12-1-1980

H & V News

Follow this and additional works at: https://arrow.dit.ie/bsn

Part of the Civil Engineering Commons, Construction Engineering Commons, and the Construction Engineering and Management Commons

Recommended Citation

doi:10.21427/D71X4B
Available at: https://arrow.dit.ie/bsn/vol19/iss12/1

This Article is brought to you for free and open access by the Journals at ARROW@DIT. It has been accepted for inclusion in Building Services News by an authorized administrator of ARROW@DIT. For more information, please contact yvonne.desmond@dit.ie, arrow.admin@dit.ie, brian.widdis@dit.ie.
Winning tomorrow's market – with energy

Sanitation · Heating · Air-conditioning

New technologies close supply gaps. Further developments awaken new needs. Energy and environment are the topics of the day. These branches are in the spotlight. **What:** The complete review, the realistic answer as to the alternative, as to practicable progress. **Where:** ISH Frankfurt. The largest trade fair on this topical subject.

World Trade Fair
Sanitation, Heating, Air-Conditioning

Frankfurt am Main
Tuesday, 17.3. – Sunday 22.3. 1981

**Coupon** Please send me more information.
I am particularly interested in
☐ sanitation ☐ heating ☐ air-conditioning

Name
Street/Postbox
Postal code/Town

Trade Fair and travel information, admission tickets
Lep (IRELAND) LIMITED
11/18 Tara Street, Dublin 2
Tel. 771961, Telex: 5252
NEWS. PAGE 2
The main story this month contains some suggestions to assist the industry in the present problem of currency surcharge. The new Blunnie firebox invention is looked at and the IRS test results explained; Details of the forthcoming IhVex ILECTRA exhibition are given; CIBS Irish news; Details of the by now infamous Legionnaires Disease are available from BSRIA; Pictures from the Worthington-Simpson official opening; and letters to the editor in response to the article on the “Hydraulic Ram”.

ULSTER NEWS. PAGE 16
The big news from Ulster is the story and the pictures of the Building, Engineering and Home Heat Show; Bill Hogg appointed agent for Hotchkins; B L Refrigeration & Air Conditioning Ltd N.1. agents for Toshiba; Jim Kelso sets up his own agency, Kelso Agencies.

CHRISTMAS GREETINGS. PAGE 20

ZONE. PAGE 29
The final part of the article on coolers.

NEW PRODUCTS. PAGE 32
Aidelle new extracts fan from McKennas; Cooling tower from Watermiser; New Rite Vent Chimney from C&F Ltd; and Woods of Colchester to manufacture VAV units.

LITERATURE. PAGE 39
The new handbook on HVAC is now available from ASHRAE; World safety standards on room heaters published IEC.

PIPELINE. PAGE 39
A look at some of the stories that did not make the news pages.

PLUMBING EQUIPMENT. PAGE 40
Details of plumbing equipment currently available on the Irish market.
With the growing public consciousness of energy, many attempts have been made to improve the effectiveness and efficiency of fireplace, domestic, and high output boilers. The snag with most of the devices is that they are expensive to construct and in many cases require the replacement of existing units. Thus, the overall economy achieved is often doubtful.

Now two Irish inventors have come up with a device which they claim would be relatively inexpensive to manufacture, could be readily incorporated into existing units and yet will give many of the advantages of more complicated systems.

The device is basically a container for fuel with suitably placed air inlets and outlets. It can be fitted into, for example, a wrap-around boiler, an open hearth fire, or an enclosed fire appliance such as a combined cooker and water heater. In use it ensures that the volatile gases which are normally lost up the chimney are returned to the fire. This and other aspects of the design of the device ensure that improved combustion is obtained.

Moreover in, for example, a boiler the positioning of the device can permit maximum contact between the fuel and the water jacket and give very efficient heating.

It is claimed that up to 50% improvements in efficiency for water heating can be obtained. The improvements in combustion should result in less ash, less smoke and more complete burning of fuel. It is therefore said to provide many of the attributes of more expensive domestic combustion appliances at lower cost and would be easy to install. A particularly suitable application is summer water heating.

Tests carried out by IIRS, to whom the inventors applied for assistance, have indicated that there is a reasonable basis for these claims. IIRS was sufficiently impressed to provide support for the inventors towards their patent costs. Patents have been applied for in Ireland, U.K, U.S., and several European countries.

IIRS are now seeking a company who would be prepared to enter into a licensing agreement with the inventors to further develop the invention for manufacture and sale in the various countries.

Interested companies should contact:- Inventions Service, Institute for Industrial Research and Standards, Ballymun Rd., Dublin 9, (Tel: 370101 Telex: 54499).

On its own IhVex would indeed be a very worthwhile exhibition of mechanical services equipment as it includes exhibitors from the heating, ventilating, air conditioning, fuel conservation, refrigeration, sanitaryware, plumbing equipment, and other allied professions but the exhibition, which is to be held on the 17th, 18th, and 19th of February 1981, will for the first time run concurrently with Ilectra, the electrical engineering exhibition making the entire event the first truly exhibition of building services equipment in Ireland. The Irish Branch of the Chartered Institution of Building Services will add much prestige to the show by holding a conference on practical energy problems faced by both the mechanical and lighting engineer. Also planned for the show is the bi-annual conference of the Institute of Domestic Heating Engineers (Irish Branch) which as in previous years will have important subjects for discussion. The CIBS will also have a stand at the show which will have information on the Institution and handbooks and journals will be available for purchase.

There will be a number of new companies showing at the exhibition including Wilo Pumps, Saireco, and Combach, and many new products will be on display for the first time such as the new small industrial boiler from Danks of Heatherby, Unidare’s new domestic boiler, Toshiba air conditioning products from Saireco and also new ranges from Hudevad and Ambirad, and many others who are keeping their products under wraps until the show.

**Venue**

**Simmonscourt Exhibition Complex**

**Royal Dublin Society**

**Ballbrigg**

**Dublin 4**

**Dates**

**February 17, 18 and 19 (Tuesday, Wednesday and Thursday) 1981.**

**Open Time**

11 am to 8 pm Tuesday, Wednesday and Thursday.

Kieran Comerford, IIRS Inventions Officer loads the newly-invented Blunnie fire-box which, it is claimed, dramatically increases the efficiency of a back-boiler system. The inventors are now actively seeking licencors for the product.
Introduce their new ‘Cirrus’ range of ‘unit heaters’

‘Cirrus’ unit heaters are a development of S & P’s successful FT range, with restyled fan and guard and a new colour scheme, but retaining all the other well proved structural and trouble-free performance characteristics. The range of ‘Cirrus’ types, sizes and heat exchanger arrangements is so comprehensive that, where unit heaters are the preferred equipment, practically any heating requirements can be satisfied efficiently and economically. There are horizontal and vertical types each of which is available in five sizes, offering outputs of up to 120kW (400,000 Btu/hr), and with a choice of three different types of heat exchanger, a choice of fan speeds.

- **STYLE H1** – Horizontal. Giving horizontal air discharge. Motor external to the main casing and provided with motorside wireguard.
- **STYLE V1** – Vertical. Giving a generally vertical downward air discharge. Motor mounted above main casing and provided with motorside wireguard. Suitable for use with low temperature or medium temperature hot water (LTHW or MTHW) up to 250°F flow temperature.
- **STYLE V2** – Vertical. Giving a generally vertical downward air discharge. Motor submounted beneath the heater battery, enclosed in a diffuser casing. Suitable for all heating medium temperatures.

**FINHEAT LIMITED**

34 Watling Street, Dublin 8. Phone: 778109/778120 Telex: 30751

*IHVN, December 1980*
CONTROL PANEL ASSOCIATION

Following our feature on instruments and controls the EIFI have given us the following list of manufacturers who are members of the recently formed Switch Gear and Control Panel Manufacturers Association.

A.C.E.C. IRL LTD.
Mr. O’Connell.

M & L MANUFACTURING CO. LTD.
Jimmy Mulroy.

PACE ENGINEERING LTD.
E. O’Scolliain

B. McDonnell LTD.
N. Doyle.

BROWN BOVERI IRL LTD.
P. O’Sullivan.

TEMP. CONTROL SERVICES LTD.
G. Curran.

ANORD. ELECT. CONTROLS LTD.

NEWCOURT ELECTRONICS

BUR MON ENGINEERING CO.
David Bain.

HUGHES & COYLE
K. Whelan.

TECHNICAL EQUIPMENT CO.
K. Kearney.

ELECTRICAL SERVICES LTD.

SIEMENS LTD.
C. Buckley.

KLOCKNER MOELLER IRL LTD.

SQUARE D IRL LTD.
T. Conway.

Switchgear Division, Unit 2, Bluebell Ind. Estate, Dublin 8

Unit 78B, Lagan Rd., Dublin Ind. Estate, Glasnevin

74B Rathgar Rd., Dublin 6.

Bluebell Industrial Estate, Dublin 12.

Whitestown Industrial Estate, Tallaght.

Airton Close, Airton Rd., Tallaght, Co. Dublin.

Industrial Estate, Coes Rd., Dundalk, Co. Louth.

Newcourt, St., Margarets, Co. Dublin

80 Sandford Rd., Ranelagh, Dublin 6.

St. Kevins Sq., Synge St., Dublin 8.

Elmfield, Clondalkin, Co. Dublin.

Cookstown Ind. Estate, Unit 6, Tallaght, Co. Dublin.

Dublin Ind. Estate, Glasnevin, Dublin 11.

94 Dublin Ind. Estate, Finglas Rd., Dublin 11.

Ballinasloe, Co. Galway.

783733
309111
970840
507267
522622
512634
042-
35190
343211

6974825
758781
521033
512733
302477
300400
0905-
2684
Meet the energy team
-Carlyle from Walker-

1. The unbeatable range of energy miser heat pumps

2. Heat reclaim chillers with multi-compressors for even lower running costs

3. Moduline VAV systems with inherent self-balancing savings

4. 50 DF chiller, the boss of the Modupac VAV system

5. Unikal computer programme analysis to assist you in selection of the most energy efficient system

Walker Air Conditioning
Walker Air Conditioning Limited
Dublin Industrial Estate, Finglas Road, Dublin 11
9a Cherryhill Road, Dundonald, Belfast BT16 0JH
Washington Road, Unit 10B, Abbeypark Industrial Estate, Paisley PA3 4ET
Tel: Glasgow 887 0551  Telex: 779406
Carlyle Distributor for Ireland, Scotland and Northern England

Published by ARROW@DIT, 1980
CARLYLE USERS COURSE

A training course was recently held by Walker Air Conditioning for the users of Carlyle Centrifugal refrigeration equipment. The course was aimed at managers and engineers who are responsible for the operation of these machines and was very well attended. Subjects covered on the course included refrigeration circuits, pump down cycle, installation, start-up operation and maintenance, and the course lasted three days. Those attending were very pleased with the information they received from the course instructors John Warren, Carlyle London, Damien Parlour and Gordon Whitfield of Walker Air Conditioning. Participating in the course were engineers from, Abbot Laboratories, Bank of Ireland, Travalen Laboratoriees, R.T.E., Fieldcrest Ireland Ltd, Polaroid, Bectan Dickenson, Royal Bank of Scotland and W.A.C. personnel.

Pictured in the Dublin Airport Hotel were engineers who attended the Walker Air Conditioning Ltd end user training course.

STUDENT AWARD

The Student Award of the Ireland Section of the Instrument Society of America was presented to Gordon Blakeney of Asahi Chemicals during the Annual General Meeting of the Ireland Section on September 9th, 1980. The Student Award was given on the basis of an open competition and was awarded to Gordon Blakeney who had entered during his first year off the job apprentice training course at AnCO Training Centre Donnybrook, Dublin, who was sponsored by Eoin O’Riain, Managing Director Industrial Instruments Limited, Dublin, who sponsored the 1980 Ireland Section Award.

