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H & V News

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PRODUCT REVIEW

SANITARYWARE

STARDUST TRIBUNAL REPORT
Its Recommendations for Fire Fighting Equipment

- VAT AT POINT OF ENTRY
- COMPUTERISED ESTIMATING
- WHITEGATE OIL – WHAT IT COSTS
- INSTRUMENTS & CONTROLS
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17 Usher’s Island, Dublin 8.  Tel: 778109/778120/728431  Telex: 30751
Computerised Estimating. page 9
H&V News looks at the experience of one company involved in contracting who have recently installed a computer to help out on estimating.

Ventilation & Flues for Gas Appliances. page 10
Chris Davis of the IIRS presented a paper at the recent Gas Ireland Seminar in the Burlington Hotel, Dublin, on the subject of ventilation and flues for gas appliances. We publish part one of this paper in this issue and the final part next month.

VAT at Point of Entry. page 14
Our financial reporter ‘Guru’ looks at a current problem facing the agents and distributors in this country and we hope to have a follow up report in the next issue on the working problems of taxing goods at the point of entry into the country.

Stardust Report. page 17
On foot of recent reports issued at the Stardust Club tragedy we look at the implications for the service industry in the recommendations of the Tribunal.

Company Profile – Truflow Ltd. page 20
Tru-Flow Ltd. are one of the major success stories in the industry today. H&V News takes a recent look at this most successful operation.

Ulster News. page 21
What’s new in the energy and services field in Northern Ireland this month.

Sanitaryware Feature. page 23

Instruments and Controls Feature. page 31

DL’s Energy Report. page 40
Our energy reporter looks at the problems facing our own oil refinery in Whitegate. Was the stage take-over wise? DL weighs up the odds.

New Products. page 45
We review the latest products on offer in the industry.
Energy Conservation Campaign

The Minister for Industry and Energy, Mr. Albert Reynolds, TD, has announced final details of his Department's Autumn energy conservation campaign.

The Minister said that overall improvement, which is now running at almost £1,000m a year, has been a crippling financial burden on the State and every member of the community. His Department has been successful in encouraging a reduction in energy consumption through efficient use. There was clear evidence of better use of energy in the home, in industry, commerce and public buildings. He was heartened by the fact that, notwithstanding an apparent easy supply situation, people were still conscious of the need to save. Latest figures show a drop of over 2% overall in total energy use in 1981 compared with 1980; the drop in oil use is 11%.

The decrease is mirrored in the energy/GDP relationship which is also falling. This calculation is done on the basis of constant prices, so that it is independent of other elements which might affect energy consumption such as prices, climate, economic situation.

The Minister said that details of the campaign had now been finalised and were as follows:

(a) An energy saving quiz, which will commence on 30 August and run for three weeks.

(b) An "Energy Special" newsletter which will be distributed on Sunday 5 September.

(c) An "Energy Mobile" which will visit 20 cities and towns throughout the country in the four weeks beginning 13 September.

(d) A mass-media publicity campaign commencing on 13 September.

Well that's just it — it doesn't! So Frank McKenna of McKenna Heating tells us. Phone problems — a situation not unfamiliar to Dublin traders — have been creating havoc at Frank's Walkinstown headquarters. So, if you've got any enquiries about the Devil's range of solid fuel and oil-fired cookers, vapourising kitchen boilers, room heaters or, indeed, the EDV enamel flue piping — you can contact Frank at 01-516674 or 01-255059 if the line to his Walkinstown HQ is out of action by the time you read this.

The Telephone Rings

With about 40% of Ireland's primary energy requirements currently being used for space heating and hot water production, opinion is divided on the question of whether or not active solar heating will make a significant contribution to these requirements. To examine the likely contribution of solar energy in this area, the Institute for Industrial Research and Standards in conjunction with the Solar Energy Society of Ireland is organising a Seminar on Solar Heating Technology in the Shelbourne Hotel, Dublin on Tuesday, 28 September 1982.

The Seminar has been arranged to present a balanced view of the current and likely future status of solar heating technology and to indicate to what extent this technology could be responsible for reducing our dependence on conventional fuels and sources of energy. The design and installation of domestic water heating systems will be considered in detail together with the implications of future Standards governing their production. The programme will also deal with the practical aspects of solar heating systems in the domestic and non-domestic spheres.

The Seminar will be opened on 28 September at 9.30 a.m. by Mr. Cormac Gordon, IIRS Energy Services. Participants are:

- Dr. T. O'Flaherty, Chairman, Solar Energy Society of Ireland;
- Dr. J. O. Lewis, Energy Research Group, School of Architecture, University College Dublin;
- Dr. J. J. Cowan, IIRS;
- Dr. K. W. Robinson, Energy and Resources Group, National Board for Science and Technology;
- Dr. S. J. Wozniak, Solar Technologies Section, Building Research Establishment, U.K.;
- Dr. B. Justin, General Manager, Pilkington Solarproducts Ltd., UK.
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We’ve made our Rawlbolts slimmer – to make your life a whole lot easier.
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We’ve even increased the range of fixing thicknesses for individual bolts – and made selection easier. For full details, just ask your usual stockist. And try improved slimmer Rawlbolts soon – you’ll spot the difference right away!

