11-1-1979

Irish H & V News - November & December Combined

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Last of the Big Oil Gushers?

- Domestic Boilers & Plumbing Equipment
- Looking Back...
- Seasons Greetings
WHEN THE HEATS ON TO GET THE HEAT ON ....

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Looking Back...

1979 was a very eventful year for the trade and we take a brief look back at a year that brought many changes both North and South and again showed the folly of depending on one fuel for our main energy source.

The Last of the Big Oil Gushers?

Our reporter was present at the Irish Planning Institute’s Conference on energy and the message here was also very clear, conserve or we are in real trouble energywise.

Seasons Greetings

It’s the nearest thing to sending a Christmas card to everyone in the business.

Two Very Special Offers

Hugh Maguire’s textbook on Heat Transfer is available again and is on special offer to IHVN readers.

IHVN have organised a very special trip to the ASHRAE Exposition and details of this trip of a lifetime are given inside.

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The Solar Energy Society of Ireland and the Institute of Domestic Heating Engineers presented a joint public meeting on this topical theme in UCD, Earlsfort Terrace on Wednesday, 21st November. The principal speakers were Hugh Maguire, past President of the I.D.H.E. and Gerry Lyons, Research Engineer for the Agricultural Institute Biomass Unit in Oakpark, Carlow.

In introducing the speakers, the Hon. Secretary of S.E.S.I. Mr. Chris Shouldice referred to the Government’s £600 grant scheme for solid fuel conversions as possibly a macabre “Greek Gift” – those elderlyDubliners saved from hypothermia by the extra solid fuel heating might well succumb to the resultant increase in smog.

Mr. Maguire dealt in detail with the safe and efficient installation procedures in interconnecting solid fuel heaters, particularly back boilers, with existing oil-fired systems. His patented system, by now well-tried in practice since its first publication in “Irish H & V News”, April 1977, was reviewed and updated in the light of that experience, thanks to the recent availability of dual-coil H.W.S. cylinders and more carefully designed boiler units. One of the unfortunate aspects of the present boom time for heating contractors is the proliferation of ‘cowboys’ offering cheap and fast interconnections – a sure recipe for accidents. A ‘fail-safe’ installation is paramount.

Gerry Lyons examined the feasibility of wood fuel chips as a convenient, economic and smog-free alternative to fossil fuels for large scale electricity generation and domestic central heating. Research into all aspects of this native and renewable resource is being carried out in Oakpark as part of the EEC contract for the production, storage and combustion of wood fuel chips, which have many advantages over logwood fuel. Such advantages include amenability for automatic combustion systems, more rapid drying and therefore less storage time, easy ignition with low ash, more efficient transportation and handling and ease of production from all sources of supply – wood thinnings, branches, short rotation timber and forest residues.

Mr. Lyons claimed that this fuel source could play an important role in Ireland’s energy future, seeing that, in 1977, 39% of the country’s primary energy (or 2.85 MTOE) was used for space and process heating. In this context, the Solar Energy Society of Ireland has claimed in their recent publication Toward Energy Independence that 10% of our national primary energy could be obtained from native renewable sources based on biomass by the end of the century.

Mr. Lyons presented a series of slides dealing with the harvesting, chipping, storage and combustion of wood chips in a specially modified domestic boiler with a stepped grate and automatic feed stoker which gave a combustion efficiency of 90% higher than the unmodified version.

Both speakers participated in a lively question-and-answer period with a large interested audience and the success of this novel joint presentation by the two Societies was acclaimed by many as a harbinger of closer cooperative ventures in the future.

Our thanks to Chris Shouldice who prepared this report on the meeting.
**£200,000 FOR ENVIRONMENTAL STUDIES**

A Chair of Environmental Studies at University College Dublin is to be endowed to the tune of £200,000 by the Heritage Trust, formed by a group of leading businessmen some 18 months ago to finance conservation projects. It is hoped that the chair will be established by the beginning of the next academic year, the trust's executive, Mr Lewis Clohessy, said.

The money needed to finance the chair has been collected from both the public and private sectors of industry. At the annual meeting of the trust, the chairman, Mr. W.D. Finlay, who is also governor of the Bank of Ireland stressed the need to foster an appreciation of the country's heritage among future decision-makers. This is the rationale behind financing the chair, he said. The trust has almost reached its objective of raising £750,000 from industry.

**Whessoe Complete £2m Ammonia Storage Facility**

Whessoe Heavy Engineering Limited have completed on schedule a turn-key contract valued at over £2m for the design, supply, construction and commissioning of a refrigerated ammonia storage and handling installation for Monsanto at their Seal Sands complex.

The single wall fully insulated tank has a storage capacity of 12,000 tonnes of refrigerated liquid anhydrous ammonia at -33°C and at essentially atmospheric pressure. An important safety feature of the storage tank is the utilisation of a concrete secondary containment wall which was supplied as part of the Whessoe contract.

Ammonia is received into the facility from refrigerated ships berthing at either of two jetties and the refrigeration plant located close to the storage tank is designed for a transfer rate of 500 tonnes/hour. The pump out and heat exchange equipment is designed to enable the continuous transfer of 40 tonnes/hour of liquid ammonia from storage directly to process at the required temperature and pressure. The tank and associated plant have been installed as part of a large expansion of the nylon intermediates plant of Monsanto.

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Glasgow: Washington Road, Unit 10B, Abbotsinch Industrial Estate Paisley PA3 4ET Phone: Glasgow 887 0551 Telex: 779406

A member of the Jefferson Smurfit Group
HTI Move to Rathcoole

Hall-Thermotank Ireland Ltd, the industrial and commercial refrigeration and air conditioning company have moved to a new address.

Hall House, Main Street, Rathcoole Co. Dublin

Their telephone numbers are: 580311-580008-580397-80420 and the telex number is 30943.

Keddy Superfire is Launched

A demonstration of the new warm air Keddy Superfire was held in the Stanley Irwin bungalow development, on site at Ballymount Cross, Clondalkin, when the well known builders merchants C.P. Glorney Ltd., launched this attractive open fire and fireplace on the Irish market. The Keddy is a real fireplace which is designed complete with a flue, built to provide a fresh air supply through a separate outside duct this Keddy Superfire will give constant flow of warm air into a room. This unit is clean, compact and simple to install, it provides complete draught control and allows one to choose one's own Cladding. The ducting system permits cold air to be taken in through the base of the fireplace, heated and recirculated again back into the room through vents on either side. An adjustable 'throat restrictor' regulates the flue opening. The air valve controls and the 'ash can' are adjustable in length to suit any fireplace surround.

At a luncheon following the introduction of this Keddy fire Mr. Joe Manifold, Managing Director of C.P. Glorney claimed that "The Keddy will give a high 90% efficiency with only a very low heat loss of 10%." Mr. Anders Janelid, Managing Director of the English distributing company Kedddy U.K. stated that "It is expected that the Keddy Superfire will qualify for the House Improvement Grant to reduce the dependence on oil. This will be of considerable significance to both the construction industry and the consumer." The Keddy fire is now available complete with back boiler which will give an impressive 50,000 BTU/s output, besides providing at least three domestic advantages namely, ample supplies of hot water, central heating together with direct room heat. A chain of stockists is now being established throughout Ireland to handle the distribution and sales of the several Keddy fire designs. This Swedish manufactured Superfire is one solution to houses built without a fireplace and chimney. A choice of six stylish designs and finishes incorporating elaborate elaborate canopies which are adaptable to fit into corner positions or along straight walls is available from the newly appointed Irish Distributors for Keddy — C.P. Glorney Ltd., who have showrooms at Islandbridge and Townsend Street, Dublin.

The Keddy Superfire on show at the Stanley Irwin Bungalow development.

The Earth's atmosphere is very active electrically. All organic life from plants to man has evolved under the influence of this activity, and the electro-chemical processes underlie all biological functions.

Not surprisingly, man is much affected by the electrical state of the atmosphere, and world-wide research has high-lighted the importance of this in disease and health.

The major channel of influence is the atmosphere from which we breathe. This contains molecules of air endowed by nature with tiny stores of electricity. They are called Air Ions, and the two types - "Positive" and "Negative", can have widely different physiological effects.

Medion are world leaders in the development and manufacture of specialised ion generators for every application, from bedside clinical to heavy industrial, and also sophisticated equipment for air-ion research. In many illnesses, ion therapy can bring benefits where all else fails. In city and industrial atmospheres where many factors combine to destroy air-ions, special generators can restore the natural balance and negate the deleterious effects on health and mental alertness. Some leading air-conditioning companies e.g., Colt International, now recognise the validity of the Ion Effect and are now building into some of their systems a negative ionizer designed by Medion Ltd.

I rish Agents can supply from stock a full range of models suitable for use in the work-place, home or car, either for general use or for medical and therapeutic purposes, as in the treatment of respiratory disorders. They have the technical and medical support to be able to offer a full service to industry.

For further information, contact Mr. Jim Norton at: 32 Sycamore Road, Dundrum, Dublin 14 Tel: 989183.
New Companies within Industry?

Announcements of major moves for a number of people in the business are expected within the next few days. At the time of going to press it was reported that John Hoey and Barney Murray of Hevac Ltd have resigned from the company and are to set up a new company of their own.

Reports also suggest that Jim Coffey of Crossflow is leaving to form a company of his own.

More on these stories in the next issue.

ANOTHER OIL FIRM SET UP

Another entrant to the oil importing business, Campus Storage Ltd., hopes to begin importing heavy fuel oil and deriv/heating oil by February next. Initially most of the supplies will go to the company's shareholders, which include both Avonmore and Waterford Co-Ops. Work as already commenced on providing storage facilities at Marsh Meadows, New Ross, on a 5½-acre site acquired by the company.

The shareholders in the new group are: Avonmore (20 p.c.); Waterford Co-op (20 p.c.); G.G. Stafford & Sons, Wexford (20 p.c.) PMPA (6 p.c.) and Oakstead Ltd. (34 p.c.).

Oakstead is an investment company whose shareholders are Heiton McFerron Ltd., T. & G. Farrington Ltd., V.K. Bell, and Gerry McNamara. Mr. McNamara, who introduced Jet to Ireland and later established ACE Petrol before selling it off to Texaco, has been acting as a consultant to the company.

He is believed to have entered into a non competing convenent with Texaco a little under five years ago, when he sold ACE. That covenant has nearly run out.

The plan to establish Campus was underway before the oil crisis, it is believed, with the company set up early last year. Work is well advanced on the jetty and store facilities in New Ross, where initially there will be storage for about 8,000 tonnes of oil. The installation is said to be costing about £750,000.

A three-year contract has been concluded with Gulf Oil in Britain for the supply of the oil which, the company says, will comprise heavy fuel oil and deriv/heating oil in about equal proportions.

Redmond Brennan, managing director of Avonmore, is to be chairman of the company. The other directors are Colm O'Rahilly, Heiton Holdings, Michael Farrington, Victor Stafford and Seamus O'Mordha, PMPA.

Ill News

Industrial Instruments Ltd held two very successful seminars on selective Ion electrodes in Dublin and Cork during October. The seminars also included an exhibition of equipment used for Ion measuring, and talks were on design concepts and products.

Instrument Training

The I.S.A. held a panel discussion on instrument training last March. While not claiming to be fully comprehensive in its coverage it drew attention to the type of training available since the E.S.B. set up its training school in the 60s. Now instrument courses are available from the R.T.C. in Carlow and Cork, AnCO in addition to the E.S.B. Some of the AnCO courses are particularly useful e.g. Industrial Instruments conversion course for up-dating or converting the skills of craftsmen i.e. Electricians and fitters. This course is available in the Training Centre in Cork.

Talking about Munster

The Munster area office/Workshop of I.I.L. now has a telephone (021) 844432. It is hoped to have a telex in this office eventually.

R.I.P.

Mr. Fergus O’Kelly who died recently was associated with I.I.L. for many years. We extend our sympathy to Mrs. O’Kelly and family in their loss.

Ar dheis De go Raibh a Anam.

Industrial Instruments publish a periodic digest of Instrumentation news called Readout and is available from I.I.L.’s offices in Dublin and Cork.

J J

Ventilation Expand

Irish Activities

J.J. Ventilation (International) Ltd., the Bristol based heating and ventilating specialists, announce the expansion of their services in Ireland through Eurenco (Sales) Ltd., 106 The Coombe, Dublin 8 (Tel: 755557).

J.J. manufacture every type of equipment, from powered to manual, for ventilating, heating, filtration, recirculation and extract units to natural air and fire ventilators and specialised ductwork systems. Their products and services are well established throughout Britain and on the Continent of Europe.

Mr. Vincent Douglas and Mr. Chris Whelan, directors of Eurenco, have many years of experience serving the heating and ventilating requirements of architects, consultants and industry in Ireland. The company will provide the complete range of J.J. equipment and services from technical survey to supply and installation, backed by the J.J. manufacturing plants in Bristol and Wakefield.

Kuba

in Ireland

RSL Ltd have announced their appointment as sole distributors in Ireland and the UK for Kuba, who are West Germany’s largest manufacturer of condensers and coolers. Kuba being an engineering orientated manufacturer, place strong emphasis on technical design and low operational noise level.
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The European Steam Boiler
INCINERATOR ORDERS

Riley Equipment, a business unit of NEI International Combustion Limited, have recently won two orders valued at £39,000 for incinerator systems for two Belfast hospitals. The orders, received through Riley's agent Henry R Ayton Limited, were placed by the Eastern Health and Social Services Board, Belfast and are part of the current extensive rebuilding programme.

One of the incinerators, to be installed in Belfast City Hospital, is a large 'special', the other for Ards Hospital, Newtownards, Co. Down, is a standard Riley RP 150. Both burn general hospital waste. The specified method of loading the larger incinerator required that the operator be spared any unnecessary physical effort, and was fitted with a purpose designed mechanical bin loader arrangement, of sufficient size to load three off 0.5 metre diameter x 1 metre long plastic bags full of waste at each charge. The loading device is interlocked with an electrically operated guillotine type door. The incinerator is capable of burning 2200 kg per 8 hour day of waste with an average calorific value of 17500 kJ per kg.

The smaller incinerator, which burns 800 kg per 8 hour day, is the standard RP 150 incinerator on which the normal manual method of operating the charging door with counterbalance weights has been modified to incorporate an electrically operated worm screw drive arrangement.

E.S.B. Invest with Coolair

An energy conserving variable-volume re-heat system is the major feature of the extensive air conditioning system being supplied by Coolair Limited at the new extension to the E.B.S. Head Office in Westmoreland Street. In addition to the variable volume re-heat system, the installation will also include Vequip central station air handling plant and Daikin water chillers supplied by Coolair.

Alpha on the Move

Alpha Controls have moved from Rathmines earlier this year and are now located at 56 Fitzwilliam Square Dublin 2 their telephone number is 7662717. As well as manufacturing a range of controls and control panels they also offer the full range of controls from Honeywell Ltd., ITT Controls Limited, R.A.M. Controls, and Powers Controls.

BENTLEY INSTRUMENT CO.

WATER, GAS/STEAM AND CRYOGENIC METERS
SHEFFIELD CONFERENCES WELL ATTENDED

Over 500 representatives from building contractors, architects offices, builders providers and local authorities attended a series of energy conservation conferences throughout the country earlier last month (October).