(1-R): Dr. Liam McDonnell, President ISA Ireland section, Gordon Blakeney, Asahi Chemicals and Eoin O’Riain, Managing Director I.I.L., at the presentation of the student award of the Instrument Society of America.

Allen Ygnis Steam and Hot Water Packaged Boilers
Installed on some of the Most Prestigious Sites in Ireland Including —

Setanta Development, Dublin
Gandon House, Dublin
Cumberland House, Dublin
Dublin Corporation Swimming Pools, Dublin
I.X. Ltd., Tuam
A.I.B. Headquarters, Dublin
Grassland Fertilizers, Limerick
Sligo Models Ltd, Sligo
Donegal Laundry, Dunloe
Irish Shell, Galway & New Ross

Details available on request from B. Bracken or Tony Smith

Hevac Limited
Heating Ventilating and Air Conditioning

Lister Complex, Ballymount Road, Clondalkin, Co. Dublin. Tel: 519411 Anglesea Terrace, Cork. Tel: (021) 55988
NEW JOTUL DEALER

Captain M. Vastenhout, Stonebridge Cottage, Youghal, Co. Cork has been appointed dealer for the range of Jotul woodstoves for the Cork, Waterford, South Tipperary and South Kilkenny areas.

Announcing the appointment, Mr. David Couper of Tyrrellspass, Co. Westmeath who first introduced the woodburning stoves to this country and who is the sole distributor for the whole of Ireland, said: "Ever rising fuel costs and uncertainty over supplies are forcing many householders to seek alternative methods for heating their homes during the coming winter months. With the appointment of a dealer in Youghal it will now be easier to obtain Jotul stoves locally and householders will be able to see for themselves just how efficient these stoves can be."

At a recent seminar on thermal insulation held in Dublin, Desmond Browne (second on left), Regional Sales Manager, Southern Chemicals Ltd, demonstrated how the Aerotie Cavity Wall system works to (l-r) Mr. Joe Twomey, Dept of the Environment, Mr J B Maguire, Dept of Education, Building Dept and Mr John Lamb, Dept of Education, Building Dept.

FUEL OIL STORAGE TANKS
OF REINFORCED CONCRETE TILE-LINED
IDEAL FOR ALL GRADES OF OIL

COLD WATER STORAGE TANKS
OF REINFORCED CONCRETE WITH SPECIAL LININGS
Built underground or in basements in any shape, size or capacity
IN FACTORIES, SCHOOLS, UNIVERSITIES, HOSPITALS, OFFICE BLOCKS, PUBLIC BUILDINGS, HOUSING SCHEMES (DISTRICT HEATING)
NO CORROSION—NO MAINTENANCE
Successfully in use since 1900

Agents in Ireland:
Burlington Engineering Ltd. Unit T4, Stillorgan Industrial Park, Stillorgan, Co. Dublin. Tel: (01) 952221

BORSARI & CO
CH—8702 ZOLLikon—ZURICH SWITZERLAND
Telephone: 010 411 65 86 55
Established 1873

"3 Heavy Fuel Oil Storage Tanks at Manchester, Total Capacity 450,000 Gallons"

Published by ARROW@DIT, 1980
CURRENCY SURCHARGES - THE SIMPLE SOLUTION

Following the break with Sterling in March of 1979, the industry has been suffering severe difficulties which are a direct result of the exchange disparity. Since then an "appropriate equitable surcharge" has been computed on a monthly basis by the National Prices Commission but, in recent months, this figure and the actual cost of Sterling have drawn dramatically apart.

This has created a great deal of confusion and the resulting controversy came to a head recently with the announcement that a major reputable distributor had been investigated by the National Prices Commission and that legal proceedings were a possibility. The issue now became a live one.

That the situation had to deteriorate to such a low ebb before those concerned finally woke up to the reality of the situation is unfortunate but, nonetheless, some good has come of it. However, that the most acceptable and generally agreed solution seems so simple to implement and operate is a poor reflection on the industry as a whole.

Essentially, the whole thing boils down to one question - at which point in the chain of distribution should the conversion be carried out? The answer is surely obvious - a person buying a product in any country is entitled to a clear price in his own local currency. In summary, these are:

1. The Irish situation wherein we trade in another currency is unique and we can see no possible justification for its continuance.

Dear Customer,

"Following the break with Sterling on the 30th March, 1979 we, in common with other importers of UK manufactured products, were obliged to introduce currency surcharges in order to recover our cost increases resulting from the exchange disparity. The National Prices Commission have been computing on a monthly basis an appropriate equitable surcharge which enabled importers and we as a Company have been following their recommendations in this regard.

In recent months, however, the two exchange rates have drawn dramatically apart and, given the notoriously volatile nature of movements on foreign exchanges, we now feel we can no longer countenance the present system of imposing currency surcharges on UK imported products. With immediate effect, therefore, we have decided to introduce Irish price lists (expressed in IRP£) for those products for which we have exclusive or special distribution rights for Ireland. We are taking this step with the only sensible course open to us in an attempt to introduce some degree of normality into the trading of UK imported products in Ireland.

The Irish situation wherein we trade in another currency is unique and we can no longer countenance our customers expressing mistrust in the eyes of the consumer;

2. Irish price lists have worked very effectively in other fields and we see no logical reason why this should not be extended to other UK imported products;

3. Fluctuating price levels are unnecessary creating the chance of confusion and mistrust in the eyes of the consumer;

4. The consumer is entitled to expect some degree of price stability and we feel the onus is on the importer to ensure that this end is achieved;

5. Industry in Ireland is a highly competitive business and this fact alone would ensure that price increases due to currency fluctuations are minimised;

6. The present system is difficult to administer; makes it more difficult for buyers to compare prices and obtain the best buy and allows ample scope for the unscrupulous to manipulate surcharges to their own advantage;

7. The Irish situation wherein we trade in another currency is unique and we can see no possible justification for its continuance subject, of course, to the guidelines laid down by the National Prices Commission in relation to the over-recovery of the cost increase incurred arising from the exchange disparity.

Having taken the lead in this matter, we are hopeful that our colleagues in the industry will follow suit. You will understand, however, that with local purchasing of UK products we have no alternative but to pass on the currency surcharge imposed on us."
A Condensed Guide to MANOTHERM activities

THOMMEN CALIBRATOR EM

Type EM 421
410 x 260 x 230 mm
approx. 8 kg

Indep. from mains Separate power supply 24V D.C.

Platon Flowmeter.

Thermocouples & resistance thermometers

West WE 01 process controller

96mm square metal case.
PD + PI control action.
Limit comparator & controlling output option.

Barksdale piston pressure switch for pressures up to 315 bar.

Rueger thermometers.

Platon 'M'—valve.
Air operated miniature control valve for automatic control of most media.

MANOTHERM LTD.
Controls and Gauges for all industries

THE CONTROL CENTRES
4 WALKINSTOWN ROAD, DUBLIN 12
Phone: 522355, 522018, 522229. Telex: 24467

10 KNOCKBRACKEN PARK, BELFAST BT6 OHL
Phone 645966

Published by ARROW@DIT, 1980

established business in the assembly of pressure sets, oil pumping sets and other packaged equipment.

Nat Higgins, Area Manager for Worthington-Simpson in Dublin says that "in our new premises we are equipped to offer our customers an improved service covering every aspect of pump and compressor application, servicing and repairs."

This seems to sum up the policy of the company which is one of the longest established in its field in Ireland.

Pumps being loaded outside the new Worthington Simpson premises

also have sales and service staff in preparation for the move to Stillorgan.

The new workshops also allow Worthington-Simpson to expand their already established business in the assembly of pressure sets, oil pumping sets and other packaged equipment.

Nat Higgins, Area Manager for Worthington-Simpson in Dublin says that "in our new premises we are equipped to offer our customers an improved service covering every aspect of pump and compressor application, servicing and repairs."

This seems to sum up the policy of the company which is one of the longest established in its field in Ireland.
Modern Plant Award

Modern Plant Limited, Dublin, Distributors and Stockists of specialised industrial and engineering products, were presented with the European Distributors of the year award by Ewart Chainbelt Company Limited, Derby, England. The presentation was made recently by the British Ambassador, Mr L C W Figg CMG at his residence, The British Ambassador, Mr L C W Figg, CMG presenting Mr H W Bolger MD, Modern Plant Limited, with the Ewart Chainbelt Company Limited European Distributors Award. Present were, from left to right, Mr D Leadbeater, Senior Sales Engineer, Ewart, Mr C G Wildsmith, Sales Director, Ewart, Mr H W Bolger, MD, Modern Plant Limited, Mr L C W Figg, British Ambassador and Mr J V Harte, Divisional Manager, Modern Plant Limited.

From

Countrywide Heating Services Ltd.

GAS-RAD
Industrial & Commercial Radiant Heating

COMPARE THE ALTERNATIVE HEATING SYSTEMS

Running Costs

<table>
<thead>
<tr>
<th>System</th>
<th>Running Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single large Air Heater</td>
<td></td>
</tr>
<tr>
<td>Open Plaque Gas Radiant Heaters</td>
<td></td>
</tr>
<tr>
<td>GAS-RAD</td>
<td></td>
</tr>
<tr>
<td>Ducted Warm Air Systems</td>
<td></td>
</tr>
<tr>
<td>Unit Air Heaters</td>
<td></td>
</tr>
<tr>
<td>Central Boiler Plant and Overhead Radiant Strip</td>
<td></td>
</tr>
</tbody>
</table>

Installation Costs

<table>
<thead>
<tr>
<th>System</th>
<th>Installation Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single large Air Heater</td>
<td></td>
</tr>
<tr>
<td>Open Plaque Gas Radiant Heaters</td>
<td></td>
</tr>
<tr>
<td>GAS-RAD</td>
<td></td>
</tr>
<tr>
<td>Ducted Warm Air Systems</td>
<td></td>
</tr>
<tr>
<td>Unit Air Heaters</td>
<td></td>
</tr>
<tr>
<td>Central Boiler Plant and Overhead Radiant Strip</td>
<td></td>
</tr>
</tbody>
</table>

BENEFITS:

- Low Fuel Bills
- Inexpensive & Easy to Install
- No Wasted Heat
- Maximum Comfort
- Automatic Operation
- Uses All Gases
- No Floor Space Penalty
- Low Maintenance
- Instant Heat
- Independent Operation
- Complete Safety

Available from the sole Irish agents:-

Countrywide Heating Services Ltd.
43 Templemore Avenue, Rathgar, Dublin 6. Tel: 973588. Kilkenny (0409) 5449
The following are a sample of some of the letters we have received recently on the subject of Hydraulic Rams. The subject seems to have raised a lot of interest throughout the country and on a recent trip to Cork I was talking to Reg Killeen of Southern Engineering, the man who originally brought the subject to my attention, and he tells me that he has received a number of enquiries lately for hydraulic rams and may well get some orders from these enquiries.

EDITOR.
‘The Water Garden’
Ladywell,
Thomastown,
Co. Kilkenny.
Dear Sir,
I was very interested in your article re Hydraulic Rams in the October issue, as I have two ‘Blake’ rams working, to supply water to my garden, at above address. I have a third one, bearing the name Power & Son, Kilkenny, which I hope to install next Spring. It seems fairly powerful, and in good condition. There are at least two other rams working in this area.
Also, there are two very large ones, now out of use, one of which supplied the water to the local hospital, and the other to the Convent of Mercy. These are so large, one may go down steps into the chamber. The one for the hospital was put pumping a few years ago, to supply water to a ‘Pitch and Putt’ course.
I suppose the wind and water potential of our island could be much more used, than presently, thus cutting the cost and dependance on imported supplies, while wind and water are an almost inexhaustable source of energy, unlike turf or coal.

