is accomplished simply by "breaking into" the signal line and connecting the indicator-totaliser in series in the loop. Models for applications using 10-50 mA are available. For new dc loops, a version of the totalizer is available with an integral power supply. One or two 2-wire devices can be powered when this option is selected.

The display of both rate of flow and total is presented in large, easy-to-read liquid crystal displays (LCD), clearly visible indoors and in outdoor installations. The unit is lightweight and compact, approximately 10 x 6 x 3 inches, simple to install, uses an enclosure made of highly corrosion-resistant structural plastics, and is suitable for interior or outside installation in temperatures ranging from -40 to +150°F (-40 to +65°C). Purchase price of the new totaliser is said to be significantly less than that of comparable multi-component instrumentation.

The display of totals can be factory set to any unit of measurement specified by the user, yet is easily changed in the field merely by moving readily accessible switch positions. To prevent loss of totalised information during an interruption of power (loss of signal), a battery backup system automatically switches on and retains data for up to two months. The unit also includes a transistor output which tracks the totalised display and permits its use directly for remote totalisation or batching.

Fischer & Porter are represented in Ireland by Industrial Instruments Limited, The Instrument People of Dublin and Cork.

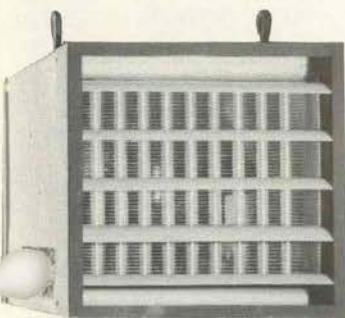


● The latest Shires bathroom suite — the Opus with the Largo double bath.



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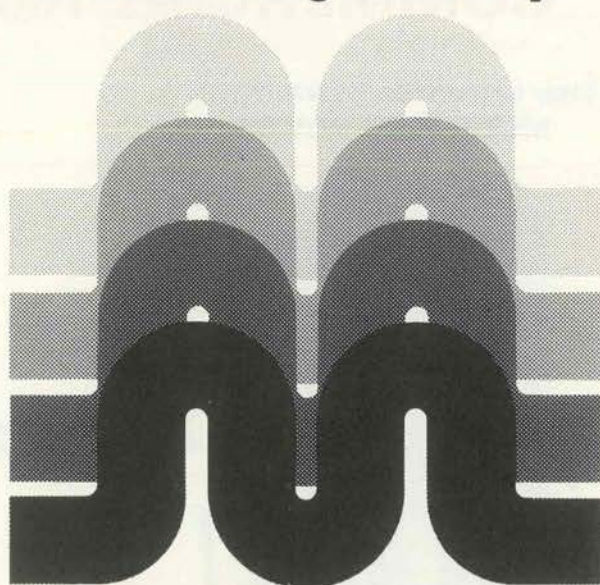
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Multiple District Heating -the district heating event of the year-



multi district heating exhibition & symposium 2-5/11 1982 Herning-Denmark

An international presentation of district heating and combined heat and power in theory and practice.

SYMPOSIUM

The Multi District Heating SYMPOSIUM consists of 6 SESSIONS with a total of 18 papers distributed on the main subjects:

- 1: Organisation + Co-operation - 2 November
- 2: Production - Combined Heat and Power - 3 November
- 3: Production - Other energy sources - 3 November
- 4: Transmission - 4 November
- 5: Distribution - 4 November
- 6: Planning + Economy - 5 November

- subjects which will - taken as a whole or in sessions - give the participants new knowledge and inspiration.

Advance registration advisable. Limited number of seats.

EXHIBITION

At the Multi District Heating EXHIBITION the combination of heat/power will be in focus.

About 100 direct exhibitors, among them many Danish firms, will here show product novelties and new technical systems for especially water-carried collective heating.

Admission cards can be ordered from the exhibitors free of charge.

PATRONAGE

The International Energy Agency (IEA).