The conferences were organised by Sheffield Insulations (Ireland) Ltd. and were held in Dublin, Cork, Limerick, Galway, Athlone and Sligo. They were promoted by the call from the International Energy Agency for companies involved in energy conservation to undertake some activity to highlight October as energy conservation month.

Sheffield Insulations (Ireland) Ltd. is one of the largest independent distributors of insulation material in Ireland. Its headquarters and warehouse is at 1-11 Upper Grand Canal Street, Dublin 4. Telephone No. 689099.

Established in 1976, the company now employs 40 people and has undergone a major expansion in recent months with the setting up of a new contracts division and the opening of a new sales office at 11 South Mall, Cork. Telephone 500244. Two further offices are due to open in the near future. One in Galway and the other in Belfast.

At the Sheffield Insulations conference in Dublin were from left, Brian Cooper, Group Marketing Director, Sheffield Insulations, Adrian Mitchel, Chief Architect, ESB, George Summerville, Principal Architect, ESB, and Ted Bowers, Sheffield Insulations.

At the Sheffield Insulation conference in Sligo were from left, Edmund Henry, Henry Construction, Tommy Bourke, Sheffield Insulations, Gerry Healy, (Heating Contractor), and Frank Killoran, (Building Contractor).

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Building Services News, Vol. 18, Iss. 9 [1979], Art. 1

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Mynell Valves Ltd are represented by Wyse & Ballantine Ltd, 62 Woodbine Park, Dublin 5, Tel: 317553 and Ballantine & Partners, 62 The Mount, Mountpollinger, Belfast BT54 ND.

MYNELL SHOW

Showers mixers, water taps, steam water heaters and even gate valves that was the range of products on display at the recent Mynell Valves Ltd trade show in the Burlington Hotel. A series of slides were also shown on the first night and members of the Irish Branch of CIBS were in attendance. The most impressive product on show was the superior quality thermostatic shower mixing valve, the Safenix which is a really reliable and safe product. The problem with shower mixers is to keep water at the desired temperature under all conditions and to cut out shower acrobatics caused by sudden surges in temperature or pressure. The operation of the Mynell mixer is to allow:— Hot and cold water coming through the inlets (a) hot and (b) cold to flow up the same ports and mix on their way into the mixing chamber (c) which surrounds the thermostatic capsule (d).

The Method relies on the capsule (d) which is extremely sensitive to heat changes so that hotter water in the mixing chamber causes expansion within the capsule thus forcing the internal piston (e) upwards.

When the piston reaches the stop (f) and is unable to travel further upwards it pushes the capsule (and metering clack H and spigot G) downwards thereby reducing the amount of incoming hot water.

As cooler water enters the chamber the capsule piston retracts and the compensating spring (j) adjusts the water control clack (h) to the correct position.

The position of the Stop (f) may be changed by removing the Screw (k) and adjusting (by screwdriver) Screw (m) to adjust and pre-set the maximum temperature.

Mynell Valves Ltd are represented by Wyse & Ballantine Ltd, 62 Woodbine Park, Dublin 5, Tel: 317553 and Ballantine & Partners, 62 The Mount, Mountpollinger, Belfast BT54 ND.

Hall-Thermotank Ireland Limited, Hall House, Main Street, Rathcoole, Co. Dublin have been awarded the contract to supply and install the complete refrigeration Plant for the new Eiranoval Fish Processing factory presently under construction at Castletownbere, Co. Cork. The contract was won from competition, which included overseas as well as Irish based refrigeration contracting organisations.

Other recent refrigeration contracts awarded to H.T.I. include the extension to the Meadow Irish Meats factory at Rathdowney, Co. Laois, Stage 2 of the Q.K. Cold Stores project at Carroll’s Cross, Co. Wexford — Stage 1 of this project was also installed by H.T.I. and commenced operations in July of this year. The new Cold Store for Frigoscandia at Tallaght, Co. Dublin, a new Blast Freezing complex for Galtee Tendermeat Products at Mitchelstown, Co. Cork, and, the installation of a new plant room to service the complete I.M.P. factory at Grand Canal Street, Dublin.
HRP Walker: An unfamiliar name for many familiar brands.

Isceon refrigerant, DWM Copeland condensing units, Myson coolers and condensers, Teddington thermostats and expansion valves, KMP driers, Imperial Gould Servicing Tools, Aspera compressors and condensing units, Watsco line valves, LEC condensing units and compressors, Ranco controls, Danfoss compressors and condensing units, Armaflex insulation, Yorkshire Imperial copper tube and Sabroe components.

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HRP Walker, a Branch of Walker Air Conditioning Limited, a member of the Jefferson Smurfit Group.
PUMP SERVICES
LIQUID-TECH.

Pump Services Ltd, Rathfarnham, held an exhibition of their products and services in the Royal Marine Hotel, Dun Laoghaire, from Tuesday 20th November to Thursday 22nd last.

A total of 15 stands carried a wide range of products by some of the best known firms in the manufacture of pumps, dispensing and control equipment, flow meters, valves, manual, hydraulic and pneumatic operations, hose fittings and tank equipment. Also on display was a representative range of equipment manufactured by Pump Services themselves.

In conjunction with the exhibition, instructional training films were shown. On Tuesday and Wednesday at 6.30 p.m. Mike Harrison of Crane Ltd., gave a lecture entitled 'The Efficient Steam / Condensate System', in which he pointed out the energy saving advantages of the unique C.B.A. System.

Mike Harrison, who is General Sales Manager of Crane Pump Division, has 22 years experience in the centrifugal pump industry in the U.K. and overseas, and has visited installations in over 50 countries in the past ten years.

The Exhibition was of major interest to people involved in the Process Industries, the Petroleum Industry, storage, transport and retailing, and to Consultants and Contractors involved in piping and pumping for general industry, waterworks and sewage, and buyers of liquid handling equipment.

WALKER PEOPLE

Leslie King has been promoted within Walker Air Conditioning (U.K.) Limited to become sales manager, at the company's Belfast office, responsible for air conditioning activities.

An Associate of the Chartered Institute of Building Services, Leslie was an air conditioning design engineer with the Northern Ireland Electricity Board before joining Walker five years ago.

In his spare time, Leslie is Commodore of a powerboat racing club and an Officer in the Sea Cadet Corps, as well as having an active interest in several sports.

Gerald Ross, aged 30, has been appointed as a sales engineer by Walker Air Conditioning Limited, authorised distributor for Carlyle air conditioning and refrigeration equipment throughout Ireland.

Gerald, who holds an NCEA diploma in Mechanical Engineering, joins Walker from Crowe Engineering, where he worked on sales organisation.

GENERATOR BOILER FOR IRISH SUGAR COMPANY

A Generator water tube steam boiler was recently shipped from the Gothenburg Works of Generator Industri AB for installation at the Thurles plant of the Irish Sugar Company Ltd. The boiler is from Generator's standard range of corner tube designs, being an HLA 14 rated at 3.89kg/s at 23 bar gauge and 360°C from feed water at 118°C. It will be initially fired with heavy fuel oil, using a Petrokraft low pressure air atomising burner, but its configuration is such that it is suitable for later conversion to solid fuel firing, with some downrating, if required. The boiler, which will be used on campaign service, has a fully drainable desuperheater, and was selected after visits by Irish Sugar Company executives to plants of the Swedish Sugar Company where Generator boilers have been in use for many years. Generator are represented by D.J. Neil Ltd of Macclesfield.
NEWLY APPOINTED AGENTS

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CONSUMER AFFAIRS

The office of Director of Consumer Affairs was established under the Consumer Information Act, 1978. In summary, the Act prohibits certain false or misleading descriptions of goods, prices and services. One of the main tasks of the Director is to enforce the provisions of the Act and he is also concerned with promoting better standards in advertising and in the information given with or about goods, services and prices. The Director is a civil servant but, under the Act, he is independent in the discharge of his functions. The first Director is Mr. Jim Murray who was appointed in February, 1979. Since taking up duty, much of his time to date has been spent in reading himself in, establishing contact with relevant groups and in preparing proposals for the staffing and administration of his office.

The office of the Director has an initial staff of four persons (including the Director) but arrangements are on hand to increase the staff complement to the degree required to establish the office on a fully operational basis. The director can receive and investigate complaints of alleged breaches of the Consumer Information Act and related Acts.

To date no H & V related complaints have been received but with winter upon us no doubt the Director will have his share.

The office of the Directors at Setanta Centre, Molesworth Street, Dublin 2 Tel: 710833.

KERRY FIRMS GET £0.3m IDA GRANTS

Four Companies in Kerry have been approved over £300,000 in grants under theIDA’s Small Industries Programme.

The IDA in a statement issued said it “has finalised negotiations for a new industry to be set up and three existing industries to expand. These are expected to create a total of 78 new jobs over the next two years.”

One of the companies is Pioneer Radiant Products Ltd of Kenmare.

“The rising cost of oil-fired heating has lead to a substantial increase in business for Pioneer Radiant Products, the only Irish manufacturer of industrial gas heating units and gas burners for domestic heaters,” the IDA said and employment is expected to grow from the present 12 persons to 40 by the end of 1981.
It has been a very turbulent year for the building services industry with most of the problems centred around the fuel shortages causing great fluctuations in the volume of business. Northern Ireland was affected by these problems sooner than the South and the decision by the Conservative Government not to link the Province to North Sea gas made the isolation of the North more acute.

Conversion from diesel oil to heavy oil, solid fuel and LPG were the order of the day, North and South, from early in the year and are continuing to keep the industry busier than it has ever been.

The domestic market in the South got a massive boost in the form of a government grant for conversion from oil to solid fuel but this has also has caused the re-birth of the notorious "cowboys" and the old problem of standards has once again raised its head, will the industry have the sense this time to ensure that the government takes the problem seriously before more innocent people are killed or maimed due to faulty installations?

Finally before we look at some of the headlines of the year 1979 what of the future? It seems certain that the market for conversions will be with us for a few years to come but credit restrictions in the South, and the North facing a recession new contracts will be hard to come by. The only dim light at the end of the fuel tunnel is that oil or gas may be found in large quantities somewhere off the coast of this island but that prospect seems very far away at the moment.

Bright future for 79?

In the construction industry it was certainly a boom year with no signs of it abating in 1979. The increase in house prices had a spin-off for all sections of industry i.e. materials, plumbing, electricity, etc. But warning bells are being rung about shortages of essential supplies, particularly in cement and copper.

Coal let down

The Department of Commerce has announced that the second drilling for coal in Northern Ireland which was in the Agohill area has proved fruitless despite the considerable depth of the bore hole. The Department states that this is part of an overall search for alternative energy resources in the Province.

Boiler fatalities

There have been several accidents, including two fatalities, in recent weeks due to domestic boiler explosions. While the actual cause of the explosions is still being investigated (technical reports have to be prepared for future inquests), a spokesman for the IIRS, interviewed on RTE following the death of a young married woman at Gortacur, near Tullamore, suggested that manufacturers might have to consider fitting safety valves or pressure gauges in the
future to domestic heating systems.

Ems Causes Confusion
Confusion rather than cert
	
tainty was the order of the
day as we enter 1979 with
the new European Monetry
System. Dealers in exports
were still unsure of the
benefits of joining, but
Coras Trachtala had some
words of advice.

Big Freeze Up — Who Pays
A major row is looming
between the fuel suppliers
and customers after the
fliasco of several thousand
systems in domestic heating
and farming equipment
freezing up during the rec-
tent cold spell when tem-
peratures dropped to the
lowest registered in nearly
50 years.

Two Shows
IHVex '79 and Heatair '79
were the two trade shows
north and south.

Oil Shortages
A complete clampdown on
new business by domestic
oil heating companies is
causing grave concern
amongst heating con-
tractors and installers. And
although it is not actually
being mentioned, the threat
is that unless something is
done immediately to allevi-
athe situation, a crisis
similar to that of 1973/74 is
unavoidable.

Price Rises
Earlier allegations from
contractors that oil
suppliers were deliberately
withholding oil because of
price increases were given
some substance by the ad-
mission from the ESB that
they had applied to the Na-
tional Prices Commission
for a 20% rise in their
charges to consumers be-
cause of substantial price in-
creases in the price of basic
raw oil.

Coal Hopes
Could Northern Ireland be
on the brink of an energy
breakthrough? There have
been over the past few years
various rumours about
either gas or oil being off
the coast, but as yet there
has been no official confir-
mation or denial.

Now we have the
announcement that a Can-
adian company is about to
investigate the coal seams
in the Coalisland area. There
is no doubt that there is coal

We can sum up the
problems of the coal indus-
try in Ireland. Most
publicity has centered in re-
cent months on the inability
of Coal Distributors Ltd to
keep up with the demand
for coal in the domestic
market. They have
explained that they simply
did not have enough trans-
port to complete deliveries, CDL
distributes about 1/3 of the
Republics coal and in the
summer months of this year
had an increase of over
300% in coal sales.

Danger", who can now say
the heating trade can't get
publicity.

Health & Safety
Readers are reminded that
the Health & Safety at
Work (Northern Ireland)
order came into operation
on the 1st May 1979. Many
employees have either ig-
nored the fact or have dis-
missed it as of little con-
sequence. Study of the
order will soon dispel this
sense of apathy. The order
lays down clearly the joint
and individual responsibili-
ties of both the employer
and the employee. While al-
ready much legislation
exists under various acts
this order brings them all
as it were, under the same
umbrella.

N.I. Grants
The Department of Com-
merce have announced that
the Department of Energy
has allocated £12m to be
available as grants for a
new scheme to encourage
the more efficient use of
energy.

Dublin Coal Problems
Distribution — That's the
one word that can sum up
the problems of the coal in-
dustry in Ireland. Most
publicity has centered in re-
cent months on the inability
of Coal Distributors Ltd to
keep up with the demand
for coal in the domestic
market. They have
explained that they simply
did not have enough trans-
port to complete deliveries, CDL
distributes about 1/3 of the
Republics coal and in the
summer months of this year
had an increase of over
300% in coal sales.
The decision by the Irish Planning Institute to devote this year's annual conference, solely, to energy needs was timely and welcome, according to many members of the H & V industry.

The theme of the 4th AGM was "Town Planning Implications of Energy Demand and Supply."

Over 150 of the country's top planners, architects and engineers attended along with eight students from the Town Planning Department of University College and 10 students from the Environment Department, Bolton Street. Dr. Martin O'Donaghue, Minister of Economic Planning and Development, opening the conference told the delegates that town planning implications of energy demand and supply was a subject which would not arouse an immediate response or have the man in the street rushing out to buy technical papers related to the subject. "But given the harsher facts" he said "of energy supplies it is one which will have a growing importance in shaping the Ireland of future years". The Minister went on to outline some basic facts of the present energy situation, and stated that, in 1978, Ireland's total energy consumption amounted to more than 7.8m TOE (million tonnes of oil equivalent) "which was an increase of about 55% and of 10% on consumption 10 years and 5 years earlier respectively" he said.