Yours truly,
Bernard Walsh

Robert Jacob & Partners
Consulting Engineers
36 Wellington Road,
Dublin 4.

Dear Sir,
I was interested in reading the article in the October H&V News on the hydraulic ram or hydrostat.
These extremely simple pumping machines were widely used for water supply to large houses in Ireland about 30 years ago. The writer recalls having designed installations at Dunloe Castle, Co. Kerry, supplying the castle and gardens and other installations in Counties Waterford and Wexford.
They provide a very reliable and cheap means of pumping water, the only attention required after installation being the renewal approximately annually, of two rubber valve discs, by unskilled labour.

Yours faithfully,
Robert Jacob
If you're specifying heating, ventilating or air conditioning, you'll need down-to-earth facts about LENNOX - C&F HAVE THEM READY FOR YOU!

Lennox data sheets are straight forward technical publications designed to give you factual information on the specification, performance and purpose of all major items of Lennox equipment. Whether you're planning for commercial, industrial, or up-market domestic applications, if you want facts without frills, just tick the boxes and we'll do the rest.

Lennox direct single-zone outdoor unit, type DSS1
Greenforge Limited, manufacturers of the Incendo solid fuel combustion equipment, became a wholly-owned subsidiary of Robey of Lincoln Limited on the 1st October 1980. The company will continue to operate independently from their factory at Olympia Industrial Estate, Gelderd Road, Leeds.

**DISEASE FROM AIR CONDITIONING**

The resurgence of concern about Legionnaire's disease has prompted BSRIA to issue an updated edition of its bibliography on the subject. There are now 42 references cited compared with 26 in the first edition which appeared in December 1979. Disease from air conditioning with the reference BSRIA Bibliography LB3/80 November 1980. Price £1.50 (with order). Price in £'s sterling, can be had from Building Services Research and Information Association, Old Bracknell Lane, Bracknell, Berkshire RG12 4AH. Tel: Bracknell 25071/5.

**INTERNATIONAL SHOWS 1980–82**

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHK 80</td>
<td>10–22 Nov 1980</td>
<td>Hamburg</td>
</tr>
<tr>
<td>ARAB BUILD '80</td>
<td>9–14 Nov 1980</td>
<td>Bahrain</td>
</tr>
<tr>
<td>PRAGOTHERM 80</td>
<td>11–15 Nov 1980</td>
<td>Prague</td>
</tr>
<tr>
<td>ENERGY '80</td>
<td>2–5 Dec 1980</td>
<td>Copenhagen</td>
</tr>
<tr>
<td>MIDDLE EAST CONSTRUCTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASHRAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHVex</td>
<td>11–16 Jan 1981</td>
<td>Jeddah</td>
</tr>
<tr>
<td>IN'TERNATIONAL HEATING, REFRIGERATION AND AIR CONDITIONING</td>
<td>26–29 Jan 1981</td>
<td>Chicago</td>
</tr>
<tr>
<td>ISH</td>
<td>17–19 Feb 1981</td>
<td>Dublin</td>
</tr>
<tr>
<td>BUILDING PRODUCTS &amp; SERVICES</td>
<td>16–21 March 1981</td>
<td>Utrecht</td>
</tr>
<tr>
<td>INTERPLUMB &amp; HEATEX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTERCLIMA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTERBUILD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSTRUCTA '82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTEHERM '82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENERGY '81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEVAC/EXPOCLIMA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IRISH OFFICE FOR JOHNSON**

Johnson Control Systems Limited has opened a permanent Service and Construction Branch at 70 Lower Mounttown Road, Dun Laoghaire (Tel: Dublin 801964).

The new office will handle design, installation, commissioning and maintenance of pneumatic, electronic and computer-based control systems.

**Makes Air Behave**

For Engineered Air Distribution

Coolair Limited

25 Cookstown Estate, Tallaght, Co. Dublin.
Telephone 511540/511540.
Mallow Road, Cork. Telephone (021)502321
boilers stayed constant, the average costs for gas-fired plant were less. This was entirely due to the lower reliability of the pressure jet burner and any effort to improve it can only benefit the industry.

Most of the boilers studied came from the few large manufacturers. Generally, little difference in reliability was found between them and the kind of faults were similar as well.

RELIABILITY OF BOILER PLANT

A new report from BSRIA prompts a fundamental rethink. Records from over three hundred boilers, of the kind commonly used in large buildings, were analysed to find the frequency of faults and maintenance costs over a two year period. They showed very little difference in reliability or repair costs between those regularly maintained and plant which had no servicing at all. Indeed, faults were proved to be more prevalent just after servicing, even allowing for those found at the time.

With oil-fired plant the increase was about 1500% and with gas-fired plant it was as high as 3500%.

Although the frequency and cost of repairs to gas-fired boilers rose with age, while those to oil-fired boilers stayed constant, the average costs for gas-fired plant were less. This was entirely due to the lower reliability of the pressure jet burner and any effort to improve it can only benefit the industry.

Most of the boilers studied came from the few large manufacturers. Generally, little difference in reliability was found between them and the kind of faults were similar as well.

Reliability of boiler plant by Harold Butler and Catherine Petts BSRIA Technical Note 1/80. June 1980. Price £4.50 (with order) £4.00 sterling is available from Building Services Research and Information Association, Old Bracknell Lane, Bracknell, Berkshire RG12 4AH. Telephone: Bracknell 25071/5.
Included in the three hundred people attending the Energy Managers conference at Birmingham was a number of senior engineers from Northern and Southern Ireland industry.

On the opening day of the conference the main speaker was Mr David Howell, Secretary of State for Energy.

Following his speech and those of other prominent world leaders in the energy field Mr Howell presented the award to the 1980 UK Energy Manager of the Year.

The award was sponsored by Messrs Powrmatic Ltd and the first prize of £500 was awarded to Mr T. A. Kantyka recently retired energy manager of I.C.I. Petrochemicals Ltd, Wilton, Cleveland. In addition Dr R. Telfer, Chairman of I.C.I. Ltd Petrochemicals Division received a special boardroom trophy specially commissioned by Powrmatic.

Bruno Panetta of Thermo Logic Ltd of Celbridge, Co. Kildare joined John Fearon of Castlereagh School of Further Education to give a lecture on the application of heat pumps to heat recovery in refrigeration plants, industry and commerce, at a recent meeting of the Northern Ireland Energy Managers Group.

Following the retirement of Sir Brian Morton as Chairman of Harland & Wolff Ltd the Belfast ship builder, the N.I. Government have announced that he will be succeeded for the next six months by a member of the company board — Mr V. A. Cooke.

Mr Cooke is a well known figure in the engineering world, north and south being Managing Director of Henry R. Ayton Ltd, who represent many well known companies in the North such as B & E Boilers Ltd, Stone Platt Ltd, Houseman Burnham Ltd etc.

Mr Cooke has taken an active part over the years in the professional, commercial and industrial life of the Province and he is agreed to act as caretaker chairman of the company until a new chairman is appointed.

The Belfast company, Irish Bridge Ltd who have under take a number of major projects in Ireland and in the off-shore scene have announced that they intend having discussions with the Dept. of Commerce on an application for the right to search for oil in the north-east of Ulster.

There have been repeated rumours of various interests being keen to carry out geological surveys of the area and recent information indicates that the area has definite possibilities.

Mr Eric Jarrow a founder member of the Institute of Domestic Heating Engineers was the honoured guest at the last outing of the Northern Ireland Branch at Knock Golf Club.

Unfortunately while Eric may have brought his bright personality with him he did not succeed in bringing the good weather, as to say the least, the 50 odd who played golf were indeed brave men.

The principal trophy, presented by M.P.I. Insulation Ltd was won by Mr Moore Best followed by Mr Roland Beckett and Mr Ian Morrison.

Being Captain’s Day for the Society, the Best Golfer of the Year was awarded to Mr H. Cox.

A new golf committee for next year has been appointed and is as follows: Chairman — Roland Beckett supported by Roy Best, Tom Galway, Ian Morrison & Duncan Davidson.

The Mayor of North Down, Alerman George Green opened the new solid fuel heating exhibition at the new premises of J. S. Fisher Ltd at 169 Newtownards Road, Bangor. Mr Green was welcomed along with many guests by Mr J. D. Fisher, Managing Director of the Newry based firm who have recently extend ed from South Down into North Down.

Fisher’s have a long history as Cape Insulation (N.I.) Ltd had B Moore (supervisor); B Dobbin (Regional Manager); and L Oliver (Technical Sales) on their stand.
building and heating merchants in addition to which they are major fuel distributors thus ensuring to the customer an in-depth service.

W. J. Hogg & Co. Ltd, 46 Ballynahatty Road, Shaws Bridge, Belfast, have been appointed stockist in Northern Ireland for Hotchkiss Ductwork Ltd, ventilation and ductwork contractors who have formed a company Hotchkiss Spiral Tubes, who in turn have opened a new factory and sales depot in Wolverhampton to specialise in the supply only of spiral ducting, fittings, and accessories.

Hogg will stock Veloduct, the do-it-yourself spiral tube and fittings system in standard Eurovent sizes, accessories and canvsa tapes and bands. Flat, oval and the metrotube range will also be available to order.

At the A.G.M. of one of the oldest engineering societies in Ireland — the Belfast Association of Engineers — founded in 1892, elected Mr S. Ashmore of Harland & Wolff Ltd President with Mr F. Hendron Senior Vice-President and Mr Harry George Junior Vice-President. Other members of the Committee include Messers Dickson, Hicks, Downey, McKowen, Green, Moore, Hewitt, Blom and Cleland with Miss M. A. Crossland as Honorary Secretary.

Willis Heating & Plumbing Ltd of Dublin Road, Belfast, recently appointed Mr H. Pettis a director of the company with responsibility for industrial and commercial contracts.

Mr John Gaston, Chief Executive of the Northern Ireland Electricity Service has been appointed Chairman of the Service succeeding Mr John Gray who retires after a six year term of office.

Mr Gaston has been in the Service since 1949 and has held many senior posts in that period. He is a Fellow of the Institute of Electrical Engineers and a Fellow of the Royal Society.

B. L. Refrigeration & Air Conditioning of Belfast have been appointed Northern Ireland distributor for Toshiba (UK) air conditioning products.

Corrosion Control Plastics Ltd of Princes Dock, Belfast, have introduced a new range of glass fibre storage tanks with a patented joint and with a capacity of up to 200,000 gallons. The tanks, lightweight in construction are designed for ease of erection and require practically no maintenance.

Jim Kelso for many years N.I. Sales Manager of a national manufacturer of plumbing products is now in business in his own trading as Kelso Agencies Ltd with stores and distribution depot at Barn Mills, Taylor Avenue, Carrickfergus.

Included in his agencies are the companies Porton Plastics Co. — waste fittings and traps, Econa Products Ltd — end feed fittings and plumbers brassware, H. Taylor Ltd — side showers, bath kits and brassware, Derwent Macdee Ltd — systems pan connectors and accessories etc.

McCaig Collin Ltd of 6a Greenwood Avenue, Belfast, have commenced marketing the parallel resistance heating tapes manufactured by Heat Trace Ltd of Stockport.

By nature of their design the tapes can be cut to any length without affecting the output and there is no need for separate cold tails. A standard termination kit is available and can be simply fitted by unskilled personnel.

Unveiled at the Balmoral Home Heat
exhibition was a new heating system which has been successfully marketed in Sweden for a number of years.