THE ARRANGEMENT IS MOREOVER BACKED BY:

The Danish District Heating Association, Herning Municipal Utilities, I/S Vestkraft as promoters, and the Danish Board of District Heating, the Danish Association of Electricity Supply Undertakings, The European Commission, ELSAM, The Danish Ministry of Foreign Affairs, the European Investment Bank, the Danish Ministry of Energy, UNICHAL and UNIPEDE.

DETAILED BROCHURE

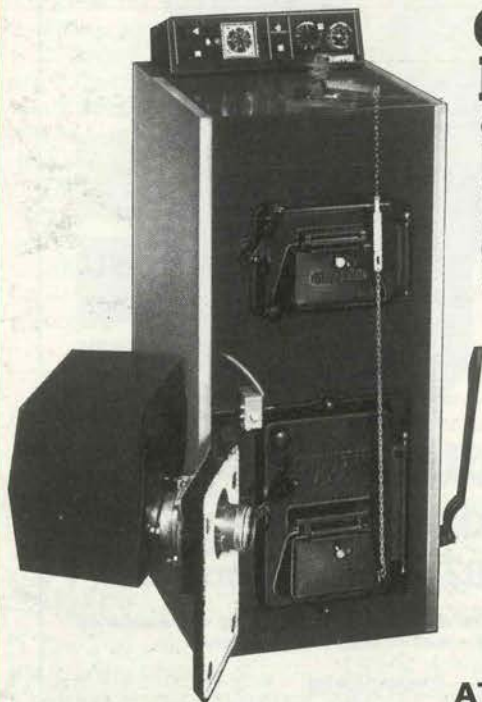
with provisional list of exhibitors, detailed programme, entry forms, information on fees, excursions, and programme for accompanying persons can be obtained from the Secretariat

Herning Exhibition Centre

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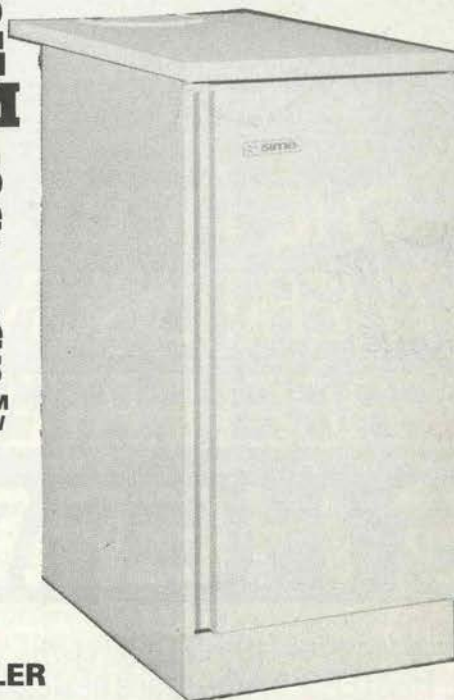
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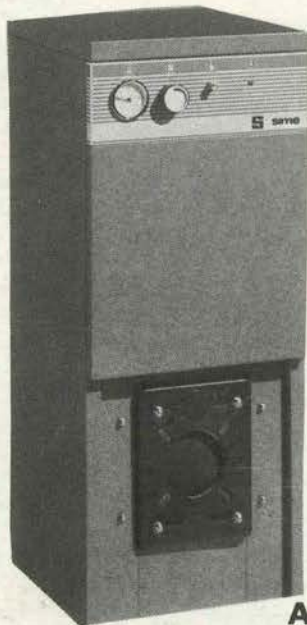


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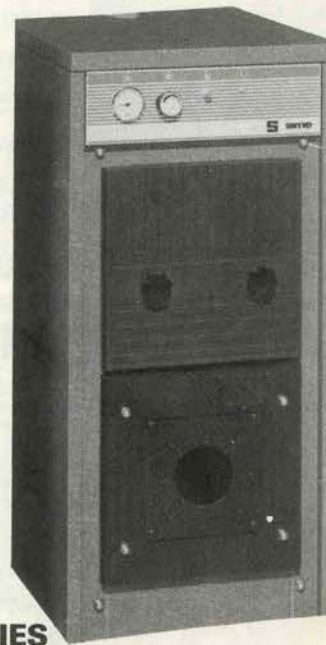


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