Dr. O'Donaghue warned that this year's figure would be greater than 8.0m MIOE. "We depend on imports for over 80% of our energy needs and on oil for about 75% of these requirements. Last year we spent more than £1 million per day on fuel imports. This year the figure is approaching £1.5 million per day." Oil imports alone for last year, the minister said, cost Ireland more than £336 million and the combination of greater consumption and massive price increases this year means that the oil bill will rise by more than £100 million. This means, for the country's needs, that the increase since 1972 has risen by double. It also means that in 1979 Ireland will need more than 6% of our GNP to pay for oil compared with less than 2½ in 1972. Dr. O'Donaghue stressed that the conclusion to be learnt from these figures was that Ireland was in a very vulnerable position to international developments in the supply and price of energy, particularly of oil. "These are events over which we can expert little direct influence" he warned the delegates. "But they can have profound implications for future development. The quality of our response as a people will be the key to achieving a successful outcome. That response must contain both short-term and long-term plans for dealing with the energy problem."

The short-term effects, the Minister said, was to ensure that Ireland obtains a fair share of available supplies and of using that supply as carefully as possible. Already, he indicated, the Department of Industry, Commerce and Energy has been active in negotiating with oil producer countries for additional oil supplies which will be made available to Ireland in the coming months.

The Government would also be mounting promotional campaigns to see that the public and industry would achieve greater efficiency in the use of energy. These advisory services would be backed up with governmental financial incentives and there would be government involvement to ensure that the impetus of this energy conservation campaign would be maintained, but it was the long-term objectives that the Minister stressed that planners should be devoting their attentions to with more detail. The need to think about developing new forms of energy to deal with the changing patterns of Ireland's life style. Dr. O'Donaghue congratulated the conference and the organisers on their chosen subjects over the two days and said that it was both timely and important. "Success in our future development will depend heavily on making better use of energy" he warned. "No longer can we assume that energy will be cheaply and easily available. The increasing cost alone makes it inevitable that the use of energy be subjected to increasingly rigorous examination by all sections of the community" he concluded.

The conference lasted two full days with interest never waning and frank, sometimes critical, discussions took place after each paper.

Day one six papers were presented dealing with the economic and environmental implications of district heating systems, industrial development, transportation policy and the development of the Kinsale gas field for a national town gas grid system. The final paper of the day by Gregg Paget, a Research Fellow from the Department of Land Economy, Aberdeen University, was "Land use planning implications of energy policy in the UK and its relevance to Ireland."

Day Two opened with Ruarri Quinn giving a political evaluation of Ireland's energy strategy to date and its implications for future planning policy. This was followed by a paper on a local planning authority's experience of nuclear power stations by Colin Jacobs, Planning Officer of Clwyd County in North Wales. Further papers dealt with the planning implications of biomass and wind energy, and comparative evaluation of future energy options from both an environmental and economic viewpoint. The final paper dealing with the integration of national energy policy within the planning framework at regional and local level was given by Michael Gough, Chief Planning Assistant, Waterford Corporation.
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ASHRAE

EXPOSITION

THE TRIP OF A LIFETIME

A visit to next year's ASHRAE international air conditioning, refrigeration and heating exposition in Los Angeles, USA, arranged by IHVN is going to be the trip of a lifetime.

Apart from three days at the show we can offer an additional 7 nights at either Long Beach, California, Waikiki Beach, Honolulu or the Holiday Inn, Santa Monica.

The costs of these trips are as follows: 3 days at the show staying at the Mayflower Hotel (3 nights in the hotel) Plus 7 nights at the Queen Mary Hyatt Hotel, Long Beach, California. Or 7 nights at the Holiday Inn, Santa Monica. £489 per person.

ALTERNATIVE
3 days at the show staying at the Mayflower Hotel (3 nights in the hotel) Plus 7 nights in the Waikiki Beach Hotel, Honolulu. £599 per person.

The above prices are for bed only and are based on twin bedded rooms including tax and service charges. The prices includes all airport charges and air transport Dublin-New York-Los Angeles.

To avail of these prices which are Apex fares, bookings must be received before Christmas and they are also based on a minimum of 20 people travelling, so first come first served.

To book for the trip please contact Victor Gibson of IHVN at (01) 885001 or complete the coupon below and return to Irish H & V News, 5/7 Main Street, Blackrock, Co. Dublin.

Please contact me concerning arrangements to visit ASHRAE in Los Angeles, USA.

Name ...........................................

Address ...........................................

Company ...........................................

Number Travelling (provisional) ........ Tel .......
Billy Hogg who recently left W.H. Leech & Son Ltd to commence business in his right and operating from 46 Ballymahatty Road Belfast is extending his activities by representing N/O duel air equipment in Ireland.

The Belfast Association of Engineers the largest established technical society in Ulster, being founded in 1892 have elected the following committee for 1979-1980. President - S. Ashmore
Senior Vice President — J. Mann
Junior Vice President — F. Hendron.
Committee — Messrs Dickson, Hicks, Downey, McKeown, Green, Moore, George, Hewit, and Blom.
Hon Secretary — Miss Crossland.

Change of Address.
From Monday the 15th October 1979 the new address and telephone number of IES Industrial (Ireland) Ltd., 21 Station Street, Belfast BT3 9DA Telephone (0232) 39509 & 56368.

Institute of Energy — Although the name change occurred some months ago clarification has been called for about the former Institute of Fuel. The following should clear the problem. The Institute of Energy is the new name for the Institute of Fuel. Council of the Institute felt that the old name placed to great a restriction on the development of the Institute and that “fuel” was only part of a general energy scene.

A couple of years ago a petition was presented to the Priory Council for a change of name, and in the autumn of last year permission was given to change the name.

Membership of the Northern Ireland Section is drawn from industry, professional practices, public and local Government offices. The members through the various grades of the Institute are involved at some level or other, directly and indirectly in the design, application and use of energy.

The Institute has played a notable part in what could be called “energy education” over the years particularly in Northern Ireland where in addition to the Heat and Power Exhibition, it sponsors courses at Polytech and University level.

A lecture programme dealing with modern technological developments together with seminars on current problems from part of the Institutes regular activities.

The Institute is a constituent member of the Council of Engineering Institutes and thus its corporate members are recognised as Chartered Engineers.

Membership of the Corporate Grades is by examination, but the Noncorporate grades cater for those who have specialised in the relative subjects but for some reason or other have not completed the academic requirements.

Collective Membership allows companies, which are involved in “energy” to become members and nominate members of their staff to represent them while Professional Membership allows for those persons who are closely allied to “energy” but maybe are not engineers but hold professional qualifications of another body.

Councillor H. McKeay Mayor of Cerdg Borough Council was the guest of honour when Thermo Heating Ltd of Carrowdore launched the Hellos R.K. Heat Pump for which they had just been appointed all Ireland agents: The Heat Pumps manufactured by LE CHAUFFAGE UR- BAIN is designed to condition the air in summer and heat in winter. It is claimed to provide ventilation and controlled air change thus saving energy. Present, together with architects and consultants at the launch were Mr. O. Johnston, Chairman of Thermo Heating and Mr. L. Lorofe of Le Chauffage Urbain.

N.I. Agents for Sound Attenuators Ltd, P. & D. MacFarlane Ltd were hosts to consultant engineers and architects at the Conway Hotel Belfast when Mr. Alan Fry BSc., ARCS. of Sound Attenuators gave a talk entitled “Noise and Vibration control in Mechanical Services”.

Conex Sanbro Ltd of Tipton together with their N.I. representative J.V. Neeson were hosts to consultants, architects, merchants and representatives of the Plumbing and Heating trade at their golf outing, reception and dinner at Malone Golf Club — Belfast.

The Zenith Electric Co. Ltd manufacturers of a wide range of Industrial Power Control and Testing Apparatus as well as high precision instrument transformers for the measurement of current and voltage announce the appointment of J & T Ballentine (sales) Ltd of 3 Clarence Street, West Belfast as their exclusive Northern Ireland agents.

Continuity of fuel supplies for the Winter were guaranteed for the Province with the arrival of 25,000 tons of the 100,000 tons of American coal which is to be shipped into Belfast. This is the first major importation of foreign coal into the area for many years.

In a mammoth organisation, the coal was unshipped and distributed throughout the six counties within three days of its arrival.

Knoch Golf Club was the venue chosen for the last golf outing of the I.D.H.E. golf programme. This final outing was sponsored by Mr. Peter McWhinney Managing Director of M.P.L. Ltd the insulation specialists.
In this article I shall review information on housing thermal performance and domestic energy use which has become available from a number of studies carried out by An Foras Forbartha over the past 4-5 years. I will consider this under the following headings:

- Heating Systems
- Housing Constructions
- Energy Use
- Heating System Use Pattern
- Temperatures
- Satisfaction with Heating System

A survey of some 1,600 houses carried out by An Foras Forbartha in the spring of 1975 showed that the percentage of houses with central heating was 15%-18.2%. The precise percentage depends on the definition used for "central heating." In any case over 80% of houses did not have central heating by any definition. The majority of houses with central heating was relatively new.

These figures can be updated using the results of two recent surveys of private estate housebuilding in Ireland. These were carried out in 1976 and 1978, and provide the data presented in Table 1.

This table highlights some important developments. The 1976 data show a swing away from central heating in general in the wake of the 1973/74 energy crisis and the ensuing economic recession. It also shows the beginnings of a significant switch to solid fuel radiator central heating. The 1978 data show the continuation of this rise in popularity of solid fuel and a remarkable return to central heating generally. It also shows the beginning of a new phenomenon - that of the dual systems (with the option of oil or solid fuel). These figures relate to private estate housing which is estimated as being 45% of all housing. The remainder of new housing can be categorised as either Local Authority housing or private "single" houses. Local Authority houses during the period 1975-1979 have not been provided with central heating.

An open fire with a back-boiler is standard in this group. Little is known regarding heating systems in the remaining category of housing. For the purpose of these estimates it is assumed that the types of systems installed are similar to those installed in private "estate" type housing. Likewise there are no figures available for changes in heating systems in existing housing. Indications are that the swing to solid fuel "wrap around" boiler central heating is also reflected in the replacement market. An approximate breakdown of heating systems in current existing housing is as follows:

Housing Constructions

Earlier (1975) estimates of typical constructions and their insulation characteristics are given in Table 2.

### Table 1

<table>
<thead>
<tr>
<th>Year of Survey</th>
<th>Oil Fired</th>
<th>Gas Fired</th>
<th>Electric</th>
<th>Solid Fuel</th>
<th>Dual (Oil &amp; Solid Fuel)</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>29</td>
<td>13</td>
<td>2</td>
<td>13</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>53</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>31</td>
<td>7</td>
</tr>
</tbody>
</table>

The renovations and insulation characteristics of existing housing (1979)

Another survey of house construction mentioned earlier provides some useful data on the current situation in existing housing. The following table shows the breakdown for existing housing (1979).

### Table 2

<table>
<thead>
<tr>
<th>Components</th>
<th>Construction</th>
<th>% Insulation (1979)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof</td>
<td>Cubed roof</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>Tiled roof</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>Pitched roof</td>
<td>3.7</td>
</tr>
<tr>
<td>Ground Floor</td>
<td>Cubed floors</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>Tiled floors</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Again the surveys of house construction mentioned earlier provide some material to update these estimates. Table 3 shows the relevant data from these surveys. This shows the continuation of the trend towards increased insulation of existing housing.
significant increase in the proportion of houses with cavity walls. It also shows a significant improvement in the insulation characteristics of roofs and a slight improvement for floors and walls. These levels require further improvement to meet the requirements for grant-aided houses which have been mandatory since July 1979.

In order to provide an accurate updating of the 1975 figures, information regarding Local Authority housing, "single" private houses and the rate of improvement of insulation in existing housing is required. Information regarding Local Authority housing is available but, because of the lack of any recorded data one must rely on informed guesswork for the other two categories. Overall estimates are presented in the final column of Table 2. Because of lack of data, these must be treated with a degree of caution. This is particularly so for estimates, such as those for attic insulation and double glazing, which are dependent to a significant degree on the activity in the "retro-fit" market.

Energy Use
National statistics do not give the breakdown of energy consumption by use within the domestic sector, and this is a serious lack. Table 4 shows an estimated breakdown for 1973.

An An Foras Forbartha project involving the measurement of fuel consumption in a group of 21 houses during the winter of 1978 provides some data to support this estimate. Table 5 shows the average daily fuel consumption for 3 heating systems. As has been shown earlier, these heating systems represent some 80% of heating systems in existing housing.

The overall average daily winter consumption, based on the proportion of each system nationally, works out at approximately 107 kWh/day. Thus average total energy consumption per household over a 210 day heating season is 22,500 kWh. This leaves 4,800 kWh for the remaining 155 days, or a daily consumption rate of 31 kWh per day.

This is between ¼ and ⅓ of average winter consumption which does not appear unreasonable. The average daily consumption given are equivalent to an annual consumption

<p>| Table 5 |
|-------------------------|------------------|------------------|</p>
<table>
<thead>
<tr>
<th><strong>Average Daily Energy Consumption in Selected Houses</strong></th>
<th><strong>No. of Houses</strong></th>
<th><strong>Average Daily Energy Consumption (kWh)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil or gas fired central heating</td>
<td>9</td>
<td>140</td>
</tr>
<tr>
<td>Open fire</td>
<td>6</td>
<td>86</td>
</tr>
<tr>
<td>Solid fuel stove</td>
<td>2</td>
<td>109</td>
</tr>
</tbody>
</table>

The overall average daily winter consumption, based on the proportion of each system nationally, works out at approximately 107 kWh/day. Thus average total energy consumption of 2,500 litres of oil for an oil-fired central heating system, 2 tonnes of coal (or its equivalent in wood or peat) for an open fire system, and 2.7 tonnes of coal (or its equivalent in

<p>| Table 6 |
|-------------------------|------------------|</p>
<table>
<thead>
<tr>
<th><strong>Daily Heating Pattern in Non-Centrally Heated Houses</strong></th>
<th><strong>% of Non-Centrally Heated Houses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basically work area alone</td>
<td>53%</td>
</tr>
<tr>
<td>Note: Of this group 25% (or 15% of all non-centrally heated houses) have some heating in the bedrooms in the evenings</td>
<td></td>
</tr>
<tr>
<td>2. Basically living area alone</td>
<td>27%</td>
</tr>
<tr>
<td>3. Basically both work and living areas</td>
<td>17%</td>
</tr>
<tr>
<td>4. Other - less extensive</td>
<td>0%</td>
</tr>
</tbody>
</table>

<p>| Table 4 |
|-------------------------|------------------|</p>
<table>
<thead>
<tr>
<th><strong>Estimated Net Energy Use Allocation Per Household, 1973</strong></th>
<th><strong>kWh</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Space Heating</td>
<td>21,000</td>
</tr>
<tr>
<td>Water Heating</td>
<td>3,300</td>
</tr>
<tr>
<td>Cooking</td>
<td>2,200</td>
</tr>
<tr>
<td>TV, Lighting, etc.</td>
<td>800</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27,300</td>
</tr>
</tbody>
</table>
Table 7

Pattern of Heating in the Early Evening (Central Heated Houses)

<table>
<thead>
<tr>
<th>Heating Pattern</th>
<th>Percentage of Houses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single area heating (one quarter to one third of house)</td>
<td>26%</td>
</tr>
<tr>
<td>Two area heating (one third to two thirds of house)</td>
<td>41%</td>
</tr>
<tr>
<td>All three areas heated (equivalent to whole house heating)</td>
<td>27%</td>
</tr>
<tr>
<td>Not heated</td>
<td>7%</td>
</tr>
</tbody>
</table>

Heating System Use Pattern

Information on heating system use pattern, from the 1975 survey referred to earlier, is summarised in Tables 6 and 7. Table 6 summarises the daily heating pattern found for non-centrally heated houses.