A new company Lyfotherm (Ireland) Ltd with Mr Gerry O'Brien as Managing Director has been formed in a joint venture with K.B.A. of Sweden to introduce the system into Northern Ireland.

The system which could be included in the heat pumps range of products stands about 6 feet in height, uses the soil as a source of energy and by means of the use of coils, compressors, heat exchangers, converts the energy into useful heat.

Full details are available from Lyfotherm (Ireland) Ltd, Penrose Villa, 185a Ormeau Road, Belfast.

Despite rumours to the contrary, the Insulation Grant Programme in Northern Ireland is to continue for householders.

The Housing Executive from whom full details of the scheme are available, announced a higher insulation grant — up to a maximum of £90 or 90% whichever is less, would be paid to help the elderly.

Despite the recession in the building industry, the attendance at Building, Engineering & Home Heat exhibition at the Kings & Nugent Halls, Balmoral was obviously a record.

The exhibition which was open to the public for the first time and included also for the first time a Home Heat Section was promoted by W.H.C. Industrial Promotions Ltd, which of course meant that visitors were ensured of a well presented exhibition with a high standard of exhibits.

The building exhibition included many stands showing the newest range of kitchen and bathroom equipment.

Moffett & Sons Ltd for example showed the special range of hotel and restaurant equipment while Noel Ludlow showed a beautiful Poggenpohl kitchen. Bodel Distributors Ltd Frahe sink range and legend kitchen together with the Allegro range of shire toilet equipment. The Downpatrick based J & W McCall Supplies (NI) Ltd showed an Italian range of exclusive tiles and toilet ware.

Other notable stands included a colourful display of bathroom equipment by Stevenson & Turner Ltd while Doherty Ross & Armstrong Ltd let you know that taps and shower fittings can be a think of beauty similarly David McNarry Tiles Ltd had on display tiles from all parts of Europe.

We have only mentioned a few of the companies who together indicated that the days of “home made” products are gone, baths, showers, kitchens, cookers, tiles on display were in the majority European made.

The foregoing pattern also found its way into the “home heat” show where practical every stand had on display a multi-fuel boiler manufactured on the Continent. Similarly on many stands were to be found many “stoves” again of European manufacture. Most of these stoves are originally designed as wood stoves but they are now being sold as multi-fuel units.

Entering the hall one had to be struck with the excellent display mounted by Triancio, again with the emphasis on solid fuel. Beside them John Kelly Ltd had their now famous Aerocowl together with their new agency Brenceede coal handling...
Carrowdare Products Ltd and Lyfotherm Ltd introduced their respective new heat pumps.

Heating Controls & Devices Ltd had as would be expected a complete range of domestic and commercial heating equipment, including the Bradlee Package Boiler, the De Dietrich combination boiler and the Bigwood under feed stoker.

L.P.G. was represented by Calor Kosangas (NI) Ltd and also Ergas (NI) Ltd while coal was represented by the Coal Advisory Service, electricity by the N.I.E.S.

Insulation naturally took up a fair bit of the exhibition, the various forms being shown by Ormaglass Ltd, Cape Insulation Ltd, Strangford Insulation Ltd, M.P.I. Ltd, Viscount Double Glazing Ltd and the N.I. Insulation Centre.

The organisers were very pleased to welcome a number of cross channel firms and also a number of firms from the South some of whom had come North for the first time. The Southern visitors included McGees Stores Ltd of Ardee, Macfab Ltd of Carrickmacross, Wavin Pipes, Grant Engineering Ltd of Birr.

This was the first time the contents of the exhibition had been widened to include plumbing, heating, bathroom and ancilliary equipment and this broad approach allowed a wider range of visitors to attend and this proved to be a very successful approach which no doubt will be used again for the next show.

**Fosse Warmair**

A new high output back boiler, the Turbo is now being introduced to the market by Fosse Warmair, already well-known in the trade as distributors of a wide range of domestic heating appliances.

Its output is comparable with that of most room heaters and yet at less than half the price. It is a wrap-round back boiler with a squared out back and two flue-ways which increase the surface area exposed to the fire to 1550 square inches, roughly double the area exposed in most competitive back boilers.

Fosse Warmair are the distributors for England, Wales and Scotland but enquiries for Northern Ireland should be made to BIK Distributors Agents, 309-335 Crumlin Road, Belfast. Enquiries from potential stockists are invited from all areas.
SEASONS GREETINGS

Patrick G. O'Connor
Technical Representative

H. R. Holfeld (Hydraulics) Limited
2-4 Mervue Road, Stillorgan
Dublin, Ireland
Telephone 01-952001 (24 hours)
Telex 244826HOLFEI Dublin
Telex 244826EI 25156E1

HOLFELD HYDRAULICS

Europair House, 3 Ardee Road
Rathmiles, Dublin 6
Tel: (01) 975747
Telex: 25754

Europair (Ireland) Ltd.

V. CAHIR BOYLE, D.B.A.
Managing Director

MICHAEL D. BUCKLEY B. E. (Mech)
Sales Director

WALKER AIR CONDITIONING
DUBLIN INDUSTRIAL ESTATE
DUBLIN 11
Tel: 308844
Telex: 24863/32946

J. J. Sampson & Son Ltd.
Cherry Orchard Industrial Estate
Dublin 10
Tel: (01) 288111 (4 lines)

Automatic Control Components

COOL PRODUCTS LTD

REFRIGERATION WHOLESALERS
Balmoral Road, Balmoral Industrial Estate.
Tel: (0232) 664936/6 Home No. 645466
Telex 747559

Director: R. T. Johnson (Managing)
PERFORMANCE OF COOLERS

This is the final part of a two part article on the performance of coolers by Aire Schmitz of Kuba, the German coil manufacturers, in which he examines the selection of components.

3.1 Condensers Selection.

According to recent experience I’d like to start with some hints concerning the selection of the size of the condenser.

The capacity that has to be rejected by the condenser is considerably higher than the refrigeration effect = cooler capacity. The condenser capacity \( Q_c \) = cooler capacity + power consumption of compressor, roughly \( Q_c = Q_{ev} + P_{a1} \text{Mot} \); If you do not know \( P\) most manufacturers provide factors to multiply evaporator capacity in order to get condenser capacity. When selecting a condenser in an installation where you have to pull down air temperature, you must select the condenser for the higher temperature conditions.

3.2 Coil.

Except for the frost and the water which do not occur on the surface there is no principal difference concerning the air side. The condensers are designed according to the pull through system. Besides the price one reason is the fact that the dirt deposits to a great deal on the air inlet of the coil which should therefore be accessible and not hidden behind a fan. A minor point of view is that the temperature increase by the motor heat should not increase TD and thus the condensing temperature. On the refrigerant side there are considerable differences compared with evaporators. The main difference is that there is no optimal tube length giving maximum capacity at a given coil and fan. There is a limit given by the pressure drop that causes full tubes and consequently subcooling. On the other hand there should be some pressure drop to reduce influence of height and header connections. I have already mentioned subcooling. This does not come from the condenser if this is designed properly, a fact which has been proved in a lot of cases both in laboratory and field. If you choose a bigger condenser for the same job in order to get subcooling, you will get a lower TD but no subcooling.

The other way round, you can say that a condenser which subcools the liquid by more than 3.5 K is of poor design. If you want subcooling, you can get this only in a full liquid line after the liquid receiver. You can lead the liquid line through a separate part of the coil and according to the size of this part you will get more or less subcooling. Another significant difference to the evaporators is the fact, that there is no significant influence of \( t_c \) and TD on the heat transfer, also the influence of the superheat of the hot gas coming from the compressor can be neglected. This means that the capacity can be converted linearly to TD without regard of the other conditions. The distribution of the hot gas into the various passes through the coil causes no problems because it is single phase.

3.3 Fans.

There are two main groups: Axial fan and radial fan ventilated condensers. If only the air side pressure drop of the coil has to be overcome, axial fans are used, as their field of application are large air flows at low pressure drops. These condensers are mostly used as remote condensers in the open air. This means that they are subject to the weather and sometimes have to be resistant against aggressive air. We provide on request a painting which protects the coil and casing against most fumes in the air. If axial fan condensers are installed in areas with strong wind of preferred direction, air flow should not go against the wind because this could cause serious reduction of the air flow. Vertical air flow is preferable. Although our motors fulfill the requirements of a high class of protection against water it has proved advantageous to protect them from excessive rain. In the periods of standstill which are especially long in the cold and rainy periods of the year there could be heavy condensation of water inside the motor. If there cannot be provided a shelter it should be taken care that every motor runs until it gets warm enough to dry out every few days.

If there is considerable additional pressure drop which goes along normally with ductwork, radial fans are used. They are normally installed inside buildings, so they are not subject to weather influences. As the blowers are driven by pulleys it is possible to adjust the speed according to the resistance and use the cheap four-poled standard motors which also have relatively high efficiency. Radial fan condensers are mostly used in multi-circuit installations where you have a lot of small refrigerated areas such as in super-markets with a common place for condensers with a common ventilation unit.

3.4 Control.

A big problem with all air cooled condensers are the variations in air temperature which causes big alterations in condensing temperature. This has to be prevented. It can be done on the refrigerant side by various methods which may keep condensing temperatures constant, but do not save energy as fans operate invariably.

A similar effect on the air side has the recirculation of discharge air to the air inlet.

To save energy the air flow has to be reduced at low air temperatures;

This can be done

1) by throttling (it only saves energy in the case of radial fans but, axial fans consume more energy).

2) by variation of the fan speed (best method)

3) by shutting off fans as temperature goes down (simplest

et al.: H & V News

IHVN, December 1980 29
3.4 Various aspects.

What frost is for coolers, dirt is for condensers to some extent. That is the reason why turbulators as they are advertised by some manufacturers can result in a capacity reduction after some time of field and not only laboratory application if there is not used an air filter.

The following equations show the influence of various factors of a sound power/pressure level.

\[ L_W = 50 \Delta \log n + 70 \Delta \log d; \]

\[ L_W = \text{sound power level}. \]

\[ n = \text{fan speed}. \]

\[ d = \text{diameter}. \]

\[ \Delta L_W = 10 \Delta \log V + 20 \Delta \log P_{total}; \]  

\[ \Delta L_W = \text{airflow}. \]

This means that you reduce noise level by roughly 10 dB if you change from 4 to 6 poles e.g. to night because of lower temperatures.

If you throttle an axial fan for air flow reduction, \( L_W \) will increase. On the contrary, \( L_W \) will decrease if you throttle a radial fan as long as you remain in normal application range.

If bigger air flows are required in low noise areas, noise attenuators cannot be avoided. They cause some external resistance and fans have to be enforced. Fortunately the length of an attenuator does not increase pressure drop significantly as the main part is caused by its air inlet and air outlet. Air cooled condensers have a strong directivity of noise. They are considerably noisier in direction of air inlet and outlet than vertically to them.

There is one most important difference:

At constant fan speed the power and current consumption of an axial fan decreases with decreasing resistance of the system, whereas it increases in the case of radial fans significantly and leads to overload of the motor if the calculated pressure drop is not there. This also means that the current of the radial fan motor has to be checked in any case.

3.4 Noise.

A problem which has become extremely important in the last years is noise. Radial fan condensers are normally installed inside buildings in housing areas and the air-inlet and outlet are supplied with noise attenuators.

The problems arise with axial fan condensers as they are mostly installed in the open air. On principle, noise generation is strongly related to product of air flow and total pressure drop (static + dynamic) or what means the same, to fan diameter and fan speed. For given air flow and static pressure drop a bigger fan diameter and corresponding smaller speed will give smaller sound power. The

and cheapest method).

