Linking Kinsale to Mrs. Kelly’s Kitchen.

The benefits of Kinsale Natural Gas now turn from pipe dream to reality for areas within reach of the main pipeline.

Where those high-pressure transmission lines end— that’s where Wavin begins. With WavinGas. The complete system for town distribution.

While all this is new to Ireland, we at Wavin are old hands in the business. Because we’re part of Europe’s biggest pipe manufacturers. And our experience with North Sea gas means that we can give Ireland all the advantages of a more advanced second-generation system.

That involves skilled training of local operatives. Pipes and all fittings to highest international specifications—of quality and safety. Back-up service and expertise. We’re with you all the way. Right down the line.

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THERMAL
LABORATORY

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National Energy Conservation Awards 1982

During July some 4,000 Irish firms are being asked to take part in this year’s National Energy Conservation Awards. The awards are part of the drive by the Department of Industry and Energy to achieve greater efficiency and economy in energy use in Irish industry.

Announcing details of the Awards the Minister for Industry and Energy, Mr. Albert Reynolds, T.D., stressed that the need to save energy is as pressing as ever. “The actual supply situation may have eased but the high cost of oil and fuel imports generally are a severe burden on our economy. For business firms and individuals, the investment of time, effort and money devoted to energy saving will give a guaranteed return”.

The Awards introduced two years ago, now form a important part of the Department of Industry and Energy’s conservation programme, they are designed to promote practical energy conservation and to acknowledge the successes of individual firms and organisations. Mr. Reynolds said that the areas covered by the Awards — Industry and the Public Sector — are ones where the needs for efficiency and economy in energy use cannot be over-stressed. The Awards are arranged in three categories, large firms (over 50 employees), small firms (50 employees or under) and the public sector.

Mr. Reynolds expressed satisfaction with the growth of the Energy Management Association which now numbers over 2,000 members and said that a special Energy Manager’s award would again be featured this year. “This year”, Mr. Reynolds said, “the awards are being organised slightly differently in that firms and organisations intending to submit entries are asked to register on or before 31 July, 1982”. Circulation of the registration forms which simply signal the intention to enter has been taking place since early this month. These preliminary forms are also available on request from the Department of Industry and Energy, 25 Clare Street, Dublin 2, telephone 01-715233 or the Regional Energy Conservation Officer.

The closing date for receipt of completed entries is 1st October, 1982 and Awards will be presented in December 1982.

Mr. Reynolds urged all firms and organisations intending to enter to send in the simple registration form by 31 July and he assured entrants that at registration, every assistance would be given with the preparation of final submissions.

Irish Student for Jordan

Jacobs International, the multi-million pound engineering firm in Dublin, has awarded the Jacobs Engineering Travelling Studentship to a UCD engineering student, Don Eglington.

The award will enable Don to spend ten weeks this summer working on the company’s £200 million project on the banks of the Dead Sea in Jordan.

Don Eglington, a third year engineering student from Limerick, won the award on the basis of his first class honours results in U.C.D. exams.

£7.5m Contract for McInerney

McInerney Civil Engineering Limited has been awarded two major contracts which have a total value of £7.5m by Clare County Council for the construction of the West Clare Regional Water Supply Scheme.

The works involve the construction of approximately 31 Kms of 750 millimetre pipeline from Doo Lough to Killimer with a spur to the new Money Point electricity generating station. Also included is the construction of a 500,000 gallon reservoir at Killimer together with approximately 80 valve complexes along the pipeline route.

Work will start immediately for completion within 15 months.

Consulting engineers are J.B. Barry & Partners.
Sweetbrier is one of the most winning bathroom designs to happen in a long time.

We've taken the warmth and beauty of our new Champagne shade and added an enchanting floral border which sets it off perfectly... with co-ordinating accessories in Champagne and matching Brier tiles – specially created to give you a complete co-ordinated bathroom.

Only Armitage Shanks’ entire range of luxury fittings can make such beautiful bathrooms possible.

And our superbly produced bathroom design folder tells you all you need to know.

For your free copy, post the coupon today.
**“IRISH CHINA IS BEST”**

Michael Egan, Managing Director of Armitage Shanks (Ireland) Ltd. has called on the Irish building industry to buy Irish and save jobs. Speaking at a conference held by his company for all its merchants and buyers throughout Ireland at the head office Armitage Shanks in South Quay, Arklow, he said: “The town of Arklow has seen many lay-offs in the past five years with the loss of wage amounting to almost £10 million. In our company to date there have been no job losses, short time or redundancies. Whether or not we can keep that up depends very much on the commitment of the building industry in this country to buy Irish. In the past three years Armitage Shanks (Ireland) Ltd. has outlaid £1 million in capital expenditure,” said Mr. Egan. “There are plans to spend another half million pounds in the next three years. We have recently applied for planning permission to build an extension to our factory at South Quay in Arklow. Already we have installed a new slip which enables us to use sand from Irish sources for the first time.” Armitage Shanks is the only manufacturer of vitreous china in Ireland. It employs 120 people and has a wages bill in excess of £1 million per annum. “Since our factory opened in Arklow in 1968, we have grown steadily and employed more people,” said Mr. Egan. “We would very much like to continue the trend. But it will only happen if our building industry commits itself to the reality of Buying Irish. Slogans alone won’t save jobs.”

---

**Wavin Gas Pipe in Kilkenny**

The much heralded Kinsale Natural Gas development programme entered a new phase recently when Wavin Pipes Ltd., supplied and laid the first section of a new polyethylene pipe system for the Kilkenny Gas Company, in preparation for conversion to natural gas.

Maudlin Street, Kilkenny, is the first street to be converted to the new system which, it is claimed, will be considerably cheaper for the consumer than present imported gas supplies.

The Wavin Group is the largest manufacturer of plastic pipes and fittings in Europe and one of the largest in the world. The company has been involved for almost 20 years worldwide in the development and production of pipes and fittings for gas production.

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**SELKIRK/HEVAC GOLF OUTING AT PORTMARNOCK**

A very enjoyable golf outing was held at Portmarnock golf club on the 3rd June 1982. This outing was jointly sponsored by Hevac Ltd. and Selkirk Metalbestos (U.K). The event was attended by approx. 50 people in the heating industry including consulting engineers, mechanical contractors, installers and others involved in the industry.

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**Distributorship for Glorneys**

C. P. Glorney have been appointed as main distributors for the following Equator domestic heat pump and Ubbink attic ventilation tiles and mechanical ventilation system.

**Equator Domestic Heat Pump**

Manufactured by F. H. Biddle Ltd., with over 50 years experience of heating and ventilating systems. This heat pump has been designed to fit into an existing attic. Manufacturers claim it will produce hot water at 25% of cost of electricity at average annual ambient 15°C. It is envisaged that not only private homes but also works canteens, washups etc., will find a ready use in view of the savings.

**Ubbink Ventilating System**

Attic ventilation is now much in demand since the raising of insulation standards and is now a very simple achievement. By using an attic tile which contains a ventilator the roof line is not disturbed. They look and fit just as any roofing tile but ensure through ventilation in the attic area. Glorneys extensive range of ventilating units contains a recycling unit so that heat is replaced instead of wasted. One ventilating shaft will combine kitchen, bathroom and bedroom, expel bad air and reintroduce fresh air for replacement as warm air.
Nibco End Feed Fittings Launched in Ireland

Nibco International, well known throughout the world as the leading manufacturer of copper fittings, are introducing a range of end feed capillary copper fittings in Ireland. The fittings, to be launched during September of this year, conform to Irish Standards and are fully compatible with the copper tube currently available in Ireland.

Nibco have always specialised in the manufacture of pipe fittings and valves, and now have over 140,000 square metres of manufacturing plant in the United States and Europe, producing over 400 million fittings each year and supplying over 30 countries. Each factory is a 'single purpose' plant, generally using one material and producing one class of product, for maximum efficiency. The benefits of these advanced production techniques are passed on to customers, and are reflected in the cost savings on both stock and installation, the high quality of the product and Nibco's efficient and effective service.

Nibco end feed fittings are the most economical way of making copper joints. No expensive nuts or olives, no wasteful solder rings, and each fitting is guaranteed free from defects in material and workmanship when used in the service for which it is recommended. If any is proved defective, it will be replaced without question.

Initially, Nibco Inter will launch a range of seven fittings, comprising: C10 couplings, in sizes ½", ¾" and 1";

C48 fitting reducers, ¾" x ½", 1" x ¾", and 1" x ½";

C15 elbows, ½", ¾" and 1";

C18 tees, ½", ¾" and 1";

C18-R tees, ¾" x ⅜" x ¼"; ¾" x ⅜" x ¼" and ¾" x ½" x ¼";

C12 straight tap connectors, ½" x ⅜" and ¾" x ¼";

C27 bent tap connectors, ½" x ⅜".

These will be available to builders and plumbers merchants through Nibco's distributor in Ireland, CHS Ireland Ltd.

Installers, who will be able to obtain Nibco products only through builders and plumbers merchants, can obtain free technical manual which explains in full detail the technique of using end feed capillary fittings from CHS Ireland Ltd., Stillorgan Industrial Park, Stillorgan, Co. Dublin, Tel: 952326.

BTU GOLFING SOCIETY — RECENT RESULTS

The following are the results of recent BTU Golfing Society outings.


Class 1 — 1st Eamon Vickers 33 pts (10); 2nd John Hamilton 28 (9) back 9; 3rd Mick Devoy 28 (6).

Class 2 — 1st Dennis McNamara 34 (13); 2nd Tony Gillan 33 (12); 3rd Liam Stenson 32 (11).

Class 3 — 1st Matt McKeon 35 (18); 2nd Cyril O'Meara 32 (18); 3rd Eddie Egan 30 (17). Back nine — Mike Askey 19 (11); Peter Reynolds 17 (13) last 6.

Front nine — Brendan Sheehan 17 (13); Michael Curley 16 (13) last 6.

Visitors — 1st Mick Carroll 32 (14) back 9; 2nd Philip O'Sullivan 32 (10); 3rd Michael Banks 30 (10).

Woodbrook 28th June — Hevac/Lister Tubes Ltd. Very gusty and inclement weather. Winner — Matt Ronan 35 (4).

Class 1 — 1st Eamon Cullen 35 (9); 2nd Aubrey Moriarty 34 (5) last 9; 3rd Mike Devoy 34 (5) last 6.

Class 2 — 1st Pat Codyre 34 (12) last hole; 2nd Tony Gillen 34 (11); 3rd Pat Dunphy 32 (11) back 9.