Centrally heated house heating patterns could not be summarised as easily since the patterns found were much more variable. Typically during the daytime (9 a.m. - 4 p.m.) between 20% and 50% of houses had no heating, whilst 30% approximately heated just one room. Evening heating tended to be more extensive and is summarised in Table 7.

The 20 houses surveyed in more detail showed similar heating patterns. The difference in extent of heating between oil-fired central heating and open fire heating can be illustrated by a comparison of "room hours" heating in each group. Heating in one room for one hour is termed one "room hour" heating. The data are presented in Table 8.

Temperatures

Considerable data on the temperatures maintained in the group of houses studied during the winter of 1977-1978 and 1978-1979 have been collected. Analysis is still being carried out and the following section is based on the "raw" data without any correction. Certain corrections are being carried out, for example correction for thermal gradient in the room.

From the temperatures measured, an overall weighted average house temperature was calculated. The temperature of each room was weighted by the volume of the room. Rather than go into detail on the various temperatures measured, I will quote from a summary of the main results as presented in an interim report on this project.4

1. Average whole house temperature for the 18 houses for which this could be calculated ranged from 10.2°C to 18.9°C. The average for the different main heating systems was as follows:

<table>
<thead>
<tr>
<th>Heating System</th>
<th>Temperature (°C)</th>
<th>No. of Houses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas fired central heating</td>
<td>14.1°C</td>
<td>2 houses</td>
</tr>
<tr>
<td>Oil fired central heating</td>
<td>15.4°C</td>
<td>6 houses</td>
</tr>
<tr>
<td>Gas fire</td>
<td>14.9°C</td>
<td>1 house</td>
</tr>
<tr>
<td>Solid fuel stove</td>
<td>14.0°C</td>
<td>4 houses</td>
</tr>
<tr>
<td>Open fire</td>
<td>12.9°C</td>
<td>5 houses</td>
</tr>
</tbody>
</table>

Table 8

Room Hours Heating for Oil-Fired Central Heating and Open-Fire Heating, (weekday)

<table>
<thead>
<tr>
<th>Heating System</th>
<th>No. of Houses</th>
<th>Room Hours Heating Average</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil fired central heating</td>
<td>6</td>
<td>30</td>
<td>20 - 39</td>
</tr>
<tr>
<td>Open fire</td>
<td>6</td>
<td>17</td>
<td>11 - 24</td>
</tr>
</tbody>
</table>
2. Differences in temperature between centrally heated houses and non-centrally heated houses were generally greater in rooms common to both sets of houses than the difference in average whole house temperatures suggests. For kitchens and bedrooms the average temperature difference was 3.5°C. For the hall/stairs/landing area the difference was 4.3°C. The main exception here was the main heated living room with average temperature difference of 1.9°C.

3. The hall/stairs/landing temperature (suitably adjusted) may provide a reasonable indicator of the overall house temperature.

4. Seven houses had one or more rooms where 40% or more of the temperature readings were under 10°C. All but one of these houses were not centrally heated. It might be noted that the temperatures measured are generally in line with previous estimates of national averages. An exception is the average temperature in non-centrally heated houses which is significantly higher than the previous estimated national average.

Satisfaction with Heating Levels
As part of the measurement project an effort was made to establish the householder's satisfaction with his heating appliance and temperature levels.

All but 3 householders stated that fuel prices were such as to force them to use the heating system economically. However little or no dissatisfaction was expressed regarding the heating appliance or temperature levels by house-holders with central heating, electric heating or solid fuel stoves.

Quite a contrary picture emerged for the house heated by the town gas fire and those heated by open fires. There was significant dissatisfaction with the temperatures in the unheated parts of all these houses in both very cold and average winter weather. That this dissatisfaction related to the limitations of heating to one room rather than to the performance of the appliance itself is clear from the response with regard to satisfaction with the heating appliance. Of the seven houses involved, five were satisfied with the appliance performance, whilst the remaining two complained of over-heating in the room in which the appliance was used.

Conclusion
In this paper I have summarised some of the basic data on heating systems, heating patterns and insulation levels in Irish housing. I propose to consider their implications for energy conservation in housing in a later article.

References
1. Minogue, P. Occupancy Patterns Energy Use in Housing.

* Patrick J. Minogue is a Research Officer with An Foras Forbartha.

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Pressure, comparison with imperial units of measurement.

Specific Heat Capacity. Comparison with Imperial and evaluation of our change constants.

Methods of heat transfer, conduction convection radiation and energy conservation.

Heat requirements — comfort and its measurement, explanation of ‘heat losses’ Air heat loss requirements — calculation of room air heat loss.


Pressurisation (sealed systems) Heat transfer through materials Energy sources & utilisation Imperial Units of measurement have been used in all calculations for comparison with S.I.

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Apart from the problems of interconnected heating systems, last winter was so cold that many systems burst due to severe frost and untold damage was done to homes, factories and offices. Later in the year at the IhVEx exhibition, a conference was held by the Irish branch of the IDHE and at that conference a very useful paper was presented by J. Maher and J. Byrne of Coal Information Services Ltd on Freezing and Heating/Hot Water Systems. The first part of the paper appears in this issue and the second part in January.

FREEZING AND HEATING

HOT WATER SYSTEMS

1. In extended periods of very cold weather, especially as occurred over Christmas last year, there is always a risk that some heating/hot water systems might be badly affected by freezing up of some part(s) of the system. With the recent emphasis on applying good standards of roof and hot water cylinder insulation, in the interest of energy conservation, a good deal less heat from the house enters the roof space, need to be specially well protected against the risk of freezing, particularly in pre-War 11 houses many of which have an "open" roof space, this means that cold water feed cisterns and expansion tanks, and all water pipes in a roof space, need to be specially well protected against the risk of freezing, particularly in pre-War 11 houses many of which have an "open" roof space or loft, i.e. roof tiles or slates on battens only, with no roofing felt protection against wind and snow blowing into the roof.

2. For all kinds of hot water heating and domestic hot water circulating systems, and for whatever fuel is used, it is vital that the cold water feed pipe, feed and expansion cisterns and open vent are fully protected against freezing. Of these, good protection of the open vent pipe terminating over the cold water cistern is frequently overlooked, possibly because it is not apparent that this pipe contains water, at least up to the level of that in the cold water supply cistern, and that sometimes according to operation and usage of the installation some water is discharged into the cistern from the open vent. This open vent pipe is the safety pressure release from the hot water system which keeps it operating under atmospheric pressure.

3. Because an open vent pipe has to be taken to an appropriate height above the cistern over which it terminates, it is often close of the roof itself and therefore more vulnerable to freezing conditions, unless it is very well protected.

4. A heating/hot water system operating under normal "shut down" for nighttime operation affords little, if any, protection against freezing of inadequately insulated open vent and cold feed pipes. The problem that arises if these freeze in the loft is that the cylinder can be subjected to sub-atmospheric pressure when, for example, the volume of water in the system is reduced by normal cooling during "shutdown", or by opening a hot tap which will drain down water in the vent and expansion pipes thus creating a partial vacuum in this pipe and therefore sub-atmospheric pressure in the system. This can cause the cylinder walls to cave in and probably leak. At all times, therefore, it is imperative that the open vent and cold feed pipes connected to a hot water circulating system served by any boiler appliance are fully protected against freezing. It is as well to be over-generous with insulating for these — its costs little and it is much better to be safe and sure than sorry.

5. Naturally, cold water cisterns should be adequately insulated and always have an insulated cover-top to prevent surace ice forming which could interfere with the operation of the ball-valve controlling the mains water supply to the cistern. The mains supply and cistern overflow pipe also need to be well insulated, along with other cold water pipes in the roof or wherever they are exposed to very cold air.

It is not always appreciated that in an extended period of very cold weather the temperature of the mains water into a house will be only a few degrees above freezing point, which emphasises the necessity for good insulation to protect all cold water supplies in the roof space.

7. Often, heating mains and sometimes hot water cylinders are located in the roof space, particularly in bungalows; these need special protection against freezing, quite apart from the need to reduce to a minimum unnecessary heat loss during normal operation. Heating mains are also often run under ventilated ground-floors; these need similar protection, including the circulating pump, if this is also under the floor.

8. Whenever a house is to be left unoccupied and unheated for more than a day or so during winter (e.g. Xmas, New Year or winter holiday period) when very cold weather can be expected, and suddenly so, it is advisable to drain down the heating/hot water system, even though it may be appropriately insulated. Every installation should, therefore, have an easily accessible drain cock at the lowest point of the system to which a length of garden hose can be attached to drain down all heating, and cold water pipes, cylinder and cold water cistern, after turning off the main water stop-cock downstairs, or possibly in the garden.

9. All this sounds easy and is only common sense but most years some people are unfortunately caught unaware and suffer misery and house damage, and in some extreme cases a dangerous "explosion" (violent bursting) of some part of the hot water system, through not taking sensible and fairly easily applied precautions.

Part 2. To follow next month.
### COMPANIES SUPPLYING DOMESTIC BOILERS, BACK BOILERS AND COOKERS WITH BOILERS

(Manufacturer, Agent or Main Distributor
For Local Stockists Contact the Principal)

<table>
<thead>
<tr>
<th>TRADE NAME</th>
<th>COMPANY</th>
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<td>ABM</td>
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<td>All Time Industries, Kenneth Lee</td>
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<td>Potterton</td>
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<td>Q.</td>
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### Manufacturers

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<tr>
<td>Blue Circle Suppliers Ltd.</td>
<td>Industrial Estate, Mervue Co. Galway 091-68834</td>
<td>Clyde Lohberger Gas Fire Cooker.</td>
</tr>
<tr>
<td>Hortow Agencies Ltd.</td>
<td>66 Old Kilmainham, Dublin 8. 01-751048, 01-751046</td>
<td>Vulcan back boiler, Amanda Cast iron dual fuel independent boiler.</td>
</tr>
<tr>
<td>Heating and General Appliances</td>
<td>1 Courthill Drive, Dunboyne, Co. Meath, 01-2950059</td>
<td>De Ville wood and coal cookers.</td>
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<tr>
<td>Heating Suppliers (Galway) Ltd.</td>
<td>Tum Road, Galway, 091-65532 091-68603</td>
<td>Euronom Dual fuel dual compartment independent boilers.</td>
</tr>
<tr>
<td>Heiton Sales Ltd.</td>
<td>108 Pearse Street, Dublin 2. 01-710238</td>
<td>A.B.M. back boiler, Firemaster back boiler, Conserva Werm air independent boiler, Amanda Cast iron, Parkray room heater with boiler, Triance Housemaster (Hopper Fed) room heater with boiler, Triance Redfire room heater with boiler, De Dietrich solid fuel cooker, De Ville wood and coal cooker.</td>
</tr>
<tr>
<td>Irish Fireplaces Ltd.</td>
<td>South Quay, Arklow, Co. Wicklow, 0402-2162</td>
<td>Baxi Burnall back boiler, Dunsley back boiler, Firemaster back boiler, Scanda Fire room heaters.</td>
</tr>
<tr>
<td>Joyces</td>
<td>1 South Main Street, Co. Wexford, 093-22764</td>
<td>Super Stanley solid fuel cooker.</td>
</tr>
<tr>
<td>McSwiney, O'Byrne Ltd.</td>
<td>15 Lower Oliver Plunkett Street Co. Cork, 021-25368</td>
<td>Gerkros back boiler, Saturn back boiler, Tasso Universal dual fuel independent boilers, Gaelwood 65/90 dual fuel independent boilers.</td>
</tr>
<tr>
<td>Russell Engineering Suppliers Ltd. (Plumbers Merchants)</td>
<td>The Ward, Finglas, Dublin 11. 01-343918 01-307409</td>
<td>Manufacturers of All Time back boilers.</td>
</tr>
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- Fully Insulated for efficient heat retention
- Automatic Draft Control
- Runs on All Types of Turf, Wood, Cardboard, and Anthracite & other Combustibles
- Available Ex-Make or through on order
- Can be supplied with a matching Stove and Ash Pan.
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<tr>
<th>Company</th>
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<th>Tel No</th>
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<tr>
<td>Apollo Engineering</td>
<td>Apollo Engineering&lt;br&gt;157 Vernon Avenue, Dublin 3</td>
<td>333432</td>
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<tr>
<td>Associated Hardware Ltd</td>
<td>Associated Hardware Ltd&lt;br&gt;Greenhills Industrial Estate, Dublin 12</td>
<td>516855</td>
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<tr>
<td>M Brennan</td>
<td>M Brennan&lt;br&gt;Market Square, Castlebar, Co Mayo</td>
<td>(094)</td>
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<tr>
<td>C &amp; F Ltd</td>
<td>C &amp; F Ltd&lt;br&gt;Glenside Industrial Estate, Mill Lane, Palmerstown, Dublin 20</td>
<td>364917</td>
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<tr>
<td>Castlereagh Sheet Metal &amp; Engineering Co Ltd</td>
<td>Castlereagh Sheet Metal &amp; Engineering Co Ltd&lt;br&gt;Altona Road, Lisburn, Co Antrim, BT 7 5GD</td>
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<td>Chadwicks Ltd</td>
<td>Chadwicks Ltd&lt;br&gt;Greenhills Road, Dublin 12 and branches</td>
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<tr>
<td>Castlereagh Sheet Metal &amp; Engineering Co Ltd</td>
<td>Clifords Fireplaces Ltd&lt;br&gt;Gardiner Lane, Dublin 1</td>
<td>746457</td>
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<td>Coen &amp; Sons (Galway) Ltd</td>
<td>Coen &amp; Sons (Galway) Ltd&lt;br&gt;Handford Road, Galway</td>
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<td>Consumer Services Ltd</td>
<td>Consumer Services Ltd&lt;br&gt;179 James Street, Dublin 8</td>
<td>714188</td>
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<td>Campbell &amp; Cooke Ltd</td>
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<tr>
<td>Cool Heat Ltd</td>
<td>Cool Heat Ltd&lt;br&gt;16 Railway Street, Lisburn BT28 IXG</td>
<td>76228</td>
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<tr>
<td>Thomas Dockrell Sons &amp; Co Ltd</td>
<td>Thomas Dockrell Sons &amp; Co Ltd&lt;br&gt;Ballymount Cross, Clondalkin, Co Dublin and branches</td>
<td>500822</td>
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<tr>
<td>Euro Engineering Company Ltd</td>
<td>Euro Engineering Company Ltd&lt;br&gt;35 Barrow Street, Dublin 4</td>
<td>680746</td>
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<tr>
<td>Ennis Supply Company Ltd</td>
<td>Ennis Supply Company Ltd&lt;br&gt;Gort Road, Ennis, Co Clare</td>
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<tr>
<td>A. Gallagher</td>
<td>A. Gallagher&lt;br&gt;Belview, Mullingar, Co Westmeath</td>
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### Name and Address

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<tr>
<td>A.B.M. Teo., Rathcarm, Athboy</td>
<td>(046) 32243</td>
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<tr>
<td>Alternative Heating Systems</td>
<td>301729</td>
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**Notes:**
- The above companies are given in the following list.
- Names, addresses, and telephone numbers of all the above companies are given in the following list.
- Associated Hardware Ltd also N.I.
- Instaheat Ltd also N.I.
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## DOMESTIC BOILERS

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<td>Mac Fab Ltd</td>
<td>(042)</td>
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<td>P J Matthews Ltd</td>
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<td>134 Lower Baggot Street, Dublin 2</td>
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<td>and Branches.</td>
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<td>Heating Distributors Ltd</td>
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<td>Mercon Ltd</td>
<td>512 577</td>
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*IHVN, November/December 1979*
HEATING WHOLESALERS LTD
Thomastown, Co. Kilkenny, Tel: 056-24171 Telex 8797

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Ratings: R4 524,000 Btuh to 1,280,000 Btuh
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Southern Area Mr S. Doherty Tel: 056-24171

HEATING WHOLESALERS LTD

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HEATI LTD / HVN, November/December 1979
DOMESTIC BOILERS

Name and Address          Tel No:
Taney Distributors Ltd     508120
Unit 4b Avonbeg Industrial Estate
Dublin 12

Tarm Central Heating Ltd   255443
Clonee, Co Meath

John R Taylor Ltd          783255
Naas Road, Dublin 12
and Branches

W J Thompson Ltd           (022)
Shortcastle, Mallow, Co Cork
Tomar Ltd

Tomar Ltd                  21521
211 Richmond Road, Dublin 3

Unidare Ltd                370926
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Waterford

Weld-Moore Distributors Ltd 725432
1 Smithfield, Dublin 7

T Wright
73 Main Street, Millisle, Co Down

A. Bell & Co (Eire) Ltd     301777
Rere 136 Botanic Road
Dublin 9

Heatilator Ltd             784088
110 Cork Street
Dublin 2

Jack Roberts Ltd            267356
Wood Farm, Kennelsfort Road,
Palmerstown, Dublin 20
Telex: 5450

Stephen Grant               ???
Birr, Co Offaly

Index compiled from information received from companies or taken from catalogues and additional information from other supplies would be welcome.
Office Suite Number 1, Donaghmede Shopping Centre, Raheny, Dublin 13. Telephone: 315028/316015/315006. Telex: 31716

Belfast Office: Kilinea Industrial Estate, Belfast Road, Newtownards, Co. Down. Tel: Newtownards 44491/444 Telex: 47790.