IMPROVED Rawlbolts
The shape of bolts to come.

The Rawplug Company of Ireland Limited, Nassau House, Nassau Street, Dublin 2, Ireland. Tel: 771493
HEAT FROM INDUSTRIAL WASTE

Hanson Industries, the Sligo based manufacturers of bathroom scales and clocks have purchased a H2 type MEL incinerator/boiler from Megahey Engineering Limited, Ballinamore, Co. Leitrim.

This incinerator/boiler, designed, developed and fabricated by Megahey Engineering will burn all the factory waste including floor sweepings and other combustible rubbish.

The heat generated will provide low pressure hot water for Hanson’s 30,000 sq. ft. factory heating system and other requirements at no cost to the company. So, while disposing of unwanted rubbish in a hygienic and efficient manner, Hanson’s are cutting their own and the country’s fuel bills.

Similar MEL H-type incinerator/boilers are used by a wide variety of manufacturing concerns throughout Ireland to destroy large quantities of combustible waste that would otherwise have to be transported to a dumping ground.

Megahey Engineering also manufacture a full range of R type incinerators suitable for destroying rubber, plastics, hospital and other toxic waste without polluting the atmosphere. A complete burn out of toxic gases is achieved by the advanced secondary chamber design which has a working temperature of 1,000 degree centigrade.

Provision is made for heat recovery taker off, hydraulically operated automatic loader and automatic de-ash.

Following on their success at “Hevac 82” where their products were very well received, Megahey Engineering have appointed agents in the UK and Europe to handle their full range of boilers and incinerators.

The Institute of Domestic Heating Engineers Irish Branch in conjunction with the Vocational Educational Committee Bolton Street College of Technology have re-organised the education courses leading to membership of the I.D.H.E.

The course as set out in this brochure will provide for all levels of membership.

Intending students of this course should contact any of the I.D.H.E. Committee or Bolton Street College for detailed information.

Objective: To prepare students for the associate and full membership examinations of the Institute of Domestic Heating and Environmental Engineers (I.D.H.E.)

Entrance Requirements: Leaving Certificate or equivalent.

1st Year: To prepare students for the Student Membership examination

Drawing 19.00 - 22.00
Mathematics 19.00 - 22.00
Physics 19.00 - 22.00

2nd Year: To prepare students for Graduate Membership Examination.

Mathematics 19.00 - 22.00
Drawing 19.00 - 22.00
Building Construction & Services 19.00 - 22.00

3rd Year: To prepare students for Part 1 of the Associate Membership Examination

Heat Transfer & Combustion 19.00 - 22.00
Instrumentation & Controls 19.00 - 22.00
Equipment & Controls 19.00 - 22.00

4th Year: To prepare students for full Associate Membership Examination

19.00 - 22.00
Electro-technic & Instrumentation 19.00 - 22.00
Boiler & Burner Design & Construction 19.00 - 22.00
Project Med. Size Industry 19.00 - 22.00

5th Year: To prepare students for Full Membership Examination

Environmental Engineering & Plant 19.00 - 22.00
Management & Administration 19.00 - 22.00
Project Large Size Industry 19.00 - 22.00

Committee 1981-1982

Chairman: W. Victor Madigan Tel: 265146
Hon. Sec.: Harold P. Pattison Tel: 370101
Hon. Treasurer: G. Griffin Tel: 694288
P.R.O.: C. Kane Tel: 472065


Mosten Golf Outing

Lucan based company Mosten Engineering Services Ltd., held a most enjoyable and well attended open day at Newlands GC on 15th July last.

The day consisted of a golf competition in which there were 27 participants, followed by an exhibition, and following the success of this first venture, it is now intended to make this an annual event.

The golf competition — Singles Stableford — was won by John Fitzgerald from R.T.E. Runner-up was Michael Moriss from I.I.G. and third was John Ireland from Stafford Engineering.

The prizes were presented by Mike Flanagan who played in this year’s Wembley F.A. Cup Final for Queens Park Rangers against Tottenham Hotspur.

The Exhibition consisted of a display of those products and services which Mosten Engineering provide, particularly to the refrigeration and air conditioning industry.

As is known Mosten are sole distributors for Willison Controls Ltd., Dallas Rd., Beford (which includes Grasso, Henry, AC&R etc.) and they have now acquired the franchise to market the range of products manufactured by Newtech Controls Ltd., Bristol.

Apart from a wide range of timers, Newtech manufacture a microprocessor defrost controller (DFC 2000) which since its introduction to the market has had an amazing success story.