Class 3 — 1st Cyril O'Meara 33 (17); 2nd Eddie Egan 31 (16); 3rd Tom Scott 30 (18) back 9, Given to Des Ryan 30 (17).

Visitors — 1st E. Waltersen 36 (23); 2nd Ray McGrail 34 (7); 3rd Garry Stewart 32 (11).

Back nine — 1st Brendan Sheehan 19 (10); 2nd Sean Cagney 18 (10). Front nine — 1st Eamonn Cullen 20 (9) last 3; 2nd John Hamilton 20 (10).

Visitors — Hugh Byrne 40 (7); Sean Smyth 37; J. Farrell 34.

Remaining Outings 1982

September 4/5th, Wexford Week-end; September 24th, Clontarf G.C.; October 7th, Hermitage G.C.; November 26th, Hermitage G.C.
Bolton St. College Seeks Industrial Sponsors

The College of Technology, Bolton Street, has been involved with the training of professional engineers and technicians for a considerable number of years in a wide range of disciplines such as mechanical, production, structural and building.

This year the College is seeking industrial sponsorship for this essential work on research and development projects. The aims of the scheme are threefold:

1. To maintain the high standard of research and development work.
2. To relate the projects closer to industry and to develop more effective links between industry and the College.
3. To provide industry with an information service based on the project reports.

The cost to the College of providing this type of training opportunity is considerable. They are seeking firms who would be prepared to sponsor a single student project at a cost of £1,000. The cost of such sponsorship may be offset against company expenses in assessment of tax liability under certain conditions and the real cost to the sponsoring firm would obviously be much less.

For further information, discussion, or to arrange sponsorship for the 1982/1983 academic year, please contact: Mr. F. R. O'Neill, Industrial Liaison Officer, 14 Upper Mount Street, Dublin 2. Tel: 766584, 762652 or Mr. M. Murphy, Head of School of Engineering and Science, College of Technology, Bolton Street, Dublin 1. Tel: 749913.

Major Contracts for Alpha Pipejacketing

Alpha Flexible Pipe Jacketing with "Tedlar" provides corrosion and weather resistance and has been specified for two recent major contracts in Ireland.

2. Aughinish Alumina site at Limerick, 50,000 square metres of TGH 1000 insulation specified by A.C.L. and contract placed with Hasties of Drogheda, insulation contractors.

Carl Freudenberg & Co. (UK) Ltd., Irish sales office are sole distributors for Alpha Fibre Glass materials in Ireland and the U.K. and the new jacketing uses a glass fibre fabric base, impregnated on both sides with Hypalon synthetic rubber to give a tough, flexible binding. This composite is then laminated with Tedlar in a variety of standard colours.

TGH 1000 jacketing is very suitable for oil refineries, chemical plants, food processing and is used indoors and outdoors with predicted weathering life of ten years. Carl Freudenberg also supply Silicone coated glass fabric for reusable, removable pads and valve flange covers.

Further information can be obtained by contacting Carl Freudenberg's office. Tel: Dublin 267818 Telex: 30894. Contact: Mr. Maurice Gallagher.

Walker Prepare for Residential Heat Pump Market

Walker Air Conditioning is appointing residential heating dealers in the 32 counties in readiness for the arrival of the residential heat pump market which they expect to start to break next year and to gather momentum over the next five years.

Walker, through their Carlyle distribution franchise, are able to offer a wide choice of heat pumps for residential applications, air to water, water to water, air to air and water to air. These heat pumps with seasonal cop's in excess of 3.0, can be used in new or refurbishment installations as the sole heat source or alongside conventional oil fired boilers. The company has supplied a number of larger model heat pumps for commercial and industrial premises in the last two or three years, as well as quite a number of smaller models.
IIRS Thermal Laboratory

With the planned introduction of Irish standards for certain types of heating appliances it became vital that some way of independently testing appliances should be available in Ireland. It was also important that a reasonably priced and quick responding service be offered as many facilities outside Ireland are very expensive and slow. So with these problems in mind we spoke to Pat Naghten who is in charge of the laboratory. The first point that Pat wanted to make clear and that was that from now on all appliances in for test will not only be tested for the quality of materials of construction but will be tested to the relevant Irish, British, or whatever other standard required for the appliances. So the appliance will meet or fail that particular standard, and the term "IIRS approved" will no longer apply.

Compliance with high standards of efficiency, particularly in the case of domestic appliances, is seen as an integral part of the drive to slow the depletion of non-renewable fuel resources.

The setting-up of a thermal test facility is also regarded as an essential element in drafting and implementing performance standards relevant to Ireland's native fuel resources and usage patterns.

Such standards should take into account not only traditional native fuels such as peat, but also the likely future availability of natural gas, and in the longer term, oil.

Arising out of this, the laboratory will provide support to Irish manufacturers to develop more efficient fuel burning appliances for the domestic market, together with related equipment such as flues, burners, and heat emitters.

This proving service will complement those IIRS services already existing in the areas of patents and inventions, materials analysis, design and development and manufacturing.

In addition and in keeping with the IIRS role in national energy conservation, the laboratory will be used to demonstrate, by means of model installations and systems, the safe and efficient use of energy-consuming equipment.

It is further envisaged that the facility will be used for education and training programmes in energy management which are organised and run by Energy Services. The Laboratory will enhance the capability of IIRS to...
undertake and successfully execute research, development and demonstration projects in energy sponsored by national and international agencies.

The design brief for the new building was prepared by Energy Services staff, and is modelled on the facilities existing in a number of major thermal laboratories in the UK. The building has a floor area of 190 m² (2000 ft² approx.)

It was built to high standards of safety and thermal insulation and is completely self-contained, with storage facilities for a variety of solid, liquid and gaseous test fuels.

There are two main testing areas, one for solid fuel appliances, the other being a multi-purpose test and demonstration area. The solid fuel test area has a raised roof to accommodate three full-size permanent brick chimney settings.

The layout is designed to allow simultaneous testing of up to 5 or 6 appliances of various types. The laboratory is of course equipped with the most modern and reliable instrumentation and has its own facilities for instrument overhaul and fabrication of special test rigs.

Typical examples of the laboratory's instrument range are:
- Radiant heat emissions from stoves — BCURA cage method;
- Flue gas sampling, measurement and analysis equipment to B.S. requirements;
- Multipoint temperature measurement and recording facilities.

The laboratory is operated by permanent and full time specialist staff, all of whom received comprehensive training, both in Ireland and overseas, before being assigned to the laboratory.

The IIRS would welcome enquiries from appliance and equipment manufacturers or their agents, and those concerned with efficient energy use, who would like to avail of the services of the new laboratory.

As well as being able to avail of the most up-to-date test facilities, prospective clients are assured of a full technical back-up, not only from Energy Services, but also from the other specialist services of the IIRS.

As with other IIRS services, work is carried out on a contracted, fee-paying basis, and standard rates are available on request. However, a preliminary enquiry and discussion cost nothing and imply no contractual commitment. Also, in the case of research and development work, projects may qualify for grant aid under one of several schemes currently operating.

Enquiries and requests for further information should be directed to Pat Naghten at Dublin 370101.
Industrial Estate, Strawhill, Carlow. Tel: 0503-31646

Manufacturers of —

Air Handling Units, Centrifugal Unit Heaters and High Efficiency Oil and Gas Fired Heaters
Cordially Invite The Trade to Their Official Opening by Mr. Albert Reynolds, T.D., Minister for Industry and Energy, on Friday 3rd September at 11.30 am at Their Factory in Carlow.

HALIFAX FANS still as efficient & reliable as ever.

The result of many years of engineering design and development, HALIFAX FANS are built for quality, reliability and efficiency, using the most advanced machinery and specialised personnel. Available in a wide range of forms to serve a variety of industrial uses, HALIFAX FANS are on duty in the Chemical and Paper manufacturing industries, Food, Grain and Wool handling operations, in Computer installations, aboard Oil Tankers and in many other applications.
For nearly half a century TRANE engineers have demonstrated time and again their technical ability to design and manufacture some of the world's largest and most complex refrigeration and air conditioning machinery.

Now, TRANE has put this expertise into it's 7 kW to 60 kW UNITARY range.

Products
- They are built in Europe (1)
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All central air handling systems can briefly be classified as either single path or dual path. Single path systems contain the main heating and cooling coils in a series flow air path using common duct distribution system at a common temperature to feed all terminal apparatus, or a separate supply duct to each zone, with blending of warm and cold air at the main supply fan. Single path systems can be further classified as providing a constant or a variable air volume, or a reheat system. Dual path systems can provide dual duct (including a variable volume facility), or multizone operation. Central station air handling units can be designed for high velocity or low velocity. Higher friction rates and systems pressures are required with high velocity systems to reduce duct sizes and save space. Some low velocity systems may require higher pressures to facilitate balancing and/or for flow regulators, which have a substantial design pressure drop.

**Single zone systems**

The simplest form of central air handling system is the unit serving a single temperature zone. Although this article is primarily concerned with those systems located away from the conditioned space, some of these systems are also suitable for installation in this area. Units from Seale’s climate Airline system, for example, have been specially mounted in their own factory for direct discharge. Another example is Climate Engineering’s Alu-Mak range which can be vertically as well as horizontally installed, and its attractive aluminium finish makes it particularly suitable for mounting within the conditioned space. Whether within or remote from the space, single zone units maintain close temperature and humidity control of the area.

A single zone system responds to only one set of space conditions so its use is limited to situations where variations occur approximately uniformly throughout the zone served, or where the load is stable. However, when multiple units are installed a variety of conditions can be handled efficiently. Control of the single zone system can be affected by varying the quantity of cooling medium, providing reheat, face adn bypass dampers, or a combination of these. The single duct systems with reheat satisfies variations in load by providing independent sources of heating and cooling. When a humidifier is included in the system, humidity control completely responsive to space needs is provided. Since control is directly from space temperature and humidity, close regulation of the system conditions can be achieved.

**Variable air volume systems**

Control of dry-bulb temperature within a space requires a balance to be established between the space load and the medium supplied to offset the load. When air is the medium used to balance the load, either the supply air temperature can be varied (constant volume), or the air volume can be altered as the space load changes (variable volume).

Variable air volume systems may be applied to interior or perimeter zones, with common or separate air temperature control, and with or without auxiliary heating devices. The variable volume concept may apply to volume variation in the main total air stream, or to the zones of control, or both.

VAV systems have received much publicity recently due to their potential for saving energy, particularly in larger installations where the reduction in fan, heating and cooling duties can be substantial. Most air handling manufacturers can supply units suitable for operation with variable volume terminals by supplying inlet vane control on the fans. Some companies, particularly those involved in the total air conditioning markets, such as Carlyle, Trane, Flakt, Woods, and Ozonair can supply the complete VAV system.