Just One Of A Large Range Available From Your Local Merchant Or Contact Instaheat the Distributors Up To 10 Rads 46,500 btu/h 111 GT. Largest output Solid Fuel room heater on the market. Spares & Service Available Direct From The Distributor

Fuelsaver

The smallest Boiler Of Its Type on the Market Giving 50,000 btu/h on a Modulating Gas Burner which makes for efficiency with low running costs.

CONSORT LPG FLAIR LPG or Town Gas from the New World range.

60,000 btu/h to 97,000 btu/h. The Modern way of Gas Central Heating and instantaneous domestic hot water supply.
DOMESTIC BOILERS

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

Trianco

The new Trianco G range boilers have been conceived primarily to burn anthracite a superior natural smokeless fuel. They will also burn alternative fuels, including Sunbrite and Sunco (see Data Tables) so providing a flexibility of fuel choice unrivalled in domestic gravity feed solid fuel boilers. The actual method of burning is sophisticated — yet simple. An integral water sensing thermostat switches a fan on to boost the fire when the room thermostat demands heat, and, when the required temperature is achieved, it automatically switches the fan off to allow the fire to slumber economically under controlled natural draught until the next demand occurs.

As the fuel is consumed, the fire-bed is automatically replenished by gravity from the large hopper above and a constant fire-bed depth is maintained at all times. This ensures constant optimum combustion efficiency which is further controlled by an inbuilt draught stabiliser. Residual ash forms into compact solid clinker which is then removed by the ejection system — a simple dust free method involving but two pulls of the ejector handle.

This tightly controlled Trianco system providing high or low output on demand represents what is arguably the most efficient utilisation of solid fuel for domestic central heating in the world. Further information from Heating Distributors Ltd.

Parkray

PARKRAY room heaters are now the leading central heating room heater on solid fuel on the Irish market. In Northern Ireland it is enjoying large sales for the private sector and with the Housing Executive. In Southern Ireland the sales have shown a steady increase over the last three years and with the oil crisis this year the sales have risen to an unprecedented level. This has meant that a lot of people who have not considered solid fuel central heating in their homes are now enjoying the warm comfort of the "living fire" with the rest of their house centrally heated. Also, they are proving very economical from a cost point of view and, in fact, the market has now moved towards the large Parkray 111GT room heater which is capable of doing domestic hot water and up to eleven radiators.

This heater, which is a most attractive appliance in any room, is available as an inset or free standing model. The fuel used is anthracite which is now freely available and as a fuel, is smokeless. Another important feature is that these room heaters are designed to burn the modern smokeless fuels which will become available on the Irish market over the next few years. For those requiring a heater that they can leave, knowing that it will keep burning and fuel itself as it requires the fuel, there is the Parkray "Everglow" room heater which has a hopper heating in their homes are now enjoying the warm comfort of the "living fire" with the rest of their house centrally heated. Also, they are proving very economical from a cost point of view and, in fact, the market has now moved towards the large Parkray 111GT room heater which is capable of doing domestic hot water and up to eleven radiators.

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feed and almost the same output as the 111GT. This heater uses anthracite or equivalent size smokeless fuel and, therefore, it is suitable for feeding itself once the hopper has been filled by the householder.

The PARKRAY 33 and 66 room heaters are used as either inset or free standing where people do not require central heating and, in the case of the 66, where they just require domestic hot water.

Parkray also have their famous inset fire and the "Paragon" inset fire which can be fitted into the ordinary fireplace and will give overnight burning with coal and control of the speed of burning. They also make the Parkray fan fire which is suitable for burning household smokeless fuels that will become available on the Irish market in the near future.

The Parkray 24 wrap around boiler is an inset fire and is enjoying popularity for domestic hot water and up to four radiators from a domestic coal fire. For those who want a domestic open fire to burn coal, turf or logs and just to heat a room or the room and domestic hot water Parkray still have available their famous 2 and 2A models.

Service and spare parts are available from the distributors Instaheat Limited.

Jötul

Two new solid fuel stoves have been introduced to this country by David Couper of Tyrellspass, Co. Westmeath. The 121 is now the largest stove in the Jötul range and was designed as a result of consumer demand in the US and UK for a large capacity stove capable of being used as a primary heating source and of burning for 24 hours. Constructed in cast iron, it can be fuelled by wood or peat briquettes and has an average maximum heat output of 16 kilowatts (54,400 BTUs). A new feature of the stoves is that efficiency is improved by the construction of a double bottom which leads pre-heated air to the combustion chamber. Its size makes it especially suitable for heating large areas in homes, classrooms, churches and church halls.

Jötul 379

At the other end of the scale the 379 is the smallest (and least expensive) of these Norwegian wood stoves. With an average maximum heat output of 3 kilowatts (10,200 BTUs) it heats within five minutes of kindling and will burn for over four hours. Its compact size...
DOMESTIC BOILERS

makes it ideal for use in sports club changing areas, workshops, pre fabs, site huts, garden sheds, chalets, mobile homes, inland waterway boats or converted barges. Both stoves conform to stringent Scandinavian and German safety standards. Further information: David Couper, Cornahir House, Tyrellspass, Co. Westmeath. (044) 23114.

Rio-Sime

The strong c.i. boiler body is equipped with an atmospheric stainless steel burner. A completely wet combustion chamber, which avoids radiation losses, giving a high efficiency which reduces the gas consumption. Boiler operation is totally quiet. The standard dimensions of the casing, the built-in draft-wood (for boilers up to 26,000 Kcal/h), the built-in circulation pump, make possible the installation of this elegant appliance in a white casing, easy and quick in any room. This modern gas boiler can, of course, work at any water temperature without mixing valve. To obtain safety of working and to reduce breakdown possibilities only top quality controls have been chosen for this boiler. Moreover every boiler is tested for operation, water and gas tightness before being packed.

Standard version (ST):
Gas fired c.i. boiler in sections, max. working pressure 4 bar, manifold with stainless steel burner, pilot burner, piezoelectric ignition, gas valve (thermoelectric safety, pressure governor), doublestat (control and safety). Complete wiring with plug and switch (220V 50Hz).

Hydrothermometer, drain cock, enamelled white jacket fitted on the boiler, draft-hood for 9-26,000 Kcal/h built-in, for 31-45,000 Kcal/h separated (aluminium).
The boiler is protected with a polyethylene bag and a wooden crate, draft-hood for 31-45,000 Kcal/h in separate cartons.

Sime Boilers are also available in oil fired versions.

For further information contact Hevac Ltd, Lornand Avenue, Dublin 3, (Tel:...
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. Site, Dublin
Grassland Fertilizers, Limerick
Sligo Models Ltd., Sligo

CHAPPEE
Cast Iron Section Boilers
For oil, solid fuel, or gas firing. Tried and tested for over 25 years in Ireland.
Heat exchangers for domestic hot water production up to 4 million btu’s/hr also available.

All the above boilers are fitted with the famous Nu-Way burners for which Hevac Ltd are also agents.

Details available on request from B. Bracken or Tony Smith

Lomond Avenue, Fairview, Dublin 3. Tel: 376051/8
Anglesea Buildings, Anglesea Terrace, Cork. Tel: (021) 509088.
Chappee

Chappee have been manufacturing cast iron boilers for very many years but have now achieved considerable improvement with the new range of Bermudes multi-fuel cast iron boilers. Without reducing the quality of the casting, Chappee have succeeded in far greater heat exchange rates. This naturally reduces the amount of fuel used without affecting the comfort need of the user.

A Multi combustion boiler allows the user to overcome the difficulties in the supply of fuel or in the changing of energy tariffs. To convert from oil to solid fuel and conversely, it is practically instantaneous and can be undertaken by the user. What could be better than taking advantage of fuels at better prices. Open one door, remove the oil fired baffles and replace the grate front and there you have the solid fuel Bermudes which was previously an oil fired boiler cast iron is the most effective material to resist corrosion. That is especially important where different fuels are being burned. Cast iron also permits the sections to be manufactured with fins and together with the insulating jacket efficiencies of 90% can be achieved.

Good quality coal will produce 10,000 Btu’s/hr on every lb used. Turf will generate 7,500 Btu’s/hr with every lb. The Chappee Bermudes can operate at 80% efficiency and thus the average consumption for the 15 Model will be 4/6 tons per heating season.

The cleaning of the grate is a very simple operation and is only required twice a day.

The warm air in the bulb automatically controls the arm which in turn via the chain, controls the air intake to the combustion chamber. This means that the house-holder is only using the fuel that is needed to obtain the temperature in the heating system required. From tests carried out fuel savings of 10% have been recorded because the boiler cannot rise above the temperature set on the regulator.

Chappee boilers are available from Dockrells or Hevac Ltd.

Valliant

VAILLANT products have just arrived on the Irish market through Instaheat Limited and they have launched the Combi heater which is available on LPG and town gas which is a revolutionary form of gas central heating as it ranges in output from 50,000 to 97,000 BTU’s and is available as balanced flue or conventional flue.

It also has all it’s electric controls and gas controls built into the heater and, in fact, it is only necessary to...
connect the cold water supply and the flow and return to the radiators and the gas supply and the unit is installed. This cuts out a lot of purchasing of various parts for the installation, it cuts down on site work and it cuts down the control of stock on site. This unit has already started selling well on the Irish market because it saves the builder and the plumber a lot of time on site and also it heats domestic hot water when the central heating is switched off by a very economical system through a heat exchanger which will give you all the domestic hot water you require but not heating water that's in storage.

Service and spare parts are available from the distributors Instaheat Limited.

Euro

Euro-Engineering Co. Ltd was formed in 1971 by Patrick E. Sarsfield and John J. Byrne as Domestic and Industrial Heating Installers and a Service Company. They carried on the installation business for 3 years and then decided to go into manufacturing. They were on the look out for suitable premises to set up for the manufacture of boilers, and moved in to their present factory at 35 Barrow Street in 1975 and began manufacturing oil tanks and boilers with a staff of 10.

Since 1975 they have designed and developed a range of oil, solid fuel, and multi fuel boilers ranging from 70,000 Btu/hr to 250,000 Btu/hr and they have also developed the general engineering side of their business. The staff has increased and they now have 30 employed, making their own boiler units which are totally Irish made.

The steel is purchased from local suppliers with the exception of Corten Steel which is imported from Scotland. Euro fabricate their own brickwork for all their boiler units, this has the advantage of having spare parts available at all times. Boilers have been exported to Denmark for the past 3 years and they are now starting to export to the U.K. The capacity of the present factory is now at its limit. As a result they have purchased a site on Bal­doyle Industrial Estate and work on the new factory will be starting shortly. The move to the new factory is expected in August 1980, and Euro will be using their present factory to manufacture components for their boilers and a general machine shop.

Buderus

The Buderus multifuel Log­ana 02.40 is a GGL 20 cast iron sectional boiler. It is specially suitable for solid fuel firing. Changeover to oil or gas firing is possible. Construction and operating conform to the require­ments of DIN 4702. It is heat and technical-function tested. DIN registration and type authorisation numbers pending.

The changeover to oil or gas from solid fuel is easy as there are two doors mounted on front of the boiler and a safety switch is fitted on the burner door.

The ample dimensions of the hot-gas cross section largely prevent soot and flyash deposits and facilitate cleaning. Draught require­ment is particularly small.

Further information from Quadrant Engineers Ltd, East Green Street, Dublin 2. (Tel: 771411).

Gerinox

A ruggedly constructed and thoroughly practical boiler for burning wood and other solid fuels efficiently and economically. Heat outputs up to 280,000 Btu/h depending

PART OF THE Trianco SOLID Redfyre RANGE

The Trianco Redfyre TR, Plus Range solid fuel room heater. Available in 3 sizes with 2 colours.

Trianco Redfyre TR, G45 + G60 solid fuel gravity feed central heating boilers.


Heating Distributors Limited

145-147 Richmond Road, Dublin 3.
Telephone: 375144/5 and 370531
DOMESTIC BOILERS

upon the grade of fuel being used.
Solildy built with steel combustion chamber, cast iron grates and galvanised steel outer casing. Fully insulated body and hinged insulated door.

Integral draught regulator and special reverse flow combustion ensures maximum fuel economy and fully automatic operation.

Supplied complete and ready to install—a compact and practicial package unit of modern design.

Further information from: Precision Heating Equipment Ltd, Church Road, Santry, Dublin 9, (Tel: 374300).

CIS
Coal Information Services, when established some three or four years ago, with the primary function of creating an image for coal as a desireable and available energy product, took a conscious policy decision that it would emphasize coal fired domestic heating as it's principal medium of promotion. The popularity and appeal of the open fire could be fostered through considerably improving it's efficiency by introducing high output back boiler coupled with a few radiators to harness the maximum potential of the fire and also serving domestic hot water systems.