This controller complete with monitor is now available off the shelf from Mosten Engineering. Full illustrated catalogue is available and Joe Murray will be pleased to give a demonstration at customers’ premises or assist with technical queries.

FROM HEAT INDUSTRIAL WASTE

4 JHVN, September 1982

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New Rawlplug Rotary Hammer Bits.

Hammer into walls without hammering your pocket.

If you use rotary hammers, you'll know just how effective they can be. But you'll also know how the cost of bits can really add up. That's why we've introduced Rawlbor Rotary Hammer Bits. They're top quality performers — at very competitive prices!

Available with SDS plus shanks to fit direct into Hilti, Bosch, and Black & Decker machines, and A & K tapers — in all popular sizes from 5mm to 38mm.

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

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

Rawlbor Rotary Hammer Bits

The Rawlplug Company of Ireland Limited, Nassau House, Nassau Street, Dublin 2, Ireland. Tel: 771493
International Events

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>IKK</td>
<td>Nurnberg</td>
<td>7-9 Oct 1982</td>
</tr>
<tr>
<td>Expotherm</td>
<td>Lyon</td>
<td>5-9 Nov 1982</td>
</tr>
<tr>
<td>Multi District Heating</td>
<td>Herning</td>
<td>2-5 Nov 1982</td>
</tr>
<tr>
<td>SIFK</td>
<td>Hamburg</td>
<td>17-20 Nov 1982</td>
</tr>
<tr>
<td>Energy, Safety &amp; Environment</td>
<td>Copenhagen</td>
<td>8-11 Nov 1982</td>
</tr>
<tr>
<td>ASHRAE/ARI</td>
<td>Atlantic City</td>
<td>24-27 Jan 1983</td>
</tr>
<tr>
<td>IHVEX</td>
<td>Dublin</td>
<td>15-17 Feb 1983</td>
</tr>
<tr>
<td>ISH</td>
<td>Frankfurt</td>
<td>22-27 Mar 1983</td>
</tr>
<tr>
<td>Interclima</td>
<td>Paris</td>
<td>14-20 Nov 1983</td>
</tr>
<tr>
<td>Interbuild</td>
<td>NEC</td>
<td>27 Nov - 3 Dec 1983</td>
</tr>
<tr>
<td>Expoclima/Mostra</td>
<td>Milan</td>
<td>22-28 Feb 1984</td>
</tr>
<tr>
<td>Convegno</td>
<td>NEC</td>
<td>2-6 April 1984</td>
</tr>
</tbody>
</table>

EUROPIPE '83

Basle in Switzerland is once again the venue, and 21-24 June 1983 the dates, for the 2nd Europipe Exhibition and its International Conference. Each event aims to enlarge the mutual understanding and promote current practices and advanced technology in the design, construction and maintenance of pipelines, industrial pipework installations and ancillary equipment. Both are the subject of an informative brochure now available from the St. Albans based organisers, Access Exhibitions Limited.

In general terms the exhibition reflects the supply industry's contribution to offshore-onshore fuel transmission; to water, waste and steam services; in the processing of chemicals, food slurries and beverages, and for the transportation of mineral slurries and solids. In practical terms it embraces any size of pipeline project or pipework installation for conveying liquids or solids. It ranges from conception, through installation to operation. It includes maintenance, repairs, corrosion protection, pumps, valves, controls, instrumentation, construction equipment and more.

Getting Through at Finheat

If you have any difficulty in getting through to Finheat Ltd. on the telephone you could try these three numbers as alternatives: 728431, 728288 and 728520.

DRAIN PLOTTING EQUIPMENT

Flanagan Sales, 3 Marino Mart, Fairview, Dublin 3, are now marketing a unique device for tracing the plan location of existing drains and sewers of 100mm diameter or greater. The device comes as a compact, lightweight, ready to use kit which fits into a robust carrying case 300mm square by 100mm deep. No external wires or power sources are required.

The Tracka drain plotting equipment kit comprises the following:
1. A robust transmitter (82mm diameter by 112mm long) which, in operation is attached to drain rods and inserted into the drain or sewer. The waterproof bronze and aluminium casing houses a battery and a resin encapsulated electronic transmitter which emits specially shaped pulsed magnetic field signals to enable accurate pinpointing the transmitter below ground. These signals will pass through earth, rock, water and air.
2. A receiver which consists of a tough plastic case housing a multi-chip micro-electronic circuit which converts the signals from the transmitter into audible signals. A sensitivity/depth control provides a facility for accurate location of the buried drain. The control can be easily calibrated to provide an indication of the depth below ground of the transmitter. The receiver has a headphone socket and volume control for use with the special lightweight headphones included in the kit.

The kit comes complete with a flexible coil spring, fitted with a lockable drain rod attachment, which enables the transmitter to be passed around beds in the drain. The transmitter can also be used with a water jetting attachment which is available as an optional extra.

The Tracka drain