For cooling only or heating only, a simple VAV system can be used by varying the air volume either at the central system or at the zone. For full heating and cooling flexibility, VAV reheat or dual duct systems can be used with varying system and zone air volumes, in this case, air is throttled to some predetermined throttling ratio and then reheated or mixed with warm air at the individual zone. For simple VAV, and reheat or dual duct VAV, it is possible to keep system and/or fan volumes constant by a fan bypass or return air dumping.

When VAV with a constant zone volume is required, individual zone fans can be used to maintain minimum or constant supply to the zone while the primary air feed to the zone is throttled. The load is satisfied by recirculating return air with the sum of the throttled system air and then recirculated return air kept constant. This system is particularly useful for zones with more than a normal variation of internal or external loads, and can be combined with terminal reheat if required.

**Reheat systems**

The reheat system is a modification of the single zone system. Its purpose to allow zone or space control for areas of unequal loading, or to provide heating or cooling of perimeter areas with different exposures. It is also used for cooling or comfort applications where close control of space conditions is required. As the name implies, the application of heat is a secondary process being applied to either pre conditioned primary air or recirculated room air. A single low pressure reheat system is produced when a heating coil is inserted in the duct system downstream of the cooling coils. The more sophisticated systems utilise higher pressure duct designs and pressure reduction devices to permit system balancing at the reheat zone. The medium heating can be steam, hot water or electricity.

The system is generally applied to spaces where wide load variations are expected. Terminal units are designed to heat primary air or secondary air induced from the conditioned space. Conditioned air is supplied from a central unit at a fixed cold air temperature designed to offset the maximum cooling load in the space. The control thermostat simply calls for heat as the cooling load in the space drops below the maximum.
The reheat system also has the ability to maintain very close control humidity. One of the disadvantages of this system is its high operating cost, which can be reduced by using the reheat facility in conjunction with some form of heat recovery or a variable volume system.

**Dual duct systems**
The dual duct system of air handling was developed for application in structures requiring a multiplicity of zones. The requirements of the different zones are met by mixing cold and warm air in a device responsive to a room thermostat. The air flowing in the cold and warm air ducts is conditioned centrally and distributed throughout the building by a system of two parallel ducts. One duct carries cold air, and the other warm air, thus providing air sources for both heating and cooling at all times. In each conditioned space or zone, a mixing valve responsive to a room thermostat mixes the warm and cold air in appropriate proportions to satisfy the prevailing heat load of the space.

A dual duct reheat cycle is possible similar to the conventional reheat cycle. The major difference is that instead of reheating air at a multiplicity of stations close to points of distribution, the reheat in dual-duct reheat cycle is applied centrally at one point. The same disadvantage of high operating costs applies to the duct reheat cycle also.

The dual duct VAV system accomplishes zone temperature control by sequencing blending of cold and warm air after volume reduction of the total supply air to each zone. At maximum cooling the room supply temperature and air quantity requirements are identical with the constant volume systems; the volume regulators deliver maximum volume and the cold port is wide open. As the cooling load drops, the volume regulator reduces supply volume to the minimum acceptable value. As it decreases further, the warm port begins to open as the cold air decreases. Minimum volume is maintained below this cooling level and during the entire heating cycle. This system provides more flexibility than the single path VAV system, but at the expense of somewhat higher energy consumption than those systems without a heating means at the terminal. It consumes much less energy and is lower in running costs than the constant volume single path terminal reheat systems using external reheat.

**Multizone systems**
The multizone system serves a relatively small number of zones from a single central air handling unit. The requirements of the different zones are met by mixing cold and warm air through zone dampers at the central air handler in response to zone thermostats. The mixed conditioned air is distributed throughout the building by a system of single zone ducts.

The multizone system is similar in most respects to the dual duct systems. It can provide a smaller building with some of the advantages of dual duct systems at lower first cost with a wide variety of packaged equipment, but it is limited by multiple runs of single zone ducts handling smaller projects.

For economic and practical reasons, multizone units usually handle more than one room with a single duct. They are usually limited to about 12 zones, while built up systems may have as many as can be physically incorporated in the layout. VAV can be applied to multizone systems in a similar manner to dual duct systems.

The systems described above apply to air handling units supplying only air for heating, cooling and humidification of the conditioned space.

Other systems are available which supply either air or water, or water only from a central system to terminal units such as fan coil units and underfloor ventilators for subsequent treatment prior to space conditioning. Although these systems are important in the consideration of the total possibilities of air conditioning, they will not be covered in this article.

**Heat recovery**
The recent increases in the price of fuel and the prospect of even higher ones to come have stimulated interest in heat recovery systems for use in conjunction with the central air handling plant. As described earlier, the mixing of recirculated air with outdoor air is now the usual practice in large air handling systems. Some manufacturers also offer additional heat recovery equipment.

One device being offered for heat recovery in air handling systems is the heat recovery wheel. This consists of a rotating wheel and drive motor supported in a framework. The wheel contains a heat retentive medium which rotates at about 10 rpm between the exhaust air and the cold incoming air ducts. Heat is thus transferred from one air stream to the other. The rate of heat transfer can be controlled by varying the speed of the wheel, and transfer efficiencies of up to 85% can be achieved.

Thermal wheels particularly justify their capital costs in cases where utilisation is high, or if a significant temperature difference exists between the air streams. Run-around coils can also be used for application requiring heat reclaim. This system consists of two heat exchanger coils installed in the inlet and exhaust ducts, connected to each other by pipework filled with a continuously circulating glycol mixture. Exhaust air drawn over the heat exchanger in the first unit warms or cools the liquid circulating in it. The rate of heat transfer is controlled by a thermostat in the supply air duct acting on a motorised three-port valve. Up to 50% heat transfer is possible.

Air-to-air heat exchangers consisting of a framework containing an arrangement of parallel air paths separated by metal or glass vanes can offer up to 75% heat transfer efficiencies. Heat is transferred from one air stream to the other across the glass or metal walls. The heat pump could also become very important in future air handling systems. It is essentially a heat transfer device which enables heat to be upgraded in temperature and transferred to an area where it can be used. It can either use the refrigeration cycle to extract heat from waste air or water, or can extract heat from the outside air or ground. The heat pump can produce dramatic savings in running costs for a system having a high utilisation of the compressor.

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

**Redbro**
Redbro Manufacturing Ltd. now manufacture the range of HMC Designed air handling units. Their service includes a fully computerised selection combining minimum first cost with maximum efficiency, smooth operation and low running costs. Accurate information on thermodynamic and aerologic performances as well as on noise level characteristics is available for any specific application.

Maximum flexibility, easy mounting and
KG Air handling units
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SW heat exchanger for swimming pools

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WLE direct fired air heaters from 25,000 kcal/h up to 1,000,000 kcal/h

LH unit heaters with numerous accessories up to 236,000 kcal/h

KL fan coil units, 4 standard types
- in compact construction for heating, cooling and ventilating, 2 or 4 pipe systems

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maintenance is obtained with a complete range of standard sections performing one or two combined air handling functions such as mixing, filtering, heating, cooling, humidifying, etc.

A typical air handling unit for full air conditioning applications is composed of four sections:

- MF: combined mixing and air filter section.
- BB: combined heating and cooling coil section.
- H: Air washer section (humidification)
- VB: Combined reheat coil and fan section.

A very large number of other possible combinations for any suitable application is, of course, available.

Cleanable medium and disposable high efficiency air filters are available combining maximum effective filtering area with minimum space requirements. A wide access panel and a well designed filter support system enables easy maintenance and servicing. All fan motor drive assemblies are statically and dynamically balanced. An accurate fan and vibration isolator selection, careful mounting and continuous quality control including individual test runs on each fan, guarantees a very smooth and quiet operation.

High efficiency air washer, suited for adiabatic as well as isothermic operation, equipped with single row spray nozzles and a fully...
corrosion proof polypropylene eliminator section withstanding temperatures of up to 100°C.

The air washer casing as well as all coil drain pans are internally protected with a corrosion-proof and sound absorbing coating withstanding accidental mechanical and chemical maltreatment.

Heating and cooling coils with copper tubes in a staggered pattern and corrugated aluminium fins for maximum heat transfer are standard. Prepainted aluminium fins, copper fins or hot galvanised steel coils are also available for special applications. All coils are factory tested at 15 Bars.

Units are available up to 100,000 M3/hr. Details from Redbro Ltd., Unit 12G Cherry Orchard Industrial Estate, Dublin 10, Tel: 266777 Telex: 30898.

**Finheat**

The Cyclopac VN1 and VN2 air handling units have been designed to provide a neat, compact and competitively priced unit for heating and ventilating applications. Complementary to the well proven Cyclopac packaged air handling units they have been rated to cover the lower portion of the capacity range.

Each unit comprises of a double width fan, vee rope driven with heater and filter mounted in a common insulated casing. Separate damper and mixing-box sections are available for the control of the inlet and re-circulated air volumes. In the case where the unit is not ducted a louvred outlet and inlet grille can be fitted. The unit has been so designed to provide extreme flexibility in mounting arrangement. It can be installed horizontal or vertical with left hand or right hand connections.

**Construction**

The fan is a centrifugal double inlet type having a Cyclone SS forward curved multi-bladed impeller and is ideal for providing large volumes with a low noise level. The fan unit is robust in construction with the impeller statically and dynamically balanced to ensure smooth running. Bearings are of the sealed for life type requiring negligible maintenance while the fan unit and motor are mounted on a grillage and isolated from the casing by means of anti-vibration mountings and a flexible outlet connection. They are finished in a corrosion resistant epoxy base paint. Cyclone plate-finned air heaters designed for use with low, medium and high pressure hot water including steam to 100 PSIG, are incorporated. The coil consists of copper tubes with plate fins of aluminium giving maximum heat transfer. Single, double or three row heaters can be fitted with the standard unit. The steel headers are screwed externally to BSPT and the units are pressure tested before despatch. Electric heaters can be fitted.

The filter is of the disposable type and is easily replaced. It consists of a matrix of none felting, corrugated glass tissue encased in a frame. The standard unit has a 1” thick filter having an efficiency on test dust No. 2 at 300 ft/min of 88% to BS 2831, 1957. A 2” filter can be fitted providing a filtration efficiency of some 90% on the No. 2 dust.