At a recent convention Jim Maher of CIS explains "We used and are continuing to use all recognised elements of media, including providing City Centre showrooms displaying appliances and with trained staff available to the general public to assist, answer queries, provide literature on appliances, technical details etc. Additionally our Mobile Showroom is travelling the countryside every day and week throughout the year, calling to towns, cities, hamlets, and spending a full day on each location. This vehicle, of course is manned by an official who has more than superficial knowledge of heating systems. In Dublin the showroom is staffed by trained personnel and fifty callers per day is the average recorded figure. Ten to twelve full scale Shows or Exhibitions in important and densely populated centres around the country are also organised. Furthermore, every Coal Merchant in the country is allied to or associated with us and the whole operation is backed by what we believe is a competent Technical Service comprising field and Head Officers. So with all this going for use, is it any wonder then, and particularly having regard to the uncertainty about oil prices or even future availability of oil, that more and more people are turning to coal heating and coal heating systems. You may justifiably ask who pays for all this, very simply the coal trade. So you can see that the often malign coal trade and especially the major Dublin operator is really a lot more concerned than they credited with to ensure that the consumer can get a maximum benefit from the fuel he purchases. Perhaps they are a bit more enlightened than heretofore, perhaps they realise education and information is an important channel to establishing good relations with their customers."

Precision Heating Equipment Ltd.
Church Rd., Santry, Dublin 9 374300/374437

TASSO
Universal High Efficiency Solid Fuel/Oil Boilers 67,000-300,000 BTU/HR
T, F, VH, Series High Efficiency low overpressure Oil Boilers
Type VH/900,000 to 3,000,000/ BTU/HR capable of firing with 200 sec oil.

odest
Combustion Control Equipment.
CO2, CO, Smoke, Draught Flue Temperature Gauges.

Amanda
60,000 - 712,000 BTU/HR Cast Iron Solid Fuel/Oil Boilers

Geminox
Geminox T and T.C.
Twin Combustion Chamber Boilers
Solid Fuel/Oil, with or Without Hot Water Cylinder. Automatic change over to Oil. 100, 140 and 180,000 BTU/HR

Geminox
Geminox G B
Wood, Waste, Straw, Cardboard etc. Boiler. 100,000, 160,000 and 280,000 BTU/HR
CORVEC BOILERS COME TO IRELAND

MINIFLAME II

28,000 B.T.U./H output Towns
Gas or LPG Balanced Flue of
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Compact

MAXIFLAME II

40-60 B.T.U./H output Towns
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Water Treatment and Energy Conservation

Part II

Last month's issue of IHVN published the first part of a paper presented by David Hunter of Portals Water Treatment Ltd at a recent symposium on Water treatment in Dublin, the following is part 2 of this paper.

Thoroughfare Regeneration

As stated previously, the economy in running costs resulting from CCR operation is clearly that lower regeneration levels with correspondingly higher efficiency of acid usage may be used without sacrifice of water quality.

A further economy in running costs may be effected when treating waters with significant concentrations of alkalinity by using a weak acid cation resin for alkaline hardness removal and utilising the spent acid from the strong acid cation regeneration for regeneration of the weak acid cation resin. This is known as 'Thoroughfare Regeneration'.

This system may also be used in the regeneration of strong and weak base anion resins.

Plant Systems

The various ion exchange processes described above may be used in many different combinations depending on the raw water supply and the treated water quality required. Using these basic processes, several examples of complete systems are given below. It is assumed that where necessary the raw water has been clarified/filtered to remove suspended solids, organic matter etc.

1. Strong Acid Cation - Degassing
   Strong Base Anion

   This co-flow system is probably the most common type of plant and is typical of several plants supplied recently for the treatment of water with a TDS of less than 300 ppm, and total hardness and total alkalinity accounting for greater than 50% of the total cations and total anions respectively.

   The treated water specification is Conductivity: 20 uS/cm (average)
   Silica: less than 0.5 ppm (average)

2. Strong Acid Cation - Weak Base Anion - Mixed Bed - Mixed Bed

   This combination process is suitable for high TDS waters of high sodium chloride concentration and low alkalinity.

   Most of the TDS is removed in the strong acid cation/weak base anion section, allowing the first mixed bed to remove the residual sodium chloride, carbon dioxide and silica and the second mixed bed to act as a polisher.

   One of the largest plants of this type in the world is at Gela, Sicily. The plant comprises four streams on fully automatic control, each line capable of producing 250 m³/h. The mixed beds of each line are regenerated in thoroughfare.

   Silica residuals from the two mixed beds in each line are 0.05 ppm and 0.005 ppm respectively with corresponding conductivities of 0.5 uS/cm and 0.1 uS/cm.

3. Weak Acid Cation - Strong Acid Cation - Degassing - Weak Base Anion - Mixed Bed

   This is an ideal system for waters of high total hardness and alkalinity.

   The weak and strong acid cation resins are regenerated in thoroughfare to give maximum acid economy and carbon dioxide is removed by degassing. The strong base anion resin in the mixed bed and the weak base anion resin are regenerated in thoroughfare to give a high overall regeneration efficiency and a high level of regeneration for the mixed bed anion resin to ensure a silica residual of less than 0.05 ppm.

4. Weak Acid Cation - Strong Acid Cation - Degassing - Weak Base Anion - Strong Base Anion - Mixed Bed

   The above process system is currently providing boiler feed water at a power generating station. The raw water supply has a total cation content of approximately 550 ppm, high total hardness and alkalinity concentrations, and 11 ppm silica.

   Because of the stringent treated water specification, the plant which has a design flow of 73 m³/h includes air hold down CCR cation units to give low sodium leakage figures.

   The required treated water specification is Conductivity: less than 0.1 uS/cm at 25°C
Sodium: less than .015 ppm as Na
Total Silica: less than 0.02 ppm

Energy Conservation

In the present industrial climate, the subject of Energy Conservation has suddenly become of great interest. In the field of boiler feedwater treatment the following areas are worthy of consideration.

Removal of Scale

As stated previously any hardness in the feedwater will cause the formation of scale on heating surfaces. This will result in an eventual overheating and eventual component failure. Quite apart from this problem, as the scale builds up on heat transfer surfaces the rate of heat transfer will steadily drop with a corresponding increase in flue gas temperature. According to figures issued recently by a major oil company, scale build up could account for an increase in fuel consumption of up to 4%.

Return of Clean Condensate

It is always important to return the maximum amount of condensate provided that it is not contaminated. By using condensate the quantity of dosing chemicals required is reduced. The frequency of regeneration of the water treatment plant is also reduced due to less raw water being required and on a proposed installation, capital cost savings can be made. More important however, is the fact that fuel is saved because of the heat content of the returned condensate.

Reduction in Blowdown

The water discharged to drain a blowdown contains valuable heat and also conditioning chemicals. Significant running cost savings can be obtained by ensuring that the percentage of blowdown is kept to a minimum i.e. by ensuring that the TDS in the boiler water is kept as low as possible.

1. As can be seen from application of the blowdown formula, percentage blowdown is largely influenced by the make-up water TDS and the use of either dealkalisation/degas/base exchange (for removal of alkaline hardness) or demineralisation will assist in this connection.

2. Water obtained from the public supply is normally almost saturated with dissolved oxygen and the amount of sodium sulphite required to remove this oxygen is approximately 100 ppm. This concentration of sulphite combines with the dissolved oxygen to form about 114 ppm of sodium sulphate, so that where the feedwater is at ambient temperature, the feedwater dissolved solids are increased by a corresponding amount and the blowdown will be increased accordingly.

Sodium sulphite treatment of the feedwater has clearly produced an undesirable increase in the feedwater TDS. Hydrazine which reacts with dissolved oxygen does not produce a similar increase in TDS, but is considerably more expensive and its use is seldom economically justified in treating water which contains more than a few ppm of dissolved oxygen.

The alternative to chemical deoxygenation is thermal deaeration. Deaeration offers a simple and economic means of removing dissolved oxygen by the use of steam, either from the boiler or from a low grade exhaust steam source. The heat in the steam is transferred to the incoming water and as the solubility of dissolved oxygen decreases with increasing temperature, the oxygen will be released and vented. Depending on the operating conditions, a residual oxygen level as low as 0.007 ppm can be achieved. After deaeration only a small amount of deoxygenation chemical is required.

CONCLUSION

The plant examples given above indicate the technology available from Portals Water Treatment Limited. It should be emphasised however, that the purchase of water treatment equipment should be considered only after examination of the relevant boiler specifications in order that the overall installation may operate as efficiently as possible.

BTU GOLF NEWS

Phoenix-like oil company

Burmah Castro, who earlier this year thought that they would never be involved with domestic oil heating again, last month found that not only were they back in the market but were looking for new business and were the happy sponsors of the second last BTU golf outing of the year.

60 golfers turned out on the day at Clontarf GC which was dry but the turf was a bit slippery after rain the previous night.

The results were as follows:

- Overall winner: D. McNamara (9) 38 pts.
- Winner Class 1 - Tony Delaney (4) 36 pts.
- Runner Up - M. Wyse (6) 35 pts.
- Winner Class 2 - M. Curley (14) 36 pts.
- Runner Up - S. Cagney (12) 35 pts.
- Winner Class 3 - John Hoey (20) 37 pts.
- Runner Up - V. Madigan (17) 36 pts.
- Visitors - J. Sweetman (20) 41 pts.
- Winner Class 3 - John Hoey (20) 37 pts.
- Runner Up - Dermot Lee (4) 38 pts.
- 3rd - B. Nolan (19) 37 pts.
- 1st 9 - G. McCabe (18) 19 pts.
- Runner Up - J. Hamilton (18) 19 pts.
- Runner Up - T. Giller (7) 19 pts.
- Back 9 from M. Aske

The overall winner on the day at the BTU Golf Outing in Clontarf GC was Dennis McNamara (centre) being congratulated by Aubrey Moriarty (left) of Burmah Castro, the sponsors, and Liam Sension the BTU Golfing Society Captain.

Some of the prize winners at the BTU Golf outing in Clontarf GC were (back L-R) Michael Wyse (Wyse & Ballantine), John Hamilton (Meron), Michael Curley (T E Linsky), Eddie Egan (IDA), John Hoey (Hevac), Denis McNamara, Liam Sension (Irish Building Services Ltd), Tony Gillan (Glow Heating Ltd), seated L-R John Sweetman, Aubrey Moriarty (Burmah Castro), and Sean Cagney (Jones Group).

IHVN, November/December 1979
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SECTION VII

Water Supply, Storage and Sanitary Appliances.

Varming Mulcahy Reilly Associates, Consulting Engineers, Dublin.)

This is the last technical section in this series of guides. One final article will survey the present state of services regulations in general and suggest some ways in which the regulations might be extended to present day needs, particularly in the area of energy conservation.

Three main documents are considered in this section

1. The Local Government Sanitary Services Act of 1962
2. Dublin Corporation Waterworks Regulations 1975

Office Premises Act No. 3 1958

19 "An adequate supply of wholesome drinking water shall be made conveniently available for the use of employed persons"

20-(1) "There shall be provided and maintained for the use of employed persons adequate and suitable facilities for washing and the facilities shall be conveniently accessible and shall be kept in a clean and orderly condition"

Factories Act No. 10 1955

15 "Where any process is carried out which renders the floor liable to be wet to such an extent that the wet is capable of being removed by drainage, effective means shall be provided and maintained for draining off the wet"

17-(1) (a) "Where a piped water supply is in the factory sanitary conveniences shall be individually flushed water closets, except urinals which shall have suitable flushing arrangements"

Local Government (Sanitary Services) Act, No. 26 1962

7-(1) "An urban sanitary authority may not make charges for water for "domestic purposes" supplied within their district except where to supply constitutes the whole or part of

(a) a supply to any premises which are used wholly or in part for any business, trade or manufacture.

(b) a supply to any hospital, sanatorium, country house, home for persons suffering from physical or mental disability, maternity home, convalescent home, preventorium, laboratory, clinic, health centre, dispensary or any similar institution.

or

(c) a supply to any club.

7-(5) "Where a charge under the section is by reference to the quantity of water supplied, the sanitary authority are hereby authorised to supply the water by measure and the supply shall be taken by meter".

7-(11) "A supply of water for "domestic purposes" shall be construed as a reference to a supply of water for ordinary household purposes (for example, drinking, washing and sanitation) whether the supply is or is not to a dwelling house but exclusive of

(a) a supply for agriculture or horticulture

(b) a supply for any purpose incidental to a dwelling house or private garden (including washing a private vehicle) if the water is drawn otherwise than from a tap inside a dwelling house or if a hose pipe or similar apparatus is used

(c) a supply for any trade industry or business

(d) a supply for central heating other than central heating of a dwelling house

(e) a supply for apparatus, depending while in use upon a supply of continuously running water, not being an apparatus used solely for heating water*

8-(2) (1) In cases where a sanitary authority consider that a private water supply system or sewage scheme is inferior to that of the sanitary authority they may legally compel the owner of any such scheme to be connected to the public scheme, should the public scheme be within 100 ft (30.0m) of the premises using the inferior schemes.

9-(1) Depending on the circumstances the sanitary authority may contribute towards the cost of the extensions mentioned in 8-(2) (1) above.

10-(1) "The Minister may make regulations to provide for all or any of the following matters:—

(a) controlling sources of pollution or atmosphere, including the emission of smoke, dust, grit or gas.

(b) regulating the establishment and operation of

(i) trades

(ii) chemical and other works

(iii) processes (including the disposal of waste) which are potential sources of atmospheric pollution from smoke, dust, grit or noxious or offensive gases.

(c) the specification of maximum concentration of specific pollutants in the atmosphere.

SI No. 75 1962

Flouridation of Water Supplies (Dublin) Regulations

Dublin Corporation shall carry out this work.

S(5) Water which has been treated with flourine shall not contain more than 1 p.p.m. and not less than 0.8 p.p.m. of flourine

Dublin Corporation Bye Laws '49

See page 52 to 69 for details of above and below ground drainage.

In particular section 96 deals with the regulations governing the single stack drainage system. Section 90 refers to the necessity for providing intercepting traps within the boundary of every building and as close as possible with the connections to the public sewer.

83 A rain water down pipe shall not discharge into or connect with any soil pipe or soil ventilating pipe, or any waste pipe or
waste ventilating pipe connected as described in page 33.

Dublin Corporation Waterworks Regulations for Domestic Water Supply

3, 4 Dublin Corporation will inspect and approve all installations before granting a supply from the public main; or where an existing system is altered or extended.

7 The installation shall be
(i) free from leaks and appliances likely to cause undue waste of water
(ii) under a positive pressure at all times
(iii) free from backflow or back syphonage
(iv) free from contamination

8 Pipes shall be bracketed in accordance with table 8 of B.S. C.P. 310.

10 Pipes and fittings shall be below the frost level.

12 Underground pipes maybe laid only between the levels from F.G.L. 0.61m and 1.22m from the top crown of the pipe, sleeves shall be provided through walls.

Recommended Types of Pipe.

Public Pipes:— copper, stainless steel, cast iron, ductile iron, asbestos cement, u.P.V.C.

Private Pipes:— As above but may be also of steel or polythene.

13 In no case shall a pipe below 13 mm diameter be used

14 All pipes shall be protected from foul soil, sewage or other corrosion where there is an obvious danger of deterioration.

Recommended Pipes for Hot Water.

Copper, stainless steel, galvanised steel, cast iron pipes above 50 mm internal diameter which comply with the relevant B.S.S. may be used for hot water supply and closed heating systems.

Manufacturing Standards and Workmanship

16 Copper pipes and joints shall comply with B.S.S. (see page 8 for table of acceptable dimensions).

The following standards apply to all pipes (class C):

B.S. 78 part 1 Vertically cast iron pipe and fittings (socketed)
B.S. 1211 Centrifugally (spun) cast iron pressure pipe for water gas and sewerage.
B.S. 2035 C.I. flanged pipes and fittings.
B.S. 4622 Grey iron pipes and fittings.
B.S. 4772 Ductile iron pipes and fittings.
B.S. 486 Asbestos cement pressure pipes.