The signal can come from condensing temperature, air inlet or outlet temperature. I am in favour of air inlet temperature because it causes all the changes; in cases with strongly variable capacities the outlet temperature could be preferable in order to also meet these variations as outlet temperature changes with capacity. Considerable fluctuations in condensing temperature should be avoided, which could require a combination of the various methods.

There is one most important difference:

At constant fan speed the power and current consumption of an axial fan decreases with decreasing resistance of the system, whereas it increases in the case of radial fans significantly and leads to overload of the motor if the calculated pressure drop is not there. This also means that the current of the radial fan motor has to be checked in any case.
This touches the question of the choice of the fin spacing. We have seen from many capacity tests and calculations that many fins per inch are not resulting in a good price per watt. But this is shown only to measured capacities. The influence of dirt on capacity is not only adverse because it deteriorates heat transfer but also reduces air flow seriously what is very often the main influence. We chose a fin spacing of 3.2 mm for axial fan and 2.5 mm for centrifugal fan. Distances smaller than 2.5 do not seem economic and enlarge difficulties of cleaning. I think condensers should be cleaned at least once or twice a year — it will at least save a lot of energy. If you choose small spacings between about 2.5 and 3.5 mm the greater particles deposit on the air inlet of the coil and form a sort of filter which catches also a lot of small particles and thus keeps the coil itself relatively clean. But this layer has to be removed relatively frequently — preferably by a hoover. We recommend this for bigger condensers. For small condensers which will not be well accessible, we recommend large spacings of 4-5 mm where we think that the fan will pull most of the dirt through the coil. As small fans can only overcome small pressure drops, this may also be an economic maximum.

4. Capacity indications in the catalogues

As a matter of fact, the values indicated by the various manufacturers are not comparable as tests according to European standards have shown.

If you look closer to the matter you will discover that capacities are not only based on differently defined temperature differences but supposedly also on different methods of obtaining the value of the capacity itself. The second influence is not so obvious but more significant than the first. So it is not normally mentioned because of various reasons, that can not be dealt with, here.

Since October 1976 there exists a European recommendation for national standard committees established by all major manufacturers organised in CECOMAF which gives detailed regulations how to rate capacities of unit coolers at various sets of conditions. These conditions are:

<table>
<thead>
<tr>
<th>Standard conditions for air cooler capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>For all capacity data according to this standard, the standard conditions according to Table 1 apply to (primary) refrigerants and according to Table 2 for secondary refrigerants.</td>
</tr>
</tbody>
</table>

Table 1: Standard conditions for (primary) refrigerants.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Temperature</th>
<th>Superheating</th>
<th>Liquid temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>( t_{in} )</td>
<td>( t_r )</td>
<td>( t_{he} )</td>
<td>( t_{liq} )</td>
</tr>
<tr>
<td>( ^\circ C )</td>
<td>( ^\circ C )</td>
<td>( ^\circ C )</td>
<td>( ^\circ C )</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>-8</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>-18</td>
<td>-25</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>-25</td>
<td>-31</td>
<td>27</td>
</tr>
<tr>
<td>5</td>
<td>-34</td>
<td>-40</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 2: Standard conditions for secondary refrigerants.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Intended for</th>
</tr>
</thead>
<tbody>
<tr>
<td>( t_{in} )</td>
<td>( t_{he} )</td>
</tr>
<tr>
<td>( ^\circ C )</td>
<td>( ^\circ C )</td>
</tr>
<tr>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: If ratings are to be published in conditions different from the above, they must be based on the same basis as the above standard.

If your look at the table, you discover that there is not mentioned one single difference between two temperatures, because the exact fulfilling of all conditions and requirements for the test device only gives comparable data.

Recently the same committee finalised a similar recommendation for remote air cooled condensers which is now translated into various languages.

The titles are:

All manufacturers of these products should be able to supply you with copies. As most manufacturers seem to be reluctant to give data according to these standards, there should be some pressure by the customers on them in order to get really comparable data for a good decision.

As the capacities of coolers have to be measured with entirely dry and clean surfaces in order to get accurate and repeatable results there have to be applied correction factors in order to take into consideration the influence of latent heat and frost. Manufacturers should clearly define the factors they apply and give detailed fin and tube specifications. A great number of tests since 1967 with the same evaporator in a test set-up, practically as it has now been standardised, have shown that an accuracy of better than \( \pm 7\% \) can be achieved with evaporators. The tolerance should be smaller with condensers.

As it is very difficult to make really reliable tests in the field in order to judge the capacity data the market should insist in the publication of standard capacities. In all fields where this was exercised the result was a significant improvement of the products.

Published by ARROW@DIT, 1980

IHVN, December 1980 31
NEW PRODUCTS

NEW FROM FINHEAT

Also new from Finheat is the S&P range of ceiling void heaters model 350 and 500 with interchangeable components with the S&P FBM fan convectors.

WALKER RANGE MODIFIED

As a result of continuous product development, several new modifications have now been incorporated into the Walkair range of condense dryers. These dryers are manufactured in Denmark and distributed by the Humidity Control Division of Walker Air Conditioning Limited.

The larger models CDS and CDT 2000 and 3000 have been fitted with larger evaporator and condenser coil, thus increasing the extraction rate over the previous design by 30 to 47%. The size of the modulating and evaporator fan has been increased and an electronic reverse cycle controls have been programmed to eliminate unnecessary de-icing at temperatures above 25°C.

All units, incorporating these modifications, are now available ex stock from Walker Air Conditioning Limited.

New Lennox Warm Air Range

Lennox have launched a new range of fourteen warm air heaters for high-quality domestic and small commercial applications, with nominal heating outputs of from 12.9 kW to 47 kW (44,000 to 160,000 Btu/h). Designated 'G*', the range embraces upflow and downflow models, with a choice of natural gas or LP gas. Of similar dimensions and outputs are the six oil-fired warm air heaters in the 011 and 012 ranges. Powerful direct drive fans contribute to what Lennox claim to be exceptional quietness in operation, and are sized to accept optional add-on cooling from 7 kW to 18 kW (2-5 tons) nominal cooling capacity. Matching cooling coils, condensing units, electronic cleaners and power humidifiers may be added, either initially or subsequently, to provide year-round “total comfort” systems. Heat exchangers are coated with a special ceramic material (Duraglass II) for corrosion protection. Cabinets and fans are durably finished with an eight-stage electrodeposition paint treatment, followed by baking, and all units are fully factory assembled and tested.

Main Lennox distributor in Ireland is C & F Limited, of Mill Lane, Palmerstown, Dublin 20 who will be pleased to supply technical leaflets with detailed specifications, performance and installation data for all models in the Lennox G11 range.

A conversion kit was recently introduced by Pegler to enable the many millions of existing manual Belmont 15mm radiator valves to be converted to thermostatic operation. The kit comprises a thermostatic head with screw-in gland which simply replaces the manual control knob and gland on the existing valve body. The conversion can be carried out quickly, without disconnecting or modifying the pipework.

The Belmont manual valve (left) is simply converted to thermostatic operation (right) by replacing the existing valve head with Pegler's new conversion headwork and thermostatic control unit.

THE BELMONT CONVERSION KIT

A conversion kit was recently introduced by Pegler to enable the many millions of existing manual Belmont 15mm radiator valves to be converted to thermostatic operation. The kit comprises a thermostatic head with screw-in gland which simply replaces the manual control knob and gland on the existing valve body. The conversion can be carried out quickly, without disconnecting or modifying the pipework.

Further information from Manning & Usher Ltd.
Watermiser towers are formed from heavy gauge mild steel panels, which are hot dip galvanised after manufacture. When erected, these form a monocoque shell of extreme strength and rigidity. This type of construction allows an I.D. cooling tower to be provided in many configurations, either with an integral basin, or on to a customer's concrete pond.

The design and construction of the range ensures minimum maintenance requirements. Watermiser do, however, offer a contract service to ensure that their towers at all times operate with maximum efficiency, and provide a long trouble-free working life.

Further information from: Henry R Ayton Ltd.

Robinair announce two new 1.4 h.p. direct drive lightweight vacuum pumps. Model 15086 is a two stage 1 c.f.m. pump with an ultimate vacuum performance of 10 microns (0.01 torr). Model 15091 is a single stage pump with a capacity of 2 c.f.m. and an ultimate vacuum performance of 20 microns (0.02 torr). Both pumps weigh 19 lbs and are competitively priced. The Robinair range of vacuum pumps consist of single, two-stage and switchable versions with direct and belt drive capacities up to 15 c.f.m.

Further details from approved Robinair distributors RSL (Ireland) Ltd, 48F Robinhood Industrial Estate, Clondalkin, Co Dublin, (tel: 508011) telex 4818.
Kane-May announce the launch of their new micro-processor thermometer, the KM-10000, they consider the KM-10000 to be unequalled in the field of portable, digital temperature measuring instruments, and it can out-perform many static, bench-top models. The micro-processor controlled operation of the KM-1000 has enabled technical specifications and features to be excelled resulting in an instrument which can meet virtually every existing temperature measurement need.

The KM-10000 provides nine different functions obtained by finger-tip pressure on the key-board including degrees C to degrees F conversion, maximum, minimum temperature memory storage and recall of all temperatures measured by the instrument.

For further information contact: Food Industry Supplies Limited, Parkmore Industrial Estate, Long Mile Road, Dublin 12. (Tel: 508335 Telex: 30389 FOOD EI).

Boilers Manufactured from 1,000 to 5,000 lbs per hour
Stockists & Suppliers of boilers up to 65,000 lbs per hour suitable for burning Oil, Gas, Turf, Coal and other Unusual Fuels.

Agents for Danks of Netherton

General Industrial Marine Boilers
Frankfort, Dundrum Road, Dublin 14 Tel.: 989921, Telex 30870

Agents for Danks of Netherton

General Industrial Marine Boilers
Frankfort, Dundrum Road, Dublin 14 Tel.: 989921, Telex 30870
GKEP Analytical Instruments, Cambridge, the gas monitoring specialists of Kent Industrial Measurements Limited, announce their unique, new Heat Loss Meter Model 6910 which, when coupled with a continuously operating oxygen in flue gas analyser and two thermocouples, provides a continuous and direct measurement of boiler combustion performance. Its purpose is to present the operator with a value for the percentage of available heat which is lost up the chimney or stack and to indicate the combustion conditions from which this results. Any empirical adjustment made in these conditions can be monitored together with its effect on the percentage heat loss.

The Model 6910 is thus a valuable aid to achieving optimum boiler performance, thereby maximising fuel economy and minimising running costs. The heat loss meter accepts the electrical inputs from two thermocouples and an oxygen analyser and from these signals performs all the necessary calculations to give direct indication of:

1. Heat Loss (%)
2. Percentage of Oxygen in Flue Gas
3. Flue Gas Temperature (°C)
4. Temperature Rise (°C)

GKEP Analytical Instruments are Industrial Instruments Ltd — The Instrument People — of Herbert Place Dublin and Little Island, Cork.

### New Heat Loss Meter

The Woods-Titus VAV control boxes.