The fan unit, heater and filter are all mounted in a rigid galvanised sheet steel casing, thermally and acoustically insulated internally by means of...
Product Review — Air Handling Units

Duties
VN1: Air Volumes up to 0.5m³/s (1000 cfm)
VN2: Air Volumes up to 0.825 m³/s (1750 cfm)
Both sizes operate against total pressures of 560 N²/m (56mm).

Thermo Air
Thermo Air Ireland Ltd. although a new company on the Irish H&V scene have been involved with the manufacture and sale of air heaters and air handling units in Holland since 1947.

Series FC:
The Thermo Air FC units are specially designed for applications where besides capacity, quantity of air and static pressure the sound level is very important. They are particularly suitable for the residential sector, offices, schools, stores etc. The unit has a robust angle steel frame with all panels removable (pressure sprayed with hammer finish paint), and lined with high quality thermal and acoustic insulation.

Coil and fan are readily accessible for maintenance. The units are fitted with a direct drive centrifugal fan which is extremely quite in operation, although there is sufficient pressure available for distribution ductwork. The fan speed is adjustable by means of an autotransformer which is an optional extra. Line voltage 220/240.

Series FA:
The Thermo Air flat air unit consists of a welded angle frame with removable galvanised steel panels. All internal surfaces have thermal and acoustic with a neoprene coating. The air outlet has a flanged spigot for duct connection. The unit can be mounted horizontally with the outlet at the top or at the bottom, or vertically with the outlet at the bottom. Vertical mounting with top outlet is possible, but controls must be fitted to ensure the hot water flow to the coil is stopped when the fan is not running.

Dampers and filters are available as optional extra. The unit is fitted with a centrifugal fan directly driven by a motor suitable for speed control. This ensures a low noise level whilst developing sufficient pressure for most applications. A five step speed controller can be supplied if required. The heating coil has copper tubes expanded into aluminium die formed fins to give maximum heat transfer. The coil is tested to a pressure of 21 atmospheres (300 p.s.i.) and has plain tails for sweat or compression fittings.

Series LBK:
LBK air handling units are manufactured in large series constructed according to the monobloc system construction method, so, prices are very competitive. Optional is the performance with the high efficiency fan from the series HE.

Chro yoktemp
A complete range of sizes and types enables the designer to select an Airtemp air handler to closely match individual requirements.

Each series of models uses the same basic modules to give identical selection flexibility from a simple cabinet fan to a complex air conditioning unit. Each fan head is available with either low or medium pressure blowers for a static pressure range of 0.5 to 6.0 inches water gage. (12 to 152 mm WC)

This design approach also permits the use of all accessories on all models.

Cooling coils are available for chilled water or refrigerant. Wide range of accessories available.

FH Cabinet Fan Heat — 14 Sizes
Used primarily for air moving but accessories permit air filtration, air mixing and even heating with an externally mounted coil.

HH Horizontal Heating & Ventilating — 14 Sizes
Accepts all accessories including face and bypass dampers and provides 18-1/4 inches of coil space on models 30 through 309. Has no drain pan and cannot be used or converted for cooling.

HV Vertical Heating & Ventilating — 13 Sizes
Same as the HH but floor space is conserved by mounting the blower above the coil section. HV sizes 30 through 309 contain a horizontal heating coil arrangement for low airflow resistance.

SH Short Horizontal Air Conditioning — 14 Sizes
18-1/4 inches of coil space is available in a compact casing that accepts all accessories, sizes 30 through 309. Larger sizes contain 14-1/4 inches of coil space.

AH Horizontal Air Conditioning — 3 Sizes
From 53½ inches of coil space in a size 36 to 68 inches of space in a size 51 permits inclusion of preheat coils, reheat coils, dampers and access panels to satisfy most requirements. Accepts all accessories.

AY Vertical Air Conditioning — 13 Sizes
Same as the SH but floor space is conserved by mounting the blower above the coil section.

BR Dual Duct — 13 Sizes
Identical to the Multizone but zone dampers are not included. This unit is for use with remote dual duct mixing boxes.

BD Multizone — 13 Sizes
This unit blows through a cold deck and hot deck and is provided with zone dampers to permit zoned air conditioning without individual reheat coils.

Space is provided for an eight row cooling coil and a four row heating coil within the unit. A preheat coil may also be mounted in a draw through location before the blower and all pertinent accessories can be used.

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* Series LBK air handling unit from Thermo Air Ireland Ltd.
Deltaclima

Delta RA Ltd. announces the introduction of the larger DF/DCW downflow air handling units with capacities up to 22.5 nominal tons, 9,500 cfm (16,100 m³/hr).

The complete range now consists of three basic sizes with nine different capacities. Particular attention has been given to the location of components to enable them to be fully serviceable from the front. This also will permit corner positioning of these air handling units where site conditions so demand.

A fully extending control panel is located behind a small access door on which indicator lights are placed.

Full electronic systems incorporating Staefa controls are supplied for cooling/heating/dehumidification. In addition to direct expansion applications these units are available for chilled water and can be supplied with electrical or low pressure hot water heating arrangements. The air handlers are designed to match the Deltaclima curved coil condensing units and VCU/HCU standard condensing units where direct expansion applications are called for.

Barber Colman

Makes Air Behave

For Engineered Air Distribution

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MALLOW ROAD, CORK. TEL: (021) 503630
NEW PRODUCTS

Capillary Fitting for Irish Copper

Since Hevac Ltd., in conjunction with M/S. Triflow Ltd., Redditch, introduced solder ring capillary fittings suitable for Irish copper sizes they have proved to be of tremendous benefit to the heating and plumbing trade in this country.

Capillary fittings have, of course, been used in Britain and most other countries for many years, in fact in Britain five capillary fittings are sold for every one Compression fitting. Prior to the availability of this particular fitting the only possibility to use capillary fittings in Ireland necessitated that imported UK metric size tubes had to be used.

During this current recession when Government bodies and the building trade in particular are searching for ways to reduce the cost of construction without a resultant drop in quality, the use of capillary fittings would appear to provide the ideal answer. A standard house using Compression fittings for plumbing and heating would cost approximately £150. The same house using Capillary fittings could be fitted out for approximately £50, resulting in a saving of £100 approx.

By providing fittings suitable for Irish copper sizes Hevac have given the heating and plumbing trade an opportunity to purchase copper of Irish manufacture and still use capillary fittings. The fittings have been tested and approved some nine months ago by the IIRS as being suitable for use with Irish size copper tube (IS 238:1980).

Further information from: Hevac Ltd., Lister Complex, Ballymount Road, Co. Dublin. Telephone 51941 or our Cork warehouse and office at 021-500166.

Redbro’s Hot Water Heat Pumps

Energy saving is of primary importance at the present time. In this connection it is not only important to save energy but especially how to save energy. For instance, especially with appliances that use ambient energy.

To save, primarily, oil in summer, many property owners would like to detach their hot water supply from the oil central heating system.

To achieve this, industry has developed an economical solution. The hot water heat pump.

Stiebel Eltron has developed the WWS18 electronically controlled heat pump. This is a split version, meaning that the heat pump and the storage tank can be situated separately. Similar to an air/water heat pump, the WWS18 extracts heat from ambient air. This system is especially suitable for use in conjunction with a 300 litre storage tank, it also can be used in conjunction with already installed hot water storage tanks.

The WWS18 uses excess heat in utility areas, working areas, or boiler rooms. One can also obviously make use of the steady and limited cooling effect of the heat pump compressor.

The heat pump functions at normal ambient temperatures between +8°C and +32°C.

WWK Heat Pump

The heat pump water heater is usually installed in heating rooms, storage rooms, workshops or garages. Outside air pipes are not necessary since, in most cases, the available air in the room is sufficient for the operation of the heat pump water heater.

The heat pump water heater is delivered from the manufacturer ready for connection. Only the water pipes, including a series of cold water inlet control and safety valves according to Local Water Authority regulations have to be connected. The cold water inlet may be connected to the unit from the left or from the right. If the unit replaces a pressure storage tank, additional modifications are not required.

During operation, the condensed water falls into a three litre container located on either side of the unit and is discharged into a nearby drain. Occasionally the location of the unit requires the installation of an additional water pump in order to draw off the condensed water (condensed water pump by Stiebel Eltron available as an accessory). A safety device (fuse protection 16-A) must be located near to the heat pump.

Special foundations are not required for the installation of a heat pump water heater. It may be installed on any flat area capable of bearing its weight (total weight with water approximately 324 kg). Adjustable base screw feet provide stability.

Details from Redbro Ltd.

Hitachi Heat Pumps

Air to Air Heat Pumps

A new range of larger air-to-air roof top heat pumps from Hitachi. These units are designated RUA10H, 15H, 20H and 30H. They use the patented Hitachi slit fin extended surface heat exchanger and accordingly offer much higher COP’s in the range of 2.6 up to 3.2. An outstanding feature of these new larger units is the option of soft start equipment through a reactor type starter. One serious problem that has been encountered with large direct expansion systems has been the electrical starting loads. Most equipment being offered on the market is offered with direct on line starting or a form of direct on line (part wind), which according to most Electricity Board regulations are unable to be started due to the high inrush current demand. A further facility offered with these roof top units is a full economizer package, which enables maximum use of free cooling and stepped heating for overall energy savings.

Other new products launched include a new range of floor standing, free blow and duct type package air conditioning heat pumps, which provide the most economical heat pump installation available. As in the case of the roof type units the free blow type units are suitable for operation down to -70° and with the advance design, again using slit fin, floor space is maintained at an absolute minimum.

A further extension of the floor standing type “Utopia” units is the addition of a ceiling type in the heat pump form. This unit is especially useful for small shops and restaurant applications. Last but not least, introduced only a few months ago was the split package RAS210SCH heat pump and the RA10CLAXA window type package heat pump, designed specifically with Northern Europe in mind and suitable for operation down to -70°C ambient.

For further information please contact Noel May of AC Climate (Ireland) Ltd.

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The first Gas Ireland exhibition recently held in the Burlington Hotel, Dublin, was the very successful base from which many new gas and gas heating products were launched. The purpose of the exhibition this year was to highlight the range of products available and the companies that distribute those products. This aim was well achieved with far greater attendances than any other show of its type. It was not only numbers that were important as most of the key figures in the industry attended making the quality of those attending a highlight of the show.

The good attendance was also helped by the running of a very successful one day seminar on the first day of the show. The seminar looked at the practical problems facing the heating industry with the introduction of natural gas. Paddy O'Driscoll of Dublin Gas spoke on his company's marketing policy towards heating. John Davies of Cork Gas discussed conversion problems. Terry McQueen of Honeywell Controls spoke on controls for gas heating systems. David Stone of Radiant Superjet looked at the application of blown gas burners and Chris Davies of the IIRS went through the problems associated with flues and ventilation.