18 G.B. pipe shall comply with the B.S.S. and only be used for the following purposes.

(a) a closed separate heating installation
(b) on the premises side of the control valve in a sprinkler installation.
(c) approved industrial and manufacturing purposes
(d) warning pipes

19 Polythene Pipe

Polythene pipe shall be used only to convey cold water and shall comply with the following standards

British Standard

<table>
<thead>
<tr>
<th>Size</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>½&quot;- ¾&quot;</td>
<td>Normal gauge I.S. 134</td>
</tr>
<tr>
<td>½&quot;- 1 ½&quot;</td>
<td>Heavy gauge I.S. 134</td>
</tr>
<tr>
<td>½&quot;- 2&quot;</td>
<td>Class B, C or D I.S. 135</td>
</tr>
<tr>
<td>1&quot;- 3&quot;</td>
<td>Class B, C, D. B.S. 3284</td>
</tr>
<tr>
<td>4&quot;</td>
<td>Class B, C. B.S. 3284</td>
</tr>
<tr>
<td>6&quot;</td>
<td>Class B B.S. 3284</td>
</tr>
</tbody>
</table>

Note: Only manufacturers recommended joints are acceptable; screwed, butt welded, spigot joints, flair joints are not acceptable.

20 u.P.V.C.

This type of pipe shall comply with I.S. 123 and B.S. 3505 and shall be used to convey cold water only. No pipe shall be lower than C in class.

21 Only wiped soldered joints in conjunction with approved unions may be used to connect lead or lead alloy pipe to other pipes.

23 A clear distinction is made between a temporary service pipe and a permanent connection.

24 The full circular bore of the pipe shall be maintained through out its length.

Sub Service Pipe

25 No sub service pipe shall serve two premises except in the following cases:

(1) Where a block of flats is served by a common 19mm I.D. or greater service pipe and each flat is served by a 13mm branch connection with stopcock.

(2) Where not more than 6 houses of maximum valuation £6-50 are supplied by a common 19mm or greater service pipe with sub service branches to each house.

Where a dwelling house served by a 13mm service pipe is converted to self contained flats it shall have a larger service pipe laid on.

Stopcocks

26-29 A sluice valve is required on the public side of a service pipe before connection to the corporation main; a stop cock is required on the private side before and after entry to the building.

30 Street control stop cocks shall comply with the Dublin Corporation specification for “Standard Underground Stopcocks” otherwise all valves comply with the relevant British Standard (see regs).

31 Hydrants

Hydrants shall be streamlined screwdown valve type with bayonet bug outlet.

32 Hose Reels:

Where approval is granted for reels they shall be supplied with a pipe not less than 38mm I.D. and no thermoplastic pipe shall be used above ground level.

33 In exceptional circumstances drinking water may be supplied from a storage cistern.

39 Storage

Water must be stored in quantities to comply with the table

DOI: 10.21427/D71M7C

https://arrow.tudublin.ie/bsn/vol18/iss9/1

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included on the opposite page

In no case shall water be drawn directly from a service main except for drinking water purposes (i.e. heating systems may be fed from a break tank.)

40 Every cold water storage cistern, feed cistern and flushing cistern (not being an automatic type) shall be fitted with an overflow pipe of minimum diameter 19mm.

Protection of Cisterns

44 Storage and feed cisterns shall be properly covered and if necessary protected from frost.

45 Every outlet pipe from a cistern shall be valved as near as practicable to the cistern.

46 Except in exceptional circumstances underground storage cisterns will not be permitted.

48 Flushing cisterns shall comply with the relevant Irish and British standards and those connected to W.C. pans shall be 9 litre capacity.

51 Urinals shall be fitted with cisterns capable of delivering not more than 4.5 litres to each urinal or 0.7m of slab.

53 Flush Valves:
Flush valves shall be supplied from an independent and exclusive storage cistern of minimum size litres plus 45.5 litres for each additional valve for family dwellings. Otherwise the cistern shall have a capacity of 45.5 litres per occupant.

56 Automatic Flushing Cisterns for Urinals

(1) These units shall not be used except where the water is supplied through a meter, except the Corporation agree in writing to allow otherwise.

(ii) They shall be fitted with a stop cock and regulating cock so set to prevent automatic flushing at greater than 15 minute intervals.

(iii) The water supply to any such cistern shall be shut off when the premises are closed.

59/60 Every apparatus in or by which water supplied by the Corporation is heated shall be supplied from a cold water feed cistern, except where a properly designed gas or electric heater of not more than 14 litres is so connected and is agreed in writing by the Corporation.

62 See regs for list of B.S.S. for cylinders and calorifiers.

66 Mixing valves must be supplied from cisterns at the same level (Note it could be difficult in certain cases to meet this Regulation).

67 Dead Legs: Dead legs shall be limited in length to 12m of 19mm pipe and 76m of 25mm pipe.

69 Where hot and cold cocks are provided together the hot cock shall be positioned on the left side.

70 A hose or moveable pipe shall not be used except where a meter is used to charge for supply and is agreed in writing with D.C.

73 Drinking bowls for animals shall be supplied through an independent, exclusive storage cistern.

Water Supply To Dwellings.

F6, F8 Where one w.c. only is provided in a dwelling it shall not open directly into any habitable room. No w.c. (where more than one is provided) shall open directly into any living room, kitchen or scullery. No w.c. shall be less than 2.1m in height. Every dwelling shall be provided with a bath or shower, a w.h.b. and w.c. pan complete with flushing system.

Every shower shall be equipped with a spray

F8(2)(a) nozzle operated by a mixing valve.

F9(3)(e)(f) A 225 litre (50 gal) C.W.S. cistern shall be provided for each dwelling containing three or less bedrooms; a 360 litre (80 gal) C.W.S. tank shall be provided for each dwelling containing four or more bedrooms.

M5(3)(a) "A manhole shall be provided at each point where there is a change of direction, gradient, or of pipe size.

M5(3)(c) "No part of a drain shall be more than 45m distant (measured along the drain) from a manhole on that drain."

M6(e) "Where a manhole is within a building it shall be so constructed as to remain air tight and water tight."

Blow Down Pit

M11(1)(2) "Every drain which is connected to a sewer and which may carry steam or hot water shall be fitted with a blow down sump or such other means as may be necessary to reduce the temperature of the effluent to not more than 45°C! The blow down sump shall be carried upwards to the level of the ground and be covered with an open grating or ventilated to the open air by a shaft."

M12-(1)(f) Every soil pipe, soil waste pipe, waste pipe and ventilating pipe shall "be constructed so as to be capable of withstanding a smoke or air test for a minimum period of three minutes at a pressure equivalent to a head of not less than 38mm of water."

M12(2) Every soil pipe from a soil appliance and every waste pipe from a waste appliance shall be fitted with a trap (note drains M12(3)(b) from washing machines) or alternatively where not more than 6 appliances are served by a common waste pipe of not more than 5m such a pipe may be fitted with a suitable trap to serve all appliances.

M13(4) Where a sink incorporating a waste disposal unit discharges into a water sealed trap, the discharge shall enter the trap above the level of the water but below the level of the grating."

(5) "Every flushing cistern shall be provided with an overflow pipe of larger I.D. than the feed pipe to the cistern and the overflow pipe shall discharge outside the building in such a manner as not to cause damage or dampness to the building."

Draft Building Regulations.

Refuge Disposal:

F14 A refuge disposal system shall be provided for all dwellings situated in a building of four or more storeys above the building entrance level. No dwelling shall be more than one storey from a disposal chute. The chute and container room shall be ventilated. A system conforming to B.S.C.P. 306 Part 1 1972 is acceptable.
Air Pollution and Industrial Stacks

By T.W. Bamford

As industry in Ireland expands and industrial complexes become more numerous the serious consequences of air pollution are becoming better known. Air pollution in this country has not yet reached the alarming proportions which lead to pea-soup fogs known once in Britain. However, a recent report commissioned by the Industrial Development Authority and published by the Institute of Industrial Research and Standards, points out that much pollution is produced by factories and commercial firms with chimneys which are of insufficient height and incorrect design.

The lesson to be learned is that air pollution control equipment must be designed into every new plant. For smaller sized enterprises, this may simply mean an adequately sized chimney.

It is perhaps interesting to note that in case of 'nuisance' the burden of initiating action rests heavily on neighbours, and while the polluter in question may agree to take remedial action, he is under no obligation to do so, if not pressed by a planning authority or health board. Unfortunately, no suitable specification exists in Britain or Ireland other than the up-dated BS 4076 which covers only basic structural requirements for chimney construction.

Pollution is a sensitive subject and the authorities are not aware of the implications. A Government spokesman recently said that if polluting industries fail to clean up their effluents, despite persuasion, there would have to come a 'shut off point'. Such statements would carry more weight if there were statutory regulations, though there is every reason to believe that the EEC requirements will eventually apply in Ireland.

A correctly constructed chimney should allow free escape of gases without annoying the neighbouring environment, and at the same time it should not compromise good combustion in the boilers. Moreover, it is important that the flues are accessible for inspection and cleaning. Badly designed units not only pollute but can become structurally dangerous.

Steel chimneys nowadays are of cantilever design, without supporting guylines. Every unit must therefore be rated to withstand expected wind pressures, both static and dynamic. Oscillation is likewise precalculated, and if the calculated figure exceeds a certain limit the structure is then equipped with damping devices.

The correctly designed chimney is made perfectly stable by exact calculations of the plate thickness, determination of the internal loading and careful study and realisation of the importance of the jointing of the chimney to the base, with anchor bolts, fixed to a concrete plinth. As a result it is suitable for areas subject to high wind speeds, earth movements, and avoids the necessity of supplementary supports or guy lines.

Each smoke pipe helps to combat air pollution by using a mineral wool insulation which ensures high exit temperature of the flue cases. The high discharge temperature improves the colour of the plume, its velocity and its ability to carry gases and particles as high as possible into the atmosphere, and a self cleaning effect is established.

It might be worth stating what the EEC Requirements would stipulate since they are likely to become basic in Ireland, and they also form the fundamental principles of a well-constructed chimney stack. First point to note is that smoke must not come in contact with the structure. Internal flues must expand vertically and must also be accessible for inspection at all levels to ensure proper maintenance. Throughout the structure a non-corrosive material must be used. The chimney itself must be so designed as to ensure emission speeds at 20 metres per second or over, at full load.

Whessoe (Ireland) Limited have erected a number of stacks in Ireland which fully comply with EEC regulations. They include a 4-core 50 metre high stack at Asahi Chemical Industries Limited, Ballina, and the 2-core 40 metre high stack at Fieldcrest, Kilkenny. Both stacks have internal stairways for free inspection, trap door access to the roof and safety roof handrails, internal lighting, and of course lightening conductors. Material used was Corten 'A' steel.

T.W. Bamford is a Director of Whessoe (Ireland) Ltd.

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<th>Telex No:</th>
<th>Trade Name or Product</th>
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<td>South Quay, Arklow, Co. Wicklow</td>
<td>(042)</td>
<td>2415</td>
<td>Armitage Shanks</td>
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<td>Ballantine &amp; Partners Ltd.</td>
<td>62 The Mount, Mountpollinger, Belfast Bt54 ND</td>
<td></td>
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<td>Meynell</td>
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<tr>
<td>Bartol Plastics Ltd.</td>
<td>St Peter's Road, Walkinstown, Dublin 12</td>
<td>508970</td>
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<td>Bartol</td>
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<tr>
<td>Rodney Bishop Ltd.</td>
<td>200a Rathfarnham Road, Dublin 6</td>
<td>904141</td>
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<td>Emerald</td>
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<tr>
<td>Brooks Thomas Ltd. Dublin 12</td>
<td>P.O. Box 17, Naas Road,</td>
<td>783422</td>
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<td>Most leading brands</td>
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<tr>
<td>Carron Company</td>
<td>Roebuck Hall, Roebuck Road, Dublin 14</td>
<td>982976</td>
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<tr>
<td>Chadwicks Ltd</td>
<td>Greenhills Road, Dublin 12 and Branches</td>
<td>503555</td>
<td></td>
<td>Most leading brands</td>
</tr>
<tr>
<td>Chloride Shires Ireland Ltd.</td>
<td>Newtown Ind. Estate, Dublin 5</td>
<td>471514</td>
<td>31337</td>
<td>Chloride Shires</td>
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<td>Concrete Pipes Ltd</td>
<td>Maulding Works, Naas, Co. Kildare</td>
<td>045</td>
<td>5813</td>
<td>Concrete Pipes Ltd</td>
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<td>Coppercraft Ltd</td>
<td>Kylemore Park, Dublin 10</td>
<td>265146</td>
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<tr>
<td>CHS Ireland Ltd.</td>
<td>86 Ardmore Park, Bray, Co. Wicklow</td>
<td>863948</td>
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<td>Holmark, Holtherm, Keeling.</td>
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<td>Company Name</td>
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<td>Category</td>
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<tr>
<td>Davis King &amp; Co Ltd.</td>
<td>5 South Richmond Street, Dublin 2</td>
<td>761968</td>
<td>Most leading brands</td>
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<tr>
<td>Thomas Dockrell Sons &amp; Co Ltd.</td>
<td>Ballymount Cross, Clondalkin, Co Dublin</td>
<td>500822</td>
<td>Most leading brands</td>
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<tr>
<td>Dublin Providers Ltd.</td>
<td>68 Old Kilmainham, Dublin 8</td>
<td>751046</td>
<td>Most leading brands</td>
<td></td>
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<tr>
<td>P.F. Doggett</td>
<td>Slane, Co. Meath</td>
<td>(041) 24143</td>
<td>Doggett</td>
<td></td>
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<tr>
<td>Erin Industrial Copper Co. Ltd.</td>
<td>Seville Terrace, Five Lamps, North Strand, Dublin 1.</td>
<td>723077</td>
<td>Erin</td>
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<tr>
<td>Fleming Fireclays Ltd.</td>
<td>The Swan, Athy, Co. Kildare</td>
<td>0507 25513</td>
<td>Swanlink</td>
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<tr>
<td>GPE Teo.</td>
<td>Annagry, Co. Donegal or Park House, North Circular Road, Dublin 7</td>
<td>Annagry 27 309377 5189</td>
<td>GPE</td>
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<tr>
<td>Heiton McFerran Ltd.</td>
<td>Tara House, Tara Street, Dublin 2</td>
<td>772931</td>
<td>Most leading brands</td>
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<tr>
<td>Hevac Ltd.</td>
<td>Lomand Avenue, Dublin 3 Also at Anglesea Terrace, Cork</td>
<td>379673 021 509088 8408</td>
<td>Compression Fittings</td>
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<tr>
<td>Irish Containers Ltd.</td>
<td>J F Kennedy Drive, Dublin 12</td>
<td>505593</td>
<td>Maid</td>
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<td>Irish Coppersmiths Ltd.</td>
<td>Lamb Alley, Cornmarket, Dublin 8</td>
<td>752528</td>
<td>Irish Coppersmiths Cylinders</td>
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<tr>
<td>Kingdom Tubes</td>
<td>Rock Street, Tralee, Co. Kerry</td>
<td>(066) 21611</td>
<td>Kingdom</td>
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<tr>
<td>R. T. Large &amp; Son Ltd.</td>
<td>Spitalfields, Francis Street, Dublin 8</td>
<td>783199</td>
<td>Vogue</td>
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<tr>
<td>Kenneth Lee Ltd.</td>
<td>Martins Row, Dublin 20</td>
<td>364108</td>
<td>KSB Sales, Emerald Stainless Steel, Thomas Dudley Namoli, Cesame</td>
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<tr>
<td>P J Matthews &amp; Co Ltd.</td>
<td>134 Lower Baggot Street, Dublin 2</td>
<td>789955</td>
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<td>Marley Flooring &amp; Plumbing Ltd.</td>
<td>Lucan, Co. Dublin</td>
<td>280691</td>
<td>Marley CPI</td>
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<tr>
<td>Midland International Ltd.</td>
<td>Bailieborough, Co. Cavan</td>
<td>Bailieborough 82 33810</td>
<td>Flair</td>
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<td>Modern Plant Ltd.</td>
<td>Otter House, Naas Road, Dublin 12</td>
<td>514944</td>
<td>Mira, Leonard</td>
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<td>Monsell Mitchell &amp; Co. Ltd.</td>
<td>Windmill Lane, Dublin 2</td>
<td>773256</td>
<td>Most leading brands</td>
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<tr>
<td>Nu Plast (Arklow) Ltd.</td>
<td>South Quay, Arklow Co. Wicklow</td>
<td>(0402) 2144</td>
<td>Nu Flow</td>
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<tr>
<td>O'Brien International Ltd.</td>
<td>128 Inchicore Road, Dublin 8</td>
<td>757815</td>
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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.