### Woods to Manufacture VAV Units

Recently we learned of an agreement that provides for Woods of Colchester to increase their range of air distribution equipment to include for the first time a VAV control box. Developed by the Titus Manufacturing Co. of America, local manufacture of the Enviro master units as well as associated equipment will, it is understood commence at Colchester in early 1981. Woods have a branch office in Belfast and GEC Distributors are the distributors in the Republic. The Enviromaster, which is already proving very successful in other world markets, is a compact, factory built unit, designed to accurately and with maximum energy economy regulate the flow of conditioned air to zones within a served building. Variable air volume is in fact the only system known that will comply with energy saving guidelines such as ASHRAE standard 90-75. The Enviromaster assembly includes batteries for zone re-heating, attenuators, multi-outlet adaptors, plenum boxes and air terminal devices specially designed with internal condensation pockets. Initially Woods of Colchester will produce the units in 3 sizes, these providing maximum/minimum air volume control from 85 to 6,800 m³/H (50 to 4,000 cfm). A company spokesman told us "Woods have been able to offer a total air distribution equipment service for many years. Now with the availability of the Enviromaster, we are able to provide a full system package. By integrating the VAV boxes with our already well established Airpac air handling units, incorporating Varfoil (variable pitch in motion) fans, we can offer VAV systems that combine first and operating cost economy with energy saving and conditioning efficiency. Consultants and contractors can now specify and order a VAV system from one source, confident that they will be getting one that combines well tried and tested equipment, which is backed by a technical service and guarantees second to none."

### RITE-VENT CHIMNEYS AND FLUES

Rite-Vent Ltd have recently introduced the Model ICIC three-skin insulated chimney for use with oils or solid fuel burning appliances. It is available in stock sizes 14 to 24”, with larger sizes available on request. The three-skin chimney is constructed of stainless steel 304 S16 inner liner, 12.5mm air cavity, galvanised steel inner skin, 63.5mm high grade vermiculite insulation, and stucco-embossed aluminium outer casing. A full range of fittings is available and standard lengths are 914mm installed.

Their new Maxflow — gas vent twin-wall flue is built with an inner liner of aluminium, a 25.4mm air gap and an outer case of stucco aluminium or galvanised steel. Maxflow is available in stock sizes 14” to 24” with larger sizes available on request. It is also supplied with a stainless steel inner liner and a wide range of fittings including header tees for use in modular boiler installations.

C & F Ltd. are the Rite-Vent distributors in Ireland.
NEW PRODUCTS

HARD SCALE — THE MAGNETIC TREATMENT

The magnetic treatment of water to prevent the formation of hard scale when heat transfer occurs, is not a new technique. In fact, it has been utilised with great effect over the last 30 years in many countries throughout the world to protect a wide variety of industrial plant, such as boilers, condensers, heat exchangers, steam cleaners, extrusion machines, vacuum pumps, sterilizers, beverage machines and dishwashers.

The CEPI-COMAV magnetic water treatment units are manufactured by water treatment specialists who also manufacture ion exchange plants, neutralising filters and iron removal units. Brennan Airconditioning Ltd., sold Irish distributors, offer a wide range of CEPI-COMAV magnetic water treatment units with flow rates from 1 l/m to 36,000 m³/h. The units once installed have no running costs, require no maintenance, no electricity and no chemicals.

The CEPI-COMAV effect is not confined to hard water. It is so successful it can be used to treat such liquids as seawater, sugar juices, milk and black liquor and CEPI-COMAV units are available in all stainless steel construction for this application.

Full details available from: Brennan Airconditioning Limited, 60 Cookstown Industrial Estate, Tallaght, Co. Dublin, (Tel: 514711, Telex: 33339).

SENSITIVE PRESSURE SWITCHES FROM MANOTHERM

A new series of sensitive differential pressure switches is now available from Johnson Controls, Penn Products. This new line will completely replace the APS device, which was previously sold by this organisation. The P32 senses the difference between the two air pressures applied to the high pressure port and the low pressure port of the control.

Operating pressures are in the low static pressure region, typical in the air handling section of HVAC systems.

The specific features are:
1. Set point scale on standard models: easy setting for a variety of applications.
3. High maximum pressure rating of 70 mbar = 700 mm W.C.: greater life, fewer diaphragm ruptures.
4. Set point scale expanded at low ends: easier setting at low set points.
5. Dual purpose high pressure port serves as a mounting connector as well as a sensing port: less installation time.

Several accessories are supplied with each control. Separate accessory kits are also available.

Contact Manotherm Ltd., 4 Walkinstown Rd, Dublin 12, (Tel: 783387) for further information.

NEW HEATING TAPE STOCKISTS

Heat Trace Limited of Stockport in Manchester have recently set up new stockists of their range of parallel resistance heating tapes. McCaig Collin of Greenwood Avenue, Belfast (Tel: 656212) have recently received their first inventory whilst M & G Ltd. of Cookstown Industrial Estate, Tallaght, Co. Dublin (Tel: 511144) have had stock for a couple of months now. The P32 senses the difference between the two air pressures applied to the high pressure port and the low pressure port of the control.

Operating pressures are in the low static pressure region, typical in the air handling section of HVAC systems.

The specific features are:
1. Set point scale on standard models: easy setting for a variety of applications.
3. High maximum pressure rating of 70 mbar = 700 mm W.C.: greater life, fewer diaphragm ruptures.
4. Set point scale expanded at low ends: easier setting at low set points.
5. Dual purpose high pressure port serves as a mounting connector as well as a sensing port: less installation time.

Several accessories are supplied with each control. Separate accessory kits are also available.

Contact Manotherm Ltd., 4 Walkinstown Rd, Dublin 12, (Tel: 783387) for further information.

Typical cross section of pipe after less than 1 years operation on hard water. Approximately 75% of cross sectional area is lost.

WICU® -extra is a tube with extra high thermal resistance. Its thermal conductivity of 0.029 W/mk lies well below the statutory requirement in Germany of 0.035 W/mk, thus allowing the use of a considerably thinner layer of insulation. This has a decisively beneficial effect on its processing possibilities.

WICU® -extra as a thermally insulated quality copper tube with uniform defined thermal resistance is especially suited for pipeline in cellars, shafts and outside walls. Supplied in straight lengths of 5 m.

WICO® -plus is a building service copper tube that can be bent cold and complies with the Energy Saving Regulations in Germany for hot water supply and radiator connection lines up to max. 8 m long with specified thermal insulation.

WICO® -plus is a thermally insulated quality copper tube with uniform defined thermal insulation.

NEW WICU TUBES

The coiled tube is especially suitable for concealed installation, for hot water service lines and radiator connection lines up to 8 m and with plastics sheath and bendable cold by hand. Supplied only in coils 25 m long. Wicu products are available from L R Wood Ltd.
The following is the address by T. J. Quinn, Assistant Director General Manufacturing Technology Group — IIRS to the Annual Dinner of the CIBS.

The C.I.B.S. has a unique opportunity to meet and solve the problems presented by the energy crisis to the designers and users of buildings. As you are already aware, the energy used in all buildings in Ireland demands 50% of our total energy demands. Domestic energy demands (account for 30% and other buildings 20%). Most of the demand is accounted for by a combination of high heat demand through poor insulation coupled with a low efficiency of heat generation.

There is a pressing need for early cooperation between architects and engineers to ensure a balanced cost/energy design for new buildings and for the efficient retrofitting of existing buildings. There is a pressing need for the architect, engineer and surveyor to advise the client on the long term implications of energy costs. In an age where automation threatens levels of employment by guarding against continuing high labour costs, it is senseless to ignore the so called "invisible" costs of heating and servicing buildings.

At current energy prices the fuel costs for a commercial building would cost 200-300 IRL/m² over a fifty year life. This is equal to the building cost. Costs three to four times this amount will be incurred with fuel costs increasing at 3.4% per annum.

We live in an age where nothing is hidden save what we decide not to see. Your profession has been to the fore in indicating that it can design, plan and realise better and cheaper building energy systems, fully and automatically controlled and vulnerable only to the careless and the violent. Modern optimisers with self adapting software make effective control a growing reality.

Savings of 35% have been achieved in U.K. buildings using optimum start controllers and specifications for new government buildings include optimisers.

Your four part "Building Energy Code"
1. guidance towards energy conserving design of buildings and services
2. calculation of energy demand and targets for new buildings and services
3. guidance towards energy conserving operation of buildings and services
4. calculation of energy consumption targets for existing buildings and services

is exhaustive in its scope, giving attention to new and existing systems alike, and combining the practical, the theoretical, the technical and the economic factors in four compact volumes (a further volume on domestic energy use and control would be in the national interest). The attention of professional service engineers, the insulation, system design and control mechanisms for domestic housing, while seldom sought, would have made a significant contribution to national energy saving, where professional skill and interest would carry decisions a long way ahead of existing standards and conventional design. Here we note with interest that the Department of the Environment are considering revision of the insulation standards for new housing.

With 25,000 new houses being built each year with an average gross annual consumption of 60 GJ/house, there is scope for a 30% saving through improved thermal design yielding a total saving of 10,000 tonnes of oil per year.

The challenge is a technical one. Your technical training and professional responsibilities give you an opportunity to lead and educate your clients and ultimately the nation into an appreciation of the need to save energy, and to appreciate fully the value of good design services. Thus the Building Energy Department offers you a technical advisory service, while at the same time encouraging building owners, architects and building contractors to avoid of the opportunity when building to be energy conscious. IIRS studies have shown that energy demand of buildings can be reduced by 40-50%.

We appreciate the difficulty all professional advisors have in convincing the client of the value of energy conservation measures and indeed we strongly hope that our schedule of Seminars and Energy Managers Association Meetings will spell out the message that energy conservation is a business opportunity, the seed of which when sown in good ground will yield fruit manyfold. The repeated maxim that industry always demands a two year payback does not square with

Published by ARROW@DIT, 1980
published profit margins. The scope for energy conservation is greater than this constraint allows and investment must continue to be encouraged.

Perhaps the most hopeful development is the new practice of energy management and auditing, which aims to mimic existing accounting practice where committed technical staff marshal energy use and cost figures for inspection and keep the energy system under constant surveillance. Energy costs are a problem in their own right and in many cases their control will more than pay for the control costs, thus directly contributing to job creation. But the potential for greater and more confident investment also exists as large energy reductions are secured by conservation actions.

The Minister for Energy sees the possibility for regulatory developments requiring companies to publish energy costs, as a new mechanism of encourage-

ment and control. At the same time the Department of Energy seeks to encourage every type of conservation interest, and in an important initiative has commissioned the IIRS and An Foras Forbartha to advise the Department on insulation standards for non domestic buildings, a matter which your own institution has considered and advised very good standards indeed.

CIBS CORPORATE MEMBERSHIP EXAM

The first and only students to date to have passed all six subjects in the new Corporate Membership Examination of the Chartered Institution of Building Services (London) were from the Republic of Ireland.

Michael Lynch (Jones Group), Tony Hogan (Leo Lynch & Co. Ltd.), and Brendan Gallaher (Southern Refrigeration), all students at the College of Technology, Bolton Street, Dublin, passed three subjects in the summer of 1979, the first occasion the examination was set, and passed the remaining three subjects last summer to complete the examination.
must be added. Payment in U.S. currency is required with all orders. To order, write ASHRAE Inc., Publications Sales Dept., 345 E. 47th St., New York, NY 10017.

Performance of General Purpose Fans

Current practices and developments in the fan industry are reflected in a set of test methods just published by BSI as a revision of BS 848 Part 1. The title is BS 848 Fans for general purposes Part 1 Methods of testing performance, and the standard takes account of the degree of agreement reached so far within ISO on a standard for air performance test methods of industrial fans.

It has been demonstrated that the current codes for fan performance testing established in different countries do not always lead to the same results. The differences depend chiefly on the flow pattern at the fan outlet and, while often small, can be of substantial significance. To meet this situation there is general agreement that all standardized test airways for fans to be used with products must have portions in common adjacent to the fan inlet and/or outlet sufficient to ensure consistent determination of fan pressure, irrespective of the permitted variations in the methods of flow measurement and control.

Copies of BS 848 Part 1 may be obtained from BSI Sales Department, 101 Pentonville Road, London N1 9ND. Price £17.50. (BSI Subscribing Members £8.75). Price in £'s sterling.