The main items of news from the conference being that the Dublin Gas Co. intend to increase sales by at least sevenfold over the next nine years and by the end of that time 70% of domestic sales will be for space heating and 75% in the industrial and commercial sector.

On price, a firm commitment was given that Dublin Gas will be cheaper than oil, LPG or electricity and in certain cases even cheaper than solid fuel, the latter being a reference to inefficient open fired back boilers.

The subject of installers came up and clearly there is still a long way to go before that old thorny issue is settled once and for all.

We publish two of the papers in the following pages with others to follow over the next few issues.
**Conversion to Natural Gas**

by John Davies, Chief Engineer, Cork Gas Co.

**Distribution**

In order to introduce natural gas (Methane) into an existing manufactured gas network the first problems begin with the distribution. The pressure in the manufactured network is about five inches water gauge (5") this will be increased for methane to fifteen inches water gauge (15").

This means that a thorough check on the condition of the gas mains must be carried out, with particular consideration to the large number of cellars in Cork. Valves must be located in the system in order to 'sectorise the area and governors fitted at the entrance to each client's premise, generally on the meter to reduce the pressure from fifteen inches w.g. to eight.

**Combustion**

Given a specific gas, an engineer can design a burner for it based on the following factors: Calorific value, air requirements, inflammability limits, flame speed.

- **Calorific Value**: British Thermal Units (B.T.U.'s) per cubic foot. The calorific value of natural gas is roughly double that of towns gas (1,019 Btu/Ft3 compared to 450 to 500 Btu/Ft3) therefore, for a given quantity of heat only half of the volume of natural gas is required.
- **Air requirements**: Natural gas requires slightly more air for combustion than manufactured gas (9.6 cubic feet of air per 1,000 Btu to 5.0 cubic feet of air per 1,000 Btu, an increase of about 12%).
- **Inflammability limits**: The limiting mixtures of gas and air that will burn.
- **Natural gas requirements**: More precise control of the air supply than manufactured gas since its inflammability limits are 5% to 15% gas in air compared with 4% to 40% gas in air for manufactured gas.

**Flame speed** = burning velocity.

Natural gas burns at less than half the speed of manufactured gas; 35cm/sec compared to 80 to 100 cm/sec therefore if the gas is travelling above its flame speed from a burner it burns beyond the burner, at the point where the velocity has slowed to its burning rate.

**Problems**

As a result of the foregoing we can summarise the problems as follows:

1. For natural gas all burners must be of an aerated type.
2. The same amount of air must be entrained with half the amount of natural gas, i.e. increase pressure/reduce injector.
3. The increased velocity required be two takes natural gas beyond its flame speed.
4. Conditions existing in consumers premises — this is by far the most important factor, an ancient appliance that was designed for manufactured gas with a long service and no maintenance is not to be compared to the changing of the burners and pressure in a workshop situation. Dirty appliances and flues, incorrectly installed each have their own problems.
5. Vitiation: Vitiation is the pollution of the air supply, resulting in oxygen deficiency. It is caused by combustion products mixing with the combustion air, and gives rise to distorted lifting flames, and possible flame extinction. Vitiation is far more likely to occur with natural gas because of the lower limits of inflammability.

**Some methods used to overcome the problems**

1. If the burner is non aerated or neat gas it must be changed.
2. If it is already an aerated burner then the pressure is increased and the injector reduced.
3. Flame speed, (lift off) the most common approach is to apply a small stable flame at the base of the burner port. This retains the flame on the port and is called a retention flame. This retention flame is created by baffles inside the burner head producing low velocity areas.

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- TURNMILL ENGINEERING: (L-R) Gerry Harkin, Turnmill Engineering and John Fletcher, Ambi Rad.
- THORN EMI: (L-R) Phillip Johnston and Ed Martin.
- JAMES GLEESON ENGINEERING: (L-R) L. F. Nieberle of Weishaupt UK, and Jack Gleeson.
- P J MATTHEWS: (L-R) Kevin Long and Matt Gallagher.
- TANEY DISTRIBUTORS: Neville Harris of Chaffoteaux Ltd. and Andy Kavanagh of Tanev Distributors Ltd.
- GASTECH: (L-R) Martin Derby, Peter Brown and John Massey.
- HEATING DISTRIBUTORS celebrating with champers. On the HDL stand were (L-R) Jimmy Boucher and Harry Norfolk.
- K B COMBUSTION: (L-R) Malcolm Dunphy, Audrey Coates, Ken Kirney, and Alan Birney.
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The slim, elegant Froling is ideal as a domestic, commercial or consumer central heating boiler.

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the existing boiler in these circumstances may not be possible. Therefore we will encourage in these cases the replacement of oil boilers by compact gas boilers. In other cases where replacement of the oil burner by a gas burner is permissible, the improvement in system efficiency attainable by the installation of a properly sized gas boiler, may, from all points of view be a better alternative to the conversion of the oil boiler.

With regard to solid fuel heating, it is difficult to see Dublin Gas being in a position to compete on grounds of running costs with the free-standing solid fuel boilers. We recognise that the efficiency of these appliances is high. However, the wrap-around boiler installed in large numbers over the past few years is not by any standard an efficient appliance, and we expect to be able to compete on the basis of useful heating costs. The advantages we hold in terms of cleanliness and automation coupled with competitive useful heat costs compared with solid fuel lead us to believe that we can capture a significant segment of the existing solid fuel central heating market. For new housing, we expect to see, within a relatively short time, that gas central heating will become the norm where a supply of natural gas is available.

For those houses without central heating, gas charges will make the installation of gas fires and convectors a very attractive proposition to householders. The availability of a wide range of water heaters and space heaters combined with extensive marketing and competitive fuel costs will result in vastly increased appliance and gas sales in the non-central heating domestic market.

For commercial and industrial space heating, we will encourage the use of individual heating units for separate work centres rather than an overall boiler system. Where the centralised boiler is the preferred option, we will promote the use of modular boilers with cascade type controls to retain high part load efficiencies. The advantages of using natural gas for boiler firing include cleaner combustion, reduced maintenance, less complex installations, release of space from oil storage to more productive uses, simplified administration, complete automation, potential for improved plant efficiency by use of economisers and air heaters.

In the field of industrial process heating, natural gas again presents many advantages such as:

a) Direct fired heaters available from many manufacturers. Direct firing may be possible on natural gas for some processes requiring indirect firing on oil.

b) Liquid Heating — Submerged and immersed combustion units are more efficient and less costly to install and run than equivalent electric or steam coil units.

c) High efficiency jet recirculation burners and radiant tube burners now available and suitable for various heat treatment processes.

There are many other exciting developments. We in Dublin Gas are monitoring the international scene and as developments reach commercialisation we will be appraising and bringing them to our customers.

Current developing technology includes

- Condensing Boilers
- Heat Pumps
- Pulsed Combustion Units
- New Heat Emitters
- New Control Systems, incorporating micro electronics
- High efficiency gas fires and convectors
- New fan design for minimum flue requirements
- More efficient hot water systems.

In line with this policy we displayed on our stand at Gas Ireland, examples of where technology is improving efficiency and versatility of gas. Allied to these developments, we will insist on the highest installation standards. In conjunction with the I.I.R.S. and other gas utilities, appropriate standards, codes of practice, training courses and competence levels are being developed.

Thus we can ensure that Kinsale natural gas is used in the most cost efficient way to the benefit of our customers and the nation as a whole.

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**GAS IRELAND REVIEW**

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**HENDRON BROS:** (L-R) Declan Plunkett and Pat Roche.

**HEVAC:** (L-R) Mr. A. Fowkes, Paddy Horgan, H. A. O’Neill Ltd., Tony Smith and Des Prendergast.

**C&F:** (L-R) Michael Melligan, Sean Daigman and Pat Roche.

**PIONEER RADIANT PRODUCTS:** (L-R) Paddy Quinn, John O’Sullivan and Jim McGovern, Calor Kosangas.
GLENGORM: (L-R) Paddy O'Kelly and Frank Swallow.

WAVIN PIPES: (L-R) Ian Connolly and David Rice.

BORD GAS EIREANN: John Davies, Frank Kennedy, Patricia White and Dermot Breen.

MICHAEL VAUGHAN MANUFACTURING: (L-R) Michael Smyles, Quadrant Engineers; Michael Vaughan and Tony Lynch, Gas Division, Michael Vaughan Manufacturing.

DUBLIN GAS CO: (L-R) Tom Dempsey, Dublin Gas Co., Gordon Cussins, Wellman Furnaces, and Brendan Hughes, Dublin Gas Co.

THERMOPLANT ENGINEERING: (L-R) John Hoey and Noel Howard.

COMBEX ENGINEERING: (L-R) Kevin Maguire and Gordon McCabe.

QUADRANT ENGINEERS LTD. stand.
New Appliances from C&F

Gas products from two new manufacturers were launched at the Gas Ireland Exhibition by C&F Ltd., from Domestic Industrial Pressings Ltd., visitors saw the stylish Premiere collection of gas fired heaters, five in all, including the very effective model 975, a mobile ‘coal effect’ fire which glows and flickers. The second company to introduce their products through C&F which they have just appointed distributors is Joannes the Italian manufacturers of pressure jet burners, which are suitable for both the domestic, commercial as well as the industrial markets.

Glow-Worm Ltd. introduced their newly designed Space Saver, wall hung gas boilers on C&F’s stand. These boilers, the SS 22/30 both balanced flue and conventional flue designs give outputs of 6.4 Kw and 8.79 Kw, making these Glow-Worm models most suitable for the small houses which are now being built.

Hamworthy Engineering Ltd., Poole Dorset, have launched their latest range of modular gas fired boilers — the UR Series which have outputs from 39 Kw up to 775 Kw; these boilers are suited to town gas and up to 1150 on natural gas. A further Hamworthy Engineering product seen here for the first time was the direct hot water storage heaters, with outputs from 144 gals/hr up to 384 gals/hr and offering storage capacity from 57 gals up to 72 gals.

From Rite-Vent Ltd., Co. Durham, introduced here by C&F, came the new Instaduct pre-fabricated chimney breast for gas fires. Instaduct which is of metal construction can be installed in most houses and flats which do not have any chimney in about one day. No plastering or plasterboard is required and this chimney breast can be installed for a hearth mounted or a wall mounted fire.