South Quay, Arklow, Co Wicklow, Telephone: 0402 - 2415,
Sales Office: 0404 - 9383/9235.
| **Index compiled from information received from suppliers. Please notify us on any omission so we can correct it in the next issue of the index.** |
PLUMBING AND HEATING MADE EASY

Depend on Sanbra Fyffe valves and fittings to satisfy your customers most exacting requirements for plumbing and heating. Comprehensive selection including Conex Instantor Fittings, Eirad radiator valves, female gate valves, underground fittings. Whatever your specifications trust Sanbra Fyffe to match them. Catalogue/literature on request.

Sanbra Fyffe

Conex Works, Santry Avenue, Dublin 9.
Telephone 379291.
Telex Dublin 5325.
Flair

An extensive range of shower products and bathroom accessories manufactured in a wide variety of matching sanitaryware colours, is currently available from Midland International Limited of Baileborough, manufacturers of ‘Flair’ shower, bathroom and home improvement products. Flair offer a range of shower cubicles, with a unique folding door or curtain, complete or in modular form, plus an overbath shower enclosure when space is limited in the bathroom. For around the bath, there is a choice of front and end panels and along the bath itself there is a range of bath bars and bath shelves with or without mirrors, which provide convenient storage space for soaps, sponges and toiletries. Flair splashbacks, for use behind the washbasin, in addition to protecting the wall from splashes, provide added storage for toothbrushes, toothpaste, tumblers, medicines and toiletries and are fitted with adjustable mirrors.

Also available from Flair is a choice of three bathroom cabinets each with adjustable mirrors and designed to give plenty of open and closed storage space. Other units in the Flair range suitable for installation in the bathroom include the WSI, a compact washbasin shelf which holds tumblers, toothbrushes and soaps, two mirrored shelf units and the latest design, the TUI Toilet Tidy Unit.

Further information from: Midland International Ltd, Baileborough, Co. Cavan.

Koralle

Koralle comfort is the sum of a great many extras large and small which on each Koralle Shower Enclosure are standard equipment. With the sliding door for shower trays you are choosing a particularly practical solution from the Koralle range. The three-section sliding door opens and closes easily in both directions. Like all Koralle Sliding Doors it includes the Original Koralle Cascade Profile, which directs the shower water straight into the shower tray. This in turn prevents scaling from lime and soap. The cascade profile makes sure that everything remains water-tight. You can turn the shower up to full and rely on your Koralle Sliding Door to keep the water from flooding out. You can combine the Koralle Sliding Door with fixed panels from the Koralle programme.

Shower Folding Screen

The shower folding screen is the practical shower enclosure for mounting on your bath. It is ideal for confined bathrooms without a separate shower. The Koralle Folding Screen is installed with the aid of a few screws — and in less than no time, you have a perfect shower enclosure. The shower folding screen does not take up much space:— It folds easily back after you have taken your shower. The folding screen can be mounted on either side of the bath. The whole unit is height adjustable as is each individual panel. Special vertical plastic seals and rubber seals on the bath edge keep the screen water-tight, so that you can really enjoy a shower behind your Koralle Folding Screen.

Other types of Koralle shower enclosures are available including, corner showers, fixed panel and panels for baths.

Further information from K M Reynolds Ltd.

Armitage Shanks

An up to the minute loose-leaf Group Product Catalogue 2000 was introduced by Armitage Shanks (Ireland) Ltd., at a reception at the Gresham Hotel, Dublin, for architects, merchants, engineers and specifiers. Undoubtedly the most comprehensive catalogue in the

The Flair Shower Cubicle, featuring the unique folding door.
industry, each section is readily identified and fully indexed, making it very easy for specifiers to use. All previous catalogues have been combined in this volume, and it includes general domestic, commercial, industrial, hospital, and laboratory ranges. Many will be interested in the sections dealing with equipment for the disabled, and anti-vandal equipment. The relevant brassware is included in each section.

Mr. M. Egan welcomed two new directors to the board of Armitage Shanks (Ireland) Ltd., Mr. T. Bennett and Mr. C. Booth. He also welcomed Derek Gordon who has recently joined the company as Marketing Manager. Mr. Gordon is well known in the sanitary ware market. These changes, and the major extension to their modern factory at Arklow, now completed, are an indication of the serious purpose of the company. They are making a determined attack on all levels of the Irish market.

At the Armitage Shanks (Ireland) Ltd., reception at the Gresham Hotel to introduce the new group product catalogue 2000. L-R: Mr. Derek Gordon, Marketing Manager, Armitage Shanks; Mr. Edwin Wilkins, Monosel Mitchell & Co. Ltd., and Mr. P. J. Reid, Brooks Thomas Ltd.

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NEW TO IRELAND
A Complete Range of Condensers and Coolers
From West Germany's Largest Manufacturer

Available from:

RSL Ireland Ltd
48F Robin Hood Industrial Estate,
Long Mile Road,
Clondalkin,
Co. Dublin.
Telephone: 508011 Telex: 4818.

"Offering as we are a complete bathroom package of what is the largest range of sanitary ware in Europe, of superb design, we are confident that we will capture a large share of the growing Irish market," said Mr. Derek Gordon, Marketing Manager. "We have many exciting developments in the pipeline and with the new and extended facilities at Arklow we will be providing a first class service to the industry. With such a broad range of products covering the spectrum from the basic products to very exclusive four figure suites we have what the trade and the consumer wants."

Armitage Shanks (Ireland) Ltd. will be exhibiting at Interbuild, despite indications that competitors may not be represented. Mr. T. Bennett, Group Sales Director, said that the company would be spending £1m. with TV advertising which would certainly mean exposure to East Coast householders. In addition, the company has put together an excellently designed consumer literature pack aimed at selling housewives on the products before they enter the stock-

https://arrow.tudublin.ie/bsn/vol18/iss9/1
DOI:10.21427/D71M7C
Plumbing Equipment and Supplies

Ist's door. These and many other developments yet to be announced are part of their very determined marketing programme for the coming year. Market research indicates that home owners will be devoting more and more attention to updating their bathrooms. Armitage Shanks will be there to supply their needs.

Of particular interest to the trade is a new development in product handling. The company is going over more and more to shrink wrap pallets. These can be left in the yard without fear of damage. In the near future there will be shrink wrapped bathroom suite packs. This will be an important development, especially for DIY trading.

Idealblend

The Idealblend shower — with single lever control — is the easiest to operate and most reliable of blender showers. With the Idealblend, precise control of temperature is provided by the same lever that gives control of flow. Simply lifting the lever brings the shower up to full flow. There's no laborious turning of wheel valves. The lever is moved to the left to raise the temperature and to the right to reduce it. The light action and immediate response are made possible by a unique and patented mixer cartridge contained within the body of the shower.

The cartridge incorporates two ultra-smooth ceramic discs which control the mixing of hot and cold water as well as the flow. Almost as hard as a diamond and polished flat to a tolerance of .0006mm, the surfaces of the discs are so smooth that in contact they form a permanently water tight seal. Indeed they polish one another in use maintaining a complete water seal over an indefinite life and other matter cannot get between them. Even the hardest water has no effect on the discs. The unique ceramic disc principle makes Idealblend the finest and most reliable shower available. Idealblend shower mixers have no washers or complicated metal mixing mechanisms to corrode or wear out, with all the consequent drip problems. More than ten million showers and mixers incorporating these ceramic cartridges are in use throughout the world, giving proven and highly reliable service. They are made by the Ideal-Standard group of companies, the biggest and most experienced manufacturers of bathroom equipment in Europe and, indeed, the world. Idealblend showers are designed to operate entirely satisfactorily in normal roof-tank systems at pressures down to as little as one metre.

For further information contact K M Reynolds Ltd., 13 Bath Avenue, Dublin 14 Tel: 685079

WICU — L R Wood

L.R. Wood Ltd. of Pearce St. Dublin report a marked upsurge in the purchase of the versatile WICU (R) 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 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., 174 Pearse Street, Dublin Tel: 713155. Telex 4210.

Ideal Standard

Ideal Standard have added an extension to their Michelangelo range recently by introducing the Michelangelo bath.

The new bath, featuring a raised wrap-round back-rest, has been designed, however, to complement not only the Michelangelo bathroom furniture, but all co-ordinated vitreous china bathroom suites from Ideal Standard.

The Michelangelo bath is 1700mm x 800mm, a luxury width combined with a standard length which makes it suitable for installation in the vast majority of bathrooms.

The back has been designed with a gentle slope to increase user comfort, while the extra depth (over 26mm deeper than an average British bath) is, Ideal-Standard claim, the trend in design as the consumer seeks a greater comfort after many years of having to tolerate shallower baths.

The new bath can be supplied with centre tapholes or without tapholes, and has a pair of cast brass handgrips which are fitted on shelves along the sides of the bath, a feature which was also designed so successfully into the Brasilia bath.

Attractive design co-ordinated front and end panels are available in matching colours in high impact poly styrene.

Particular attention has been paid to matching the
THREE DESIGNS - AND ALL IDEAL

A new design brings extra width to the Ideal-Standard range of baths

Now Ideal-Standard have extended their range of baths with a new bath - Michelangelo. The Michelangelo bath is the work of John Beauchamp who designed the Brasilia bath for Ideal-Standard. He continues the theme with a bath which complements the existing range.

The Michelangelo gives your customer luxury width (800mm) within the widely appropriate standard length of 1700mm. An appealing feature of the new bath is the unique shape of the wraparound backrest. This gives added support for comfort and relaxation. Other excellent design features include - extra wide and generously long shelf space and well positioned specially made handgrips.

Michelangelo comes in a choice of seven fashion colours. It's not only beautiful . . . it's good business because this new design will fit into the vast majority of bathrooms.

Brasilia. A supremely comfortable rectangular twin handgrip bath of luxurious dimensions — 1800 x 800 mm.

New Status. Stylish design in a compact size — 1700 x 700 mm. Available in all colours except Penthouse.

Ideal-Standard baths designed for comfort and style

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K. M. REYNOLDS LTD., 13 Bath Avenue, Dublin 4, Ireland. Tel: 685079. Telex: 4782
Plumbing Equipment and Supplies

Michelangelo bath and panels in which it is available — Sorrento Blue, Bali Brown, Harvest, Avocado, Pampas, White, Penthouse Blue and Penthouse Red.

The Michelangelo bath is supplied with an easy-to-assemble cradle which allows a height adjustment of between 500mm and 560mm. The panels are also adjustable within these heights.

Further details from Irish agents K M Reynolds Ltd, 13 Bath Avenue, Dublin 4, (Tel: 685079).

Sanbra Fyffe

The Saflo Taps manufactured by Sanbra Fyffe offer an exciting breakthrough in tap design and construction. The heart of the breakthrough lies in a rubber diaphragm and its associated components, a precision moulding in synthetic rubber. The diaphragm has a unique profile which as well as sealing off the entire headworks combines the function of a normal tap washer. ‘O’ Rings and their tricky replacements are eliminated, so are the conventional glands and their periodic adjustment. Few taps, if any, have as light and positive an action as the Saflo Performance Tap and it can be justifiably claimed that they are virtually tamper-proof. Saflo fittings are manufactured to comply with the exacting British Performance Standard BS 5412 1976. Available from builders and plumbers merchants throughout the country.

Instantor Compression Couplings are manufactured entirely in Dublin and are available in a full range consisting of 278 different items. The quality is unsurpassed and the fittings can be used for joining Polis-daptor sleeve and flange insert. Ther are no substitutes for the genuine Irish made instantor couplings and they are available throughout the country.

Sanbra Fyffe ½ Pillarcock C.P. on brass.

READY LAGGED COPPER PIPE WICV ® TUBE EX-STOCK

10 mm: 12mm: 15 mm: 22mm.

ALSO COPPER CAPILLARY FITTINGS

FROM MAJOR BUILDERS MERCHANTS

K M Reynolds bringing you
Bathroom furniture, fittings and fixtures.

K M Reynolds are agents for Ideal Standard which include the Michelangelo range of quality bathroom furniture. A choice of floor standing and wall mounted wash basins, toilets and bidets. The Michelangelo suite can be matched with a choice of Ideal Standard baths available in the same colour range. The Jetline range of brassware basin mixers in one piece and three piece designs, available in both swivel and fixed spout form, come in a choice of chromium plate or Karatclad hard gold plate.

K M Reynolds are also agents for Pilkington's who lead the field in the manufacture of plain and patterned tiles that co-ordinate beautifully with bathrooms by Ideal Standard and many other leading makes and styles of sanitary ware.

K M Reynolds are stockists and distributors for a wide range of bathroom fittings and fixtures. Koralle shower enclosures are made up of a variety of well designed and finished units. Corner Showers, Shower Sliding Doors for Baths, Wing Doors, Shower Fixed Panels and Shower Folding Screens.

Omega luxury shower cubicles easy to assemble satins anodised, heavy duty aluminium frames moulded polystyrene in a range of twelve bathroom colours. Other fittings include, Vanity Bars, Bathroom Cabinets, Bath Panels, Mirrors, Splash Backs and other matching accessories.

Cascade showers and shower rails with a complete range of high quality patterned and plain nylon shower curtains.

Ekco quality plastic Toilet Seats and Cisterns in the following colours: - Sepia, Avocado Green, Sun King, Bali Brown and Sorrento Blue.

The Olla is a range of toilet seats known as “the unbreakables” with a choice of wood and decorated finishes.

We stock a complete range of plastic traps and push fit waste fittings by DuBois.

For further information please contact
The responsibility of being best means innovating with a purpose

Fibreglass Limited Insulation Division St Helens Merseyside WA10 3TR A subsidiary of Pilkington Brothers Limited