World Safety Standard for Room Heaters

Safety requirements for room heater such as radiant, panel, liquid-filled, fan, convector and tubular heaters form the latest world standard of the IEC, issued today. The standard, IEC Publication 335-2-30, applies not only to room heaters for household and similar purposes but also to heaters which may be used in shops, in light industry and on farms — all of which could constitute a source of danger to the general public.

This latest IEC standard is one of an extensive series being developed by the international body covering the safety of household and similar electrical appliances.

Indicative of the importance all countries attach to having harmonized electrical rules, the standard was approved for publication by the many National Committees of the IEC whose local industries service the world market for room heaters.

Further information from International Electrotechnical Commission, 1, Rue De Varembe, 1211 Geneva 20, Switzerland. Tel: 340150 Telex: 28872 CEIEC-CH.

I hear that Joe O'Reilly of Pump Services has gone to the UK to set up their new service operation there. Plans have been ready for some time for this move but difficulty in getting a suitable base caused delays and now that the move is made I wish Joe and Pump Services all the best in their new venture.

Other moves in the business include the appointment of Donald Higgins as the new Managing Director of O’Gormans (Ireland) Ltd and I also heard that Sean McAuley has left HTIL to form his own business in the contracts and fabrication end of the refrigeration business.

A recent piece of publicity from Isosan the cavity wall insulation people in the UK offers free baloons for Christmas but a colleague in the office suggested there might be some difficulty in getting them passed the Customs, I can't think why, can you?

Fernox the people who turn rust into water have sent out samples of the work that their additives do, the samples consist of bits of steel and copper in sealed plastic bags one with the additives the other without. Of course the one with the additives does not show any signs of corrosion while the other is rapidly rusting away, but what is of greater interest to me is the fact that the bits of copper are in fact Sterling pennies and at the present rate of exchange would be worth almost 2½p so if anyone has any of these samples they do not need.

The Editor of this magazine is known to many in the trade through his involvement in the College of Technology in Bolton Street Dublin, where he lectures on the IDHE evening course imagine his surprise when he got a letter recently which was addressed to Mr Ray Loughran Amidhe (the letters after his name of course stand for Associate Member Institute of Domestic Heating Engineers) and the letter starts “Dear Mr Amidhe”, A touch of the Ugandas about that.
The following notes are based on material submitted by the companies concerned.

**Mynell**

Mynell claim a technical breakthrough in the design and accuracy of water mixing valves. The safety of a fast and accurate thermostatic response with no problems of liming up in hard water areas or dezincification in soft water. A wax filled copper capsule thermostat which is considered indestructible as it is unlikely to fail or fatigue. Constant operation even up to 100,000 times proves this claim for the Safemix thermostatic shower.

A pre-set maximum temperature of 110°F (44°C) is the standard setting for users in hospitals, schools, swimming pools, hotels and luxury flats, etc. Safemix is so accurate that it is constantly specified for important hospital installations, including processing X-Ray films and even on heart/lung machines, where only Safemix is sufficiently reliable for these demanding applications. Safemix has a highly sensitive thermostatic response which fails-safe in case of cold water failure.

Further information from Wyse & Ballantine Ltd., 62 Woodbine Park, Dublin 5, (Tel: 317553).

**I. R Wood**

L.R. Wood Ltd report a marked upsurge in the purchase of the versatile WICU Tubing (the ready lagged copper piping) and from market research it would appear that the increased demand for WICU is due to the fact that installers are finding it quick and easy to install and thereby less costly. Installers are now also finding a further saving by using Capillary Fittings. With these fittings it is possible to use copper piping of lighter gauge as cutting of threads becomes unnecessary, the use of soft soldered capillary fittings also reduces time of installation considerably compared with jointing by brazing and welding.

WICU (R) is supplied in coils of 25 or 50 metres and as it can be bent by hand and go around obstacles the number of fittings required is considerably reduced. This applies especially to older buildings in which central heating systems or hot and cold water distribution is being installed. Fuel and oil lines are another area in which WICU (R) is now being used.

There has been a sharp reminder of the approach of winter which recalls the fact that those who had WICU piping installed were trouble free during the freezing spell last winter. Stocks are normally available from the leading Builders Providers.

Literature is available and a new brochure is in course of preparation to announce interesting developments and will be available on request to L.R. Wood Ltd., 8 Goldenbridge Industrial Estate, Inchicore, Dublin 8, (Tel: 718077).

**Twyfords**

Twyfords Bathrooms, one of Britain’s biggest bathroom manufacturers and exporters, recently launched Harlequin Avocado and Harlequin Sandalwood at the Building Exhibition Dublin. The Harlequin idea is a subtle shading of a main colour to give a two-tone effect. Avocado and Sandalwood were chosen as top by householders after seeing a range of two-tone effects. The two Harlequin shades come in selected suites with their own matching accessories. “As usual we asked our customers first and think we have come up with the right answer. Harlequin Avocado and Harlequin Sandalwood give the newest possible look to the bathroom, yet the shaded effect allows a far larger choice of décor colours for the householder,” said Harry Barclay, Chairman of Twyfords.

**Two New Washbasins**

Nocturne pedestal washbasin, in an attractive modern shape with its sensibly sized bowl, price-wise it is pitched comfortably between the Classic and Sola basins from Twyfords and offers an equally attractive proposition to the private customer or the builder. Zodiac – A new vanity basin replacing the existing vanity model, with a good sized kidney shaped bowl. With the ‘built-in look’ coming upstairs to the bathroom from the kitchen, the new Zodiac now makes a welcome entrance to the range. Both the Nocturne and Zodiac are available in one, two and three tap-hole variations and in the complete range of Twyfords’ fashion colours. "Anti-slip" always sounds so negative, but Twyfords have made a positive virtue.
out of necessity with their new anti-slip finish for baths. Designer, David Johnson, used a fresh flower motif on the bath bottom, which while looking attractive retains its safety properties. Replacing the current type, the new flower pattern is colour harmonised and standard on colour Luna supersteel baths.

Investing time and trouble on behalf of their trade and retail customers, Twyfords are adding a horizontal outlet to their Norwood WC suite. This means the P trap will be phased out, reducing stockholding for merchants.

Further information from John Usher Ltd, Unit 12 Landsdown Valley, Long Mile Road, Dublin 12, (Tel: 519152).

West Coast

The Trumix Mark IV Shower Mixer incorporates in its patents all the essential features to make it the complete manually operated shower mixer. It is precision made, easy and simple to use with a proven design for safety efficiency and long trouble free service.

The easy grip control knob allows finger tip operation and 'band spread' metering action throughout the mixing range. In compliance with BS 1415 (Section 7) a safety feature prevents the valve being turned directly into the hot section. 'Trumix' will give you a satisfactory shower from 2 feet head delivering a gallon of water in less than one minute. This is the ideal quantity of water for adequacy of volume and economy in heating etc.

As the hot water temperature is peculiar to each installation the control dial has been suitably calibrated to show the mixing range and individual setting will be readily obtained once the valve has been correctly installed and operated.

The emphasis on Trumix products is 'function and practical' hence it is widely recommended by plumbers and consumers alike. Such good value for money is achieved by eliminating expensive national advertising and over costly fancy packaging.

Service to 'Trumix' Mark IV mixers is normally a matter of cleaning or replacing washers and because of the built in Isolator Screws is a minor operation carried out in a few minutes. The mixer incorporates a non-return valve and is fully guaranteed when fitted in accordance with the instructions leaflet.

The Trumix equal low pressure manually operated shower valve is more efficient and cheaper to use and install than most other types of shower mixers. Thermostatic showers have their place in hospitals, clinics etc., but are an unnecessary luxury in the average home giving no appreciable advantage but certainly requiring a lot of service.

All Trumix Kitd are made to give maximum performance and long working life with easy to clean roses if they should lime up in hard water areas. The roses are designed to spray the water on to your body and not all over the surrounding area.

Further information from West Coast Agencies Ltd, San Jose Roses Point, Sligo, (Tel: 071) 77139.

Marley

Some months ago, the Marley technical design team, knowing the problems of builders working to schedule and faced with the task of matching waste outlets of various sizes to a trap which more often than not requires packing or other modifications on site, concentrated their efforts on perfecting a gully which could accommodate inlet pipes from 1½" to 4" in diameter and with provision for height adjustment to suit ground or drain level. The result of their labour is the revolutionary multi-purpose one-piece gully trap which has been specially designed in PVC to provide a fast, economical answer to the widest variety of on-site applications.

The complete one-piece gully, manufactured at the company's plant in Lucan, Co. Dublin, incorporates Boss upstands to suit waste, rainwater and drainage connections, with a unique knock-out centres to simplify installation.

Some situations have traditionally required the use of a gully riser or other method of making up the space between the top of the gully and ground level. With the "Universal" the need for a riser is eliminated by the "twin-socket" feature which allows the gully height to be increased by using an off-cut of 110mm pipe.

The twin-socket features also allows the top section of the Universal to be swivelled, thus permitting the boss upstands to face in any desired direction, with or without height adjustment.

CPI/Marley also supply underground drainage pipes and fittings, rainwater systems in a range of profiles and sizes and complete soil and waste pipework systems for internal or external use.

Further information from Marley Flooring & Plumbing Ltd, Lucan, Co. Dublin, (Tel: 280691).

Spa-Line

Spa-Line is a range of pre-plumbed sanitaryware assemblies offering a cost-saving advantage over the traditional installation. Each Spa-Line unit comprises panel, sanitaryware, pipework and ancillary fittings, fully assembled and tested prior to despatch.
Plumbing Equipment & Supplies

from our works. Wide choice of design, finish and colour. Spa-Line can be specified for a wide range of applications, including luxury apartments, hotels, flats, housing estates, educational establishments, hospitals, hostels and public buildings. Units are delivered to site in protective crates, virtually eliminating risk of theft or damage prior to installation. On-site work is reduced to an absolute minimum. Highly skilled labour is not required, as the only plumbing work required is to connect the supply and waste pipes to the main services. Installation of a complete bathroom suite takes hours rather than days.

Further information from Schott-Kem Ltd., 28 Ramleh Park, Milltown, Dublin 5, (Tel: 976194).

Royal Doulton's new Sovereign Suite, comprising washbasin, WC suite and bidet—linked by their compact, rectangular design and the unique square-shaped pedestal on all three. The suite is available in ten colours: Burgundy, Alpine Blue, Whisky, Mink, Harvest, Sun King, Pampas, Avocado, Sepia and White.

Royal Doulton Sanitaryware has introduced a dimpled anti-slip pattern to its entire range of fireclay shower trays. Until recently, this finish was only available in the Toledo acrylic tray. This has proved so popular, that this real safety factor has been extended to cover the fireclay range. The new patterned base is now available in the lighter Continental shower tray, the Argyle, Berwick and Aran shower trays, and the Inverness corner shower tray. All the glazed fireclay shower trays come in the full range of Royal Doulton colours, including the recent additions: Burgundy, Whisky and Alpine Blue.

For further information contact Manning & Usher Ltd, 58 Haddington Road, Dublin 4, (Tel: 681355 Telex 31561).

Fordham

During recent years the Fordham "Sprite" cistern has been synonymous with versatility, efficiency and attractive good looks. Now, without altering the features that have made the "Sprite" the most universal cistern available, we have added yet another important application. The Fordham "Sprite" can now
If all bathrooms are the same, why do more people choose ours than any other?

The superlative quality of Armitage Shanks.

Armitage Shanks make beautiful bathrooms. Quality bathrooms with an extra splash of colour and an added touch of style. You can choose your own, very individual suite from our Armitage Shanks range, right now. And make your bathroom the beautiful place it ought to be.

armitage shanks
The one you know best.