Gas Fires made by Robinson Willey, a new range switch/controller, plus thermostatic radiator and sundial valves were displayed by Honeywell Control Systems, the time switch giving a sizeable saving of as much as 20%; full size, modern LP gas cookers were on display from Flavel — leisure division of Glynew Appliances Ltd; a gas detection system plus an Econtrol unit manufactured by Johnson Controls, Maclaren products division and Bray jets & burners together with the GCS 11 series of gas fired combination heating DX cooling units from Lennox Industries Ltd., Basingstoke, Hants.

Speaking at the reception on the first day of the exhibition, John C. Duignan commented: ‘‘C&F represent and distribute ‘gas related’ products in Ireland on behalf of some 12 internationally known manufacturers in the gas industry world-wide. We consider that we can offer the widest range of ‘gas related’ items thus catering for every aspect and application of gas market here, from the small domestic appliances up to the larger commercial and even larger industrial heating and allied installations.”
At the recent Annual General Meeting of the Coal Advisory Service Mr. W. Devlin was elected unanimously as Chairman for 1982/83. Mr. Devlin has been Managing Director of John Kelly Ltd. since 1977, and Vice Chairman of the Coal Advisory Service, the Joint Organisation of the Northern Ireland Coal Importers Association and the National Coal Board, since 1978. He succeeds Mr. Chaires Neill who was Chairman for 21 successive years since the Service was formed in 1961. This impressive record, and his untiring contribution to the Organisation and its success was emphasised by the incoming Chairman and acknowledged by all his committee members. Mr. M. J. Edwards, Director General Marketing, National Coal Board and Mr. G.T.E. Priestly, Managing Director, Cawood Fuels (NI) Ltd. were elected Vice Chairmen.

Potter Cowan & Co. (Belfast) Ltd. the heating merchants and electrical wholesalers having moved to their new warehouse at Dunacre Crescent, Belfast off the M2 at Junction 1, have announced the following telephone numbers — Electrical Enquiries 776246, Chimney & Boiler Sales 775511 and Administration 775618.

A number of Leisure Centre Managers, architects and consultants went to Ballysillan Leisure Centre to see a demonstration of the new pool cover being marketed by Hamilton Bland of Leamingham Spa. The unique system by which any size of pool can be covered by one person results, its claimed, in substantial savings in fuel and chemical costs. The blanket of cross linked cellular polyethylene is easily rolled and is guaranteed for two years.

The Coal Advisory Service have appointed Mr. John Willis private development and housing association officer. Mr. John McEvoy has been appointed district sales officer while Mr. L. R. Skinner has been appointed Sales Promotion Officer.

The long awaited announcement of the person chosen to the Chief Executive of the Northern Ireland Industrial Development Board has at last been made. The Government, have from the start, maintained that they were looking for someone special for the post and in the choice of Mr. Saxon Tate they have certainly reached for the top. Taking up his position in the Autumn, Mr. Tate is currently vice-chairman of Tate & Lyle the well known sugar group, and was formerly its group managing director. The Board will be chaired by Sir Desmond Lorimer, a most successful Ulster businessman and with an annual budget of around £90 million to spend on promoting and developing jobs opportunities high hopes are held of the end result.

A small company, Fast Engineering Ltd., of Antrim has won £10,000 in the British Technology Group Academic Enterprise Competition. As is usual it is the simple things that win prizes. Fast Engineering have developed a low cost tank that combined with mobility and ease of assembly and free of maintenance. The tanks made of a PVC coated fabric of extreme strength are already in use in many of the third world countries and have a capacity of 2,000 gallons. The company are hopeful that this recognition of their development will lead to an expansion of their order book and business in general.

Mr. R. Collim Managing Director of McCaig Collim N.I. distributor of Armaslex Ltd. joined with Mr. A. Beattie, Technical Sales Manager of Armstrong World Industries Ltd. to welcome contractors and consultants to a demonstration of the application and use of Armaslex Insulation. During the demonstration attention was drawn to the ease of handling of the material, its flexibility and its Class 1 fire rating. The use of the various sizes and sections enabled the demonstrator to show the ease and neatness with which pipe bulges such as flanges and valves etc. could be properly immitated.

by Sir Desmond Lorimer, a most successful Ulster businessman and with an annual budget of around £90 million to spend on promoting and developing jobs opportunities high hopes are held of the end result.

A small company, Fast Engineering Ltd., of Antrim has won £10,000 in the British Technology Group Academic Enterprise Competition. As is usual it is the simple things that win prizes. Fast Engineering have developed a low cost tank that combined with mobility and ease of assembly and free of maintenance. The tanks made of a PVC coated fabric of extreme strength are already in use in many of the third world countries and have a capacity of 2,000 gallons. The company are hopeful that this recognition of their development will lead to an expansion of their order book and business in general.

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ULSTER NEWS

John Kelly Ltd., the Belfast coal importers and heating equipment distributors recently took delivery of the first of two new coated bulk carriers ordered by the company. The vessel the M.V. Ballygarvey, designed particularly for the carrying of coal from Great Britain to Northern Ireland has a capacity of over 2,000 tonnes, a length of 252 feet, beam 43 feet, draught 16 feet. Built by British shipbuilders at Goole in Humberside, the Ballygarvey was launched in February by Mrs. Maureen Devlin, wife of the Bell Develin Managing Director of John Kelly Ltd.

The Irish distributors of LPG have formed an association to present a united case to the Government for the use of their products in the event of a run down of the N.I. gas industry. Prepared legislation suggests that grants will be available for those switching from "towns gas" to electricity and naturally the suppliers of LPG think that similar grants should be available to those wishing to use LPG. The association is chaired by Mr. Ron Gibson MD of Calor Kosangas (NI) and other members include representatives of Flogas and Ergas.

Mr. Eric Martin chairman and managing director of the Belfast based H&J Martin has been elected national president of the Chartered Institute of Building.

Mr. Butler, the Minister responsible for energy in Northern Ireland has announced that an agreement has been reached with his counterpart in the Republic for the purchase of natural gas from the Kinsale field. Gas will be brought initially to Belfast as an extension of the Cork-Dublin gas line. No details of timing or price have so far been announced. The first announcement was greeted by the supporters of the scheme with evident glee, but no doubt the opponents will try to prise from the Government details of the agreement and then decide whether further opposition is worth while.

Northern visitors at the recent "Switching to Natural Gas" conference organised by the IIRS in Dublin included H. Clements (Londonderry Gas), C. Clark (Coleraine Gas) with D. Liddell and T. Kyle of North Down Gas.

Lowden & Partners, builders and plumbers merchants have opened their new showroom and depot at Duncrue Street, Belfast.

Mr. John Hanna area officer of E.E.T.P. I.U. presents a cheque of £50 to apprentice David Rice for scholastic achievement in the plumbing and mechanical services. Centre Mr. J. Brennan, Managing Director of R. J. Brennan & Sons for whom David works, who also presented a cheque for £50.

Joe Ballentine Managing Director of J&T Ballentine (Sales) Ltd. welcomed many old and new friends at a recent trade show organised by his company. Much attention was given to the ranges of time switches, programmers and such like energy saving equipment on display.

Further progress is indicated in the development of wave energy with the announcement that Fuji Electric of Japan have signed a licensing agreement with Queens University for the production of five wave energy turbines designed to produce 100 Kw of electricity each. Not to be outdone the New University of Coleraine announced a break through with their Heat Pump research in that one of their units has been coupled to the exhaust of the engine of a dredger operating in the South of England. As a result very substantial savings have been made in the fuel bill for the dredger, used for heating purposes.

Miss Belfast — Alison Smith — was the special guest when Cawoods Fuels (NI) opened their new "By the Fire" showroom in the heart of Belfast.

On sale and display in the showroom is a selection of high quality fireside furniture, special fires and all the accessories useful and decorative associated with the comfort of the open fire.
For all your pipe insulation requirements from -40°C to 135°C.

Contact Service Merchants, the largest distributor of Armstrong Products in Ireland, who will be pleased to cater for all your requirements straight from stock.

For AF ARMAFLEX and ACCOTHERM Pipe Insulation and a full range of Heating Products.

Contact:

Service Merchants Limited

Heatofient House, Mount Argus Road, Harolds Cross, Dublin 6. Phone: 975562 Telex: 25672
Industrial thermal insulation
Cape Insulation Contracts Division is the leading thermal insulation contractor in the country. We provide an insulation service for all projects of an industrial and commercial nature. With decorative finishes where necessary. A comprehensive maintenance service is also provided.

Marine insulation
We have successfully completed the insulation contracts on both large and small projects for the shipbuilding and off-shore industries.

Low temperature insulation
Cape have extensive experience in handling every type of low temperature specification. We supply and erect cold stores for the shipbuilding and food processing industries.

Fire protection
Structural Fire Protection using spray applied vermiculite based materials for steel and concrete for on-shore and off-shore industrial and commercial projects.
Dry casing of structural steel beams and columns.

Spray applied thermal insulation
Offers the advantage of an application to irregular and uneven surfaces which can be economically covered. A variety of spray applied non-asbestos thermal insulating materials is available for high and low temperature internal and external applications.

Acoustic insulation
A vermiculite based acoustic plaster which can be applied by special spraying process giving an attractive textured finish and ensuring maximum sound absorption. We can reduce noise in an industrial environment to the required safety levels.

Asbestos stripping
Asbestos removal operations are carried out by fully experienced personnel under controlled conditions, and close supervision strictly in accordance with current Health and Safety Regulations.

Metal fabrication workshop
We offer a design and pre-fabricating service in our workshop which is equipped with the most up to date machinery specifically designed for most manufacturing requirements.

Metal cladding and insualtion package
We supply and fix metal cladding, design and prefabricate for pipework, ducting and wall panels. We also provide insulation and fire protection for the above mentioned services.

Storage tanks
Polyurethane or mineral fibre insulation applications.
EXPERTISE A MUST

In the recent past energy conservation were the words on every energy conscious engineer's lips and insulation was the key in many cases. So every pipe, duct and any other area of heat loss was covered with what ever insulation came to hand.

This almost panic situation has had to be tempered recently as it has been realised that the insulation quality of a product is not the only basis on which the product should be selected. Fire and safety in general has to be taken into account and so this brings the insulation expert into the selection process.

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

Armstrong Insulation Products

The Insulation Products Division of Armstrong World Industries Ltd., have recently introduced two new industrial insulation products for energy saving applications: AF/Armaflex a thermal conductivity of 0.0364 W/mK at a mean temperature of +20°C makes AF/Armaflex a highly efficient form of pipe insulation which will save fuel and reduce running costs. Because of its excellent insulating properties and the wide range of wall thicknesses available, AF/Armaflex may be used very effectively even where closely spaced pipework restricts the amount of room available.

AF/Armaflex has a closed cell structure with an average permeability of less than 0.10 perm inches. This provides a high resistance to moisture vapour flow throughout the entire wall thickness making an additional water vapour barrier unnecessary in many instances. AF/Armaflex tubes are produced in engineered wall dimensions from 6mm to 25mm in order to control condensation on the insulation surface under varying design conditions. AF/Armaflex is clean and safe to use, since it contains no irritant fibres and creates no dust problems and, has good general resistance to the chemical action of oil and grease, and also to ozone and bacterial attack.

When used in external applications, the AF/Armaflex should be used in combination with Armstrong's Armafinish. Armafinish is a solution of chlorosulphonated polyethylene specially formulated to produce a tough elastic, weather-proof coating that will not crack or peel. Available in white, red, green, yellow, blue or grey, Armafinish will provide protection for a minimum of 5 years, under normal circumstances.

Armstrong's 'Accotherm' is the first continuously moulded, factory-jacketed rigid phenolic pipe insulation available in the UK. AF/Armaflex is a flexible closed cell pipe insulation with a Class 1 fire rating to BS 476 Part 7; and Accotherm — the first continuously moulded, factory-jacketed rigid phenolic pipe insulation available in the UK. AF/Armaflex is a flexible closed cell pipe insulation with a Class 1 fire rating to BS 476 Part 7. A thermal conductivity of 0.0364 W/mK at a mean temperature of +20°C makes AF/Armaflex a highly efficient form of pipe insulation which will save fuel and reduce running costs. Because of its excellent insulating properties and the wide range of wall thicknesses available, AF/Armaflex may be used very effectively even where closely spaced pipework restricts the amount of room available.

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Armstrong's 'Accotherm' is the first continuously moulded, factory-jacketed, rigid phenolic pipe insulation available in the UK, and is very competitively priced compared with mineral or glass fibre sections.

Accotherm is made from a unique, chemically neutral phenolic foam (pH 6.5 to 7.5) with three alternative types of finish: i) brown kraft paper for heating and plumbing applications — achieving a class 1 fire rating to BS 476, Part 7. ii) Mylar/white kraft laminate suitable for refrigeration and air conditioning applications.

- Achieving a class 1 fire rating and incorporating an efficient water vapour barrier.
- iii) aluminium foil/white kraft laminate with a water vapour barrier plus superior fire rating satisfying a Class 0 building regulation requirement.

Armstrong's Accotherm is supplied in 4ft. lengths (1.22 1in metres) with wall thickness of 19, 25, 32, 38 and 50mm, and bore sizes from 15mm to 127mm, for applications in the temperature range -40°C to 135°C. Water vapour permeance of the mylar and aluminium foil jacket is 0.02 perms- k value of 0.033 W/mK; and optical transmission is 97% to 99% (BS 47 pt 9 (draft)).

Accotherm is a lightweight, non-fibrous, non-irritant pipe insulation with no odour and resistant to rot or vermin attack. Installation is simple, the 4ft. sections and factory applied jacket facilitate faster fixing with fewer joints. Self-adhesive butt straps are supplied in each carton.

Cape Insulation

The Contracts Division of Cape Insulation (Ireland) Ltd. have up to now been known solely as large direct insulation contractors for such bodies as the ESB, Bord na Mona, Irish Cement, NET etc. and while that end of the business remains, a sub contracts section has been set up to sub contract the mechanical services contractors for the entire range of insulation services from Cape.

As a company, the Contracts Division of Cape Insulation (Ireland) Ltd., is well known for its traditional role as major industrial and domestic insulation contractors, and have considerably expanded their range of services...
This is a dangerous and skilled operation in which Cape Insulation (Ireland) are experts. Operatives, wearing protective clothing both strip the asbestos and double wrap it before disposing it in a safe place. Fire protection of dance halls, theatres and other public meeting places has become the high priority it has always deserved to be, and to meet the needs of both new and existing buildings Cape Insulation (Ireland) have been appointed licences to apply spray materials manufactured by Cae and Manando, two of the world's most reputable suppliers of a complete range of structural fire protection, mineral finishes and textured coatings.

Whether it is existing structural steel beams, services and pipe ducts, or partitions, Cape Insulation (Ireland) can fire protect them in situ and provide a joint-free monolithic fire barrier through which flames or smoke cannot penetrate.

Whatever your problem in insulation and fire protection, Cape Insulation (Ireland) Ltd. will provide you with an expert consultancy, supply and installation service.

**Thermal Insulation Distributors**

Once upon a time — perhaps only a year or two ago — the word "insulation" was in general understood merely as glass fibre rolls installed in the domestic loft space. That misconception no longer exists.

The quite revolutionary, and so necessary, change in our attitude to the conservation of the world's energy resources has created a need for the widest range of insulation materials. Every identifiable source of heat escape has to be treated — walls, pipes, floors, tanks, roofs, ducts and so on.

And again the proper method of insulating these can vary enormously thus increasing further the necessary product range.

Thermal Insulation Distributors Ltd., a member of the Jones Group of companies, is the only wholly Irish owned company specialising in the complete range of insulation materials: Roofing insulation: Styrodur Roofdeck for the inverted roof system; Rockwood roofboards used in the traditional method, and Rockwood Roof-Decking Slabs.

Cavity wall insulation: polyurethane, Rockwool cavity wall batts, Cool-Thermafold.

Floor insulation: extruded or expanded polystyrene.

Industrial insulation: Rockwood slabs and mats for acoustic as well as thermal insulation, Armaflex and glass fibre pipe insulation.

That is just a short selection of what is available from Thermal Insulation Distributors Ltd. The complete list is endless.

Access to the products of almost all major insulation manufacturers allows Thermal Insulation Distributors to provide architects and consultants with an unbiased advisory service in the context of the increasing emphasis on conservation of our energy resources. With the necessary radical improvement in insulation standards comes the need for architects from whom arguably too much is already demanded in terms of technical expertise to be provided with objective advice on materials available and the most cost efficient insulation methods related to their own specific project requirements.

Many architects, from personal experience, attest to T.I.D.'s ability to provide this service in a courteous and professional manner.

**CSP**

A company in Co. Monaghan who, for the past 15 years, has been synonymous with light and industrial engineering related to oil storage equipment has recently embarked upon a diversification programme to cover areas associated to, yet separate from, their former bread and butter line. This end General Steel Products Ltd., a member of the Kingscourt Construction Group of Companies, has gone into the manufacture of a flexible pipe insulation they are calling

**Dow Chemicals**

A new eight-page colour brochure from Dow Chemical shows how Styrofoam extruded polystyrene foam insulation boards can be used to meet and exceed the latest UK Building Regulations for cavity walls.

Timical Dow brochure shows how 0.6 W/m²K can be reached using 20 mm Styrofoam in cavity walls with lightweight blocks or 30 mm Styrofoam with denser blocks. U-values below 0.6 can be attained with 50 mm Styrofoam.

Styrofoam is available in 450 x 1,200 mm board sizes to comply with standard wall-tie spacing for simple, effective and permanent cavity wall insulation. It is covered by Agreement Certificate 80/716 in this application. The boards offer high insulation performance, high moisture resistance and high mechanical strength.

They are easy to handle and install and they allow the vital cavity to be maintained.

The brochure explains the properties of Styrofoam, shows basic construction details, provides a guide to heat loss calculations and explains the procedure for specifying Styrofoam cavity wall board.
T.I.D.
A trusted name in insulation products

Pipe Sections
T.I.D. understands how difficult it can be for Contractors to obtain varying sizes of glass fibre pipe sections, with particular regard to insulation thickness, outside diameter etc. T.I.D. have a comprehensive stock level of glass fibre pipe sections that is unequalled anywhere. Pipe sections are also available in the following materials:

ACCOTHERM, ARMAFLEX, CALCIUM SILICATE, CERAMIC FIBRE, MAGNESIA, POLYISOCYANURATE & ROCKWOOL.

Glass Fibre Pipe Sections

And now, NEW from T.I.D., the Total Duct Insulation Package.

...build on a great name

Thermal Insulation Distributors

Thermal Insulation Distributors Limited,
Kylemore Industrial Estate, Kylemore Road, Dublin 10.
Telephone: 268116  Telex: 50867

Duct Insulation Package.

- PVC Faced Flexible Duct Insulation.
  Reinforced Foil Faced Flexible Duct Insulation. Plain Rigid Duct Insulation also available in a range of finishes.
- Self adhesive hangers and clips.
- Self adhesive PVC tapes.
- Adhesive for every application in Duct Systems.
Polyflex

the sign of bigger profits.

Cos Ireland's best Pipe Insulation is less expensive and easier to fit.

* Effective in temperature conditions -70 degrees C. to +95 degrees C.
* Exceptionally easy to fit on all standard pipe sizes; special lengths and colours on request.
* Slit material available for D.I.Y. purposes on request.
* Back-up service as standard procedure.
* Prompt reliable deliveries.

PRODUCTS LIMITED

Stockists of All Your Insulation Needs.

* Fibreglass  * Polystyrene  * Rockwool

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"Class O" or Canvas Facings

Grilles and Diffusers  Flexible Ducting  Adhesives  Ducting Accessories

Unit F3, Coolock Industrial Estate, Coolock, Dublin 5.
Tel: 471344 Telex: 25754

Manufactured by G.S.P. Ltd.,
Dundalk Rd., Carrickmacross, Co. Monaghan
Telephone (042) 61965, 61258, 61395. Telex 24579

A member of the Kingscourt Construction Group

* Polyflex is made in Ireland by G.S.P. Ltd., Carrickmacross, Co. Monaghan.
Complies to British Standard Specification 4735
* Keep the heat in the pipes. Keep the money in the Country.
“Polyflex”.
Indeed G.S.P. are the first and only company in the entire country that are present making pipe insulation. With imports of the similar type product exceeding the £1½ million mark and with the current cry for support of the Guaranteed Irish Campaign, Polyflex fills the need on both scores. One of the reasons G.S.P. say they went into this venture was to secure and perhaps create employment and in an area renowned for high unemployment with traditional industry closing prolifically, this can only be seen as beneficial to the country as a whole. Moreover the side-benefits of production of this kind spread right across the board to packaging, printing, chemical manufacture, transport etc. G.S.P. therefore see this venture as more than just a profit-making stint, but rather as a long-term project that will be hopefully of national importance.
Polyflex is a quality product manufactured to relevant British Standards for pipe insulation. Great store has been put recently on fire retandency in building materials and G.S.P. are happy to say that Polyflex has been awarded B.S. 4735 the highest possible fire rating attainable for Polyethylene material. Its thermal insulation properties are, because of the closed-cell nature of the product comparable to any of the hitherto market-leaders and Polyflex does not soak water. If a recurrence of last Winters weather should happen again Polyflex will guard against the havoc created by low temperatures on unprotected pipes both inside and outside.
The extrusion method employed in the manufacture of Polyflex is the most up-to-date available and is, in fact, totally new to this country. Through initial capital cost was extremely high and operating procedure exacts high skill from the work force, volume generated means a fairly low manufacturing cost per metre. This, combined with the fact that G.S.P. Ltd., are marketing and distributing Polyflex themselves, thereby cutting out the middleman importer-distributor means that the cost to the end-user is considerably lower than that of imported comparables.
When a company like G.S.P. Ltd., is prepared to invest both money and confidence in a Project of this nature it is only fair to ask that a similar amount of support should be given to them.
For further details contact, Mr. G. Callan, General Steel Products Limited, Dundalk Road, Carrickmacross, Co. Monaghan.