Armitage Shanks (Ire) Ltd.
South Quay, Arklow, Co. Wicklow, Telephone: 0402 2415.
Dublin Sales and Distribution Centre,
Cookstown Industrial Estate, Tallaght, Co. Dublin.

Published by ARROW@DIT, 1980
Plumbing Equipment & Supplies

be installed with low level and close coupled washdown pans. One cistern to suit every purpose. A universal cistern that is ideal for both low level and close coupled installations. Right or left hand lever, single or dual flush, side or bottom feed and high or low water pressure — whatever your requirements the “Sprite” caters for them all.

For further information please contact: Fourways, Unit 18/3 & 4 Clondalkin Industrial Estate, Clondalkin, Co. Dublin.

Sanbra Fyffe
Irish Instantor Compression Couplings are freely available from Builders Merchants throughout the country and the comprehensive range include a fitting for every conceivable type of job. Irish Instantor fittings are manufactured in Dublin on the most specialized and up to date equipment available and the factory is giving employment to 300 people. The Institute for Industrial Research and Standards recently issued an Irish Standard for Compression Couplings and Copper tubes and Irish Instantor Couplings comply with the new standard. The plumbing and heating industry are familiar with the quality and reliability of Irish Instantor Couplings for generations and they are being demanded by those who require dependability and an effective back up service. Why not make sure that your stocks are adequate to meet the demand for Irish Instantor Couplings where alternatives will not be accepted.

Sanbra Fyffe introduced the Saflo range of Chromium Plated Plumbers Brassware over two years ago and since then the taps and mixers have proved very popular and they have been selected for the various market segments. The new star Cross Top taps are ideally suited for municipal housing and are being selected for the robust nature of the fittings. The Saflo is manufactured to comply with BS5412 performance Standard.

Bradley Group Column Showers
Modern Plant Ltd. of Clondalkin have introduced into Ireland, North and South, and Britain the Bradley stainless steel circular column shower designed for group showering. The columns are factory assembled in Wisconsin, USA, complete with their own drain fittings and offer two, four, five or six showers from one set of plumbing connections. A six-head column will cost approximately £750 ex-stock from Dublin.

The column shape presents a minimum amount of surface to keep clean and virtually eliminates water wear on shower room walls and, of course, eliminates wall chasing. All valves are removable and may be ser-
Plumbing Equipment & Supplies

The Bradley stainless steel column shower units have already been specified for John Scannell's Gymnasium at Terenure College and for Andrzej Wejchert's UCD Sports Complex, consultants for both projects being Delap & Waller. Full details on Bradley column showers and other fittings are available from Modern Plant Ltd, Otter House, Naas Road, Clondalkin, Co. Dublin, (Tel: 514944, Telex: 5191).

Modern Plant Ltd, Otter House, Naas Road, Clondalkin, Co. Dublin

The Mira 15 — exposed version for connection to exposed pipework.

Mira

The Mira 15 Series is a range of ½ in thermostatic mixing valves to provide water at a controlled temperature for ablutionary, or process requirements. The temperature control knob allows the user to select the required temperature within the range available. An integral temperature stop limits the temperature available to any desired level and can only be adjusted by a responsible person. Alternatively, locked temperature control versions can be supplied, which can be set on

The Bradley stainless steel column shower units

Full details on Bradley column showers and other fittings are available from Modern Plant Ltd, Otter House, Naas Road, Clondalkin, Co. Dublin, (Tel: 514944, Telex: 5191).

The Mira 15 — exposed version for connection to exposed pipework.

Mira

The Mira 15 Series is a range of ½ in thermostatic mixing valves to provide water at a controlled temperature for ablutionary, or process requirements. The temperature control knob allows the user to select the required temperature within the range available. An integral temperature stop limits the temperature available to any desired level and can only be adjusted by a responsible person. Alternatively, locked temperature control versions can be supplied, which can be set on

The Bradley stainless steel column shower units

Full details on Bradley column showers and other fittings are available from Modern Plant Ltd, Otter House, Naas Road, Clondalkin, Co. Dublin, (Tel: 514944, Telex: 5191).

The Mira 15 — exposed version for connection to exposed pipework.

Mira

The Mira 15 Series is a range of ½ in thermostatic mixing valves to provide water at a controlled temperature for ablutionary, or process requirements. The temperature control knob allows the user to select the required temperature within the range available. An integral temperature stop limits the temperature available to any desired level and can only be adjusted by a responsible person. Alternatively, locked temperature control versions can be supplied, which can be set on

The Bradley stainless steel column shower units

Full details on Bradley column showers and other fittings are available from Modern Plant Ltd, Otter House, Naas Road, Clondalkin, Co. Dublin, (Tel: 514944, Telex: 5191).
Plumbing Equipment & Supplies

site to supply water at any specific temperature. All models include integral check valves with isolating features and strainers. Manufactured of corrosion resistant copper alloys and stainless steel. Chromium plated finish, with polished stainless steel concealing plates. Check valves are plastic mouldings, spring loaded. A cranked tube (AD13) 15mm diameter, with an offset of 37mm is available to facilitate the connection of a Mira TFS503 Timed Control to all exposed models. Nominal, the temperature range is approximately equal to the temperatures of the incoming supplies, but accurate temperature selection and control is available between 30-50°C. The maximum temperature is set at approximately 45°C when despatched, but this can be altered on site, if required. All models are primarily intended for fitment in or on a vertical wall surface, as appropriate, but will function in any plane. Adequate space should be left at both ends of the exposed models to enable a screwdriver to be inserted to operate the integral isolation points.

Further information from Modern Plant Ltd., Otter House, Naas Rd., Co Dublin, (Tel: 514944 Telex: 5191).

Bartol

Through the distribution network of Fourways (Unit 13, 14, Clondalkin Industrial Estate, Clondalkin, Dublin), Bartol Plastics can now bring to Irish H&V engineers a complete plastics system for the installation of non-pressurised domestic central heating. Called Acorn, and launched in 1978, Acorn is one of the largest and most efficient brass foundries in Europe. Designed to appeal to the middle and top end of the market, the luxurious Danum range embodies over 80 years expertise in the design, development and manufacture of plumbing fittings. Available in chrome or gold plating with metal or acrylic handles, the elegant Danum range gives customers a comprehensive choice of patterns including high neck and pillar models, three hole mixers and compact single hole monobloc mixers, bidet fittings (with and without pop-up waste), bath fillers (with and without shower attachments) and of course sink mixers. Also conforming to BS5412 is Peglers Standard range of chrome plated pillar and high neck bath, basin and sink taps. Featuring attractive cool grip acrylic handles or chrome plated brass crosstops, the Standard range is subjected to the same stringent performance test as the luxury Danum range, but gives the customer a wide choice of patterns at an economy price. A particular feature in the design of Peglers Standard taps is the inclusion of two spindle seals — first an adjustable graphite ed asestos packing and secondly an ‘O’ ring located below the spindle threads. In addition to acting as a water seal, this ‘O’ ring conserves spindle lubricant and considerably adds to the long term efficiency of the tap. As with all Pegler taps, each component is individually chrome plated to BS1224 before assembly, thus ensuring that even out of sight places are resistant to corrosion.

Bartol's new pipe, coloured brown to match the fittings, is supplied with support sleeves, and comes in straight lengths of 3m or in coils of 50m. It is rated at 12bar at 20°C and can withstand boiling water.

Interestingly, in independent tests, for the system's ability to provide for hot and cold water services, Acorn was found to 'reduce significantly' the incidence of failure of copper cylinders by lessening the effect of water hammer.

Manning & Usher

The luxury Danum range of bath, basin, sink and bidet fittings is one of two ranges of plumbing fittings specifically designed and produced by Peglers to meet BS5412. The other range produced by Peglers is the Standard or Contract series. Both ranges are completely manufactured at Peglers' 21 acre plant at Doncaster which incorporates one of the largest and most efficient brass foundries in Europe. Designed to appeal to the middle and top end of the market, the luxurious Danum range embodies over 80 years expertise in the design, development and manufacture of plumbing fittings. Available in chrome or gold plating with metal or acrylic handles, the elegant Danum range gives customers a comprehensive choice of

The elegant bath mixer with shower attachment from Peglers luxury Danum range of bathroom fittings.

The single hole basin mixer with pop-up waste from Peglers luxury Danum range of bathroom fittings.

Wavin

Wavin Pipes' leading position in serving the building industry continues to be maintained through a constant updating and remodelling of its pipe systems, and the introduction of new products. It's Research and Development Department has recently introduced five top products for use with its pipe systems: the new mid-radius bend, Wafix jointing system, meter cupboard, Wavinol and Wavincoil.

Nothern is easier to handle and instal than Wavin's new style 45 and 92½ degree mid-radius bend (WS6A). Builders will appreciate the Wafix
It makes sound sense to choose **INSTANTOR** compression fittings!

Conex Instantor brass compression fittings have a long, proud success record. That's why you'll be wise to choose them.

You can be positively certain of top unvarying quality all the way.

You can be equally sure of a complete range of all types and sizes.

They're available ex stock.

Don't be tempted to settle for less.

You are the winner when you stay with Conex Instantor quality.

And they're guaranteed Irish.

polyvinylchloride pipe. Combining structural and material dynamics, a series of cylindrical holes run longitudinally throughout the pipe wall. The result is a very strong pipe of uniform stiffness and with better shock resistance. It is jointed in the normal way and consequently is leak-proof. It is lighter and therefore easier to handle and it’s up to 15% cheaper.

Wavincoil
Whatever the conditions, from unstable soil, peat, heavy clay, rocky, to firmer, wet soil, Wavin has the system to carry out effective drainage. The new Wavincoil comes in continuous 200 metre coils and can be used with automated continuous fast moving drain layers, or it can be laid manually. It’s so light that a man can easily carry a 200 metre coil single handed. It is a corrugated PVC pipe perforated along its entire length, facilitating maximum water drain-off. It’s easily laid, easily cut, and trenching widths can be kept to a minimum. It can, in fact, be used on all trench less and trenching machines. Wavincoil, and the trusted and reliable Wavinflow, can be used in conjunction with any soil conditions. Already in service in Continental Europe, it meets British and International government standard specifications and is in accordance with FDSA5: the Dept. of Agriculture.

Further information from Wavin Pipes Ltd., Balbriggan, Co Dublin, (Tel: 412260).
Marley P.V.C. Gutters

The Raining Champions!

- Economical and easy to install.
- Absolutely maintenance free; unlike metal needs no painting—ever.
- Factory made to ensure quality and reliability.

- Undisputed market leader.
- Choice of colours and profiles.
- Available from large number of Stockists throughout the country.

- Easily adapted for extensions or alterations.
- Technical Advisory Service available.

Marley Plumbing

Manufactured in Ireland and marketed by MARLEY Flooring and Plumbing Ltd., Lucan, Co. Dublin.
Telephone: 01-280691.

Published by ARROW@DIT, 1980
Solid fuel-multifuel boilers and cookers from CLYDE

**FROM AUSTRIA**

The luxury Lohberger solid fuel central heating cooker
Output from 65,000-96,000 BTU’s
Ex-stock

**FROM SCANDINAVIA**

The Jama multifuel boiler
Output from 68,000-188,000 BTU’s
Ex-stock

High quality
Solid fuel, oil or electricity simultaneously
at competitive prices from...

CLYDE SYSTEMS LIMITED
JOHN F KENNEDY ROAD, DUBLIN 12
TEL 507844 TELEX 24321

DEPOTS AT: ATHLONE CORK DONEGAL DROGHEDA GALWAY KILKENNY LIMERICK MAYO TRALEE & SLIGO

https://arrow.dit.ie/bsn/vol19/iss12/1
DOI: 10.21427/D71X48