**Fibreglass**

Fibreglass Ltd. have extended the length of their product guarantee for Dritherm, the built-in cavity wall insulation system, from 30 to 60 years. The product, a water repellant mineral fibre batt, was launched in 1974, and has since been installed in the equivalent of over 60,000 houses in the UK. This includes most types of buildings, from schools and hospitals to office blocks and factories, as well as thousands of houses, both local authority and privately built.

Dritherm was the first cavity insulation batt to be Agrement certified for use in any exposure zone in the UK, and now holds certificate number 80/739. It is also the only cavity batt to be certified for use in multi-storey buildings, having Certificate 81/927, and the 60 year guarantee is a further indication of the wide experience and complete confidence in the product by manufacturers, the insurers and independent authoritative bodies in the construction industry.

The guarantee underwrites the fact that Dritherm has been manufactured to be resistant to the passage of water from the outer to the inner leaf in masonry construction, and that the product will maintain excellent thermal performance.

If, during a period of 60 years from the date of installation, Dritherm is shown not to comply with the guarantee, Fibreglass will replace the material free of charge, if it has been installed in accordance with the company’s recommendations.
Copies of the new guarantee, which lays down the procedure and criteria for guaranteeing the product in any building type, are available from Fibreglass.

**Crowe & Fitzgerald**

Of recent years, sprayed insulation has taken its rightful place as one of the better ways of insulating old and new buildings. “Limped” mineral fibre spray has been successfully tried and tested all over the world and is now available in Ireland. Limped in its own composition is comparable...
with the best other insulation materials available, giving a thermal conductivity of 0.045 watts per metre thickness of Limped per square metre of area per one degree centigrade difference between the temperature of either side of the material. Limped can be sprayed on to any material in walls, ceilings, beams or columns and is ideal insulation on to the inner face of the external leaf of precast concrete panels. Due to its joint-less finish it can ideally be used as a finishing coat on to the surface of other materials and a specially decorative coat (LD3) giving a heavy and a specially decorative finish. Limped is available by contacting Tallon Walker, Barrys Tea Estate, Little Island, Cork by Kelly Construction Group, has commenced manufacture of a range of thermal insulation boards for roofing and lining in a new 35,000 sq. ft. £1.5m IDA-backed factory.

The new Shelter product is a glass-reinforced isocyanurate board of foamed closed-cell construction made under a US licence to the highest Factory Mutual standards. The board is rigid and robust, with selected surface facings for various applications. Shelter Insulations has joined forces in the marketing of the product with Moy Materials. It is estimated that the total home market for the new product currently exceeds £1 million annually and is growing rapidly, while Shelter Insulations has already begun to receive export orders through the Kingscourt Group’s companies in Britain. Major export markets in Africa and the Middle East are currently being explored in co-operation with Coras Trachtala.

Moy Materials first launched the new generation of isocyanurate thermal insulation on the Irish market in 1979, with considerable success as architects came to appreciate that the closed cell foamed core gives double the insulation value of other insulants per millimetre of thickness. Now the new Shelter range offers a superior Irish product, with the price and delivery advantages of local manufacture.

Moy Insulation

Two new insulation products for the construction industry were launched at a reception in the Imperial Hotel, Cork recently by Moy Insulation, a member of the Moy group of construction and manufacturing companies and the largest manufacturer of insulation and related products in Ireland. Moy Insulation set up a special product development unit some years ago, an investment which has led to the launch of these new products for the construction materials market. The first is a fully Irish-developed product, the stainless steel “Poltye” cavity wall tie, for which patents have been applied. The second product is the “Insulok” system, a patented North American development for which Shelter Insulations has commenced production of glass-reinforced isocyanurate insulation boards with various surface facings for different applications. Presenting the new products at the Irish Goods Council are Vivian Murray, Chief Executive, Irish Goods Council; Kevin Kidney, Managing Director, Shelter Insulations; and Bernard Brennan, Director, Moy Materials.

Shelter Insulations

Shelter Insulations Ltd, the Castleblaney-based member of the Kingscourt Construction Group, has commenced manufacture of a range of thermal insulation boards for roofing and lining in a new 35,000 sq. ft. £1.5m IDA-backed factory.
Specifiers and users everywhere have acclaimed Crown Pipe Insulation in the best way possible. They've used it. On 1000 miles of pipes in its first few months. And what made these cost-conscious professionals vote so enthusiastically with their cheque books? — The Fibreglass superiority that's obvious from the moment you pick up a section of Crown Pipe Insulation. No other pipe insulation, for example, has the Z-lock heat-saving joint.

Just as visible, however, is a smooth, precise inner wall for all standard pipe o.d.'s, a dense firm surface, with the option of Class 'O' or canvas facings, a precisely-engineered 'hinge' that enables one-piece Crown Pipe Insulation to be snapped around even a 324 mm o.d. pipe, and a standard 1200 mm length that cuts down waste and speeds installation.

Now add a choice of 263 sizes, 2°C to 540°C operating range and fast delivery from a nationwide network of distributors.
And it's easy to understand why the first 1000 miles of success came so quickly.
With the continuing rise in heating fuel costs you are, no doubt, aware of the need to conserve energy. Cutting heat loss is the main objective.

Lagwell Insulation Ltd.
well established insulation contractors in the building industry have formed a supply business

— Energy Savers —
catering to the general public and industry. We stock an extensive range of insulating material all to B.S. standard. So wrap up now with insulation for a cosy winter.

Call: ______________________

Energy Savers
33 Foley St.; Dublin 1. Tel: 788695

provided in all parts of the attic, even places inaccessible to other forms of insulation and once laid it will not settle. Mineral wool fibres are incombusible, being made from rock which cannot burn. It is insect proof, vermin proof and rot proof, and being completely inert, cannot attack electric wires or any other part of the attic.

The latest insulation standards, call for a U value of 0.4. In a typical roof construction, (Agrément Cert 78/607) 100mm of mineral fibre gives a U value of 0.33 (Source: IIRS Publication Energy Management for the Householder).

Rockwool mineral fibre is the most proven and efficient insulation material available today, having been in use in Europe for over forty years. 35% of heat is lost through walls and Rockwool can reduce this by a staggering 71%.

Rockwool fibres will not transmit water by capillary action across the cavity, neither will they act as a moisture vapour barrier. They are water repellent, incombusible, odourless and will not support any form of fungal, bacterial or animal life. In short, Rockwool is the ideal cavity wall insulation material and has an Agrément Certificate for all exposure areas. In particular, the Agrément Certificate states that "insulation is simple and rapid involving little inconvenience to the occupants of the building" and "insulation remains effective as an insulant for the life of the building".

A typical wall with a 50mm cavity is required to have a U value of 1.10. 50mm Rockwool in the cavity gives a U value of 0.60 resulting in lower heating bills. — Agrément Cert 78/532. (Source: IIRS Publication Energy Management for the Householder).

Soltex

25% of heat is lost through the roof. Blow Fill provides the fast and economical way to dramatically reduce this heat loss and make the home a more comfortable place to live.

Dry mineral fibre insulation is pumped through a 75mm flexible hose, from a Soltex van and laid in a 100mm thick heat sealing layer, between the joists. This method ensures that insulation is
CAVITY WALL INSULATION

Stainless Steel:
Corrosion, Acid and Rust resistant grade
304 S15 4 mm diameter wire (superior to BS 1554) exceeds the Tensile Strength Requirements of BS 1243/78.

Colour Code
The unique colour-coding on the upper faces of the triangles ensures correct installation every time. With the blue code always showing upwards on the outside course, the water drip is right way down. Again, an instant visual check on progress. "Blue up and out, drip down".

Retaining Disc
The large, flat faced, snap-on polypropylene retaining disc will not penetrate the POLYZOTE board, yet holds any thickness firmly in position. The bright orange colour means instant visual checking of progress, minimum loss among on-site debris.

Round Section
The round section of the POLYTIE makes it difficult for mortar drips to lodge.

No Sharp Edges
The rounded double triangle of round wire means no sharp edges to snag, tear or scrape people or plant, and makes life easier and safer for brick layers.

Cavity wall ties should hold walls together. Some do, some don't, or only for a while. Until now, sharp-edged galvanised ties have been guaranteed to make life difficult on the site. But not guaranteed to hold walls together. For good.

Moy Insulation now introduce the POLYTIE system for use in walls with cavities of up to 100 mm. Designed and manufactured in Ireland, the stainless steel POLYTIE conquers the problems of corrosion and instability.

The large flat-faced polypropylene POLYTIE disc grips positively on the tie, holding the tongued and grooved POLYZOTE boards firmly in place without penetration damage.

So, now, cavity walls can be insulated and held together. For good.

Trade or technical enquiries should be addressed to:
The Marketing Department, Moy Insulation Limited, Greenhills Industrial Estate, Dublin 12.
Telephone: (01) 519077 502490. Telex: 3261 MOYM

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Capillary Fittings
for Irish Copper Sizes

Full range of Triflow solder ring fittings from \( \frac{1}{2}'' \) to 1'' manufactured specially for Irish copper tube. Available through most merchanting outlets on a country wide basis.

Metric Fittings
Also available from Hevac Ltd. is the full range of end-feed and solder-ring metric fittings for use with copper tube to BS 2871 and stainless steel tube to BS 4127. Manufactured to BS 864 part II in a range of sizes from 6mm to 54mm.

Extensive stocks held at our Dublin and Cork Warehouses.

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Cork: Tel: 021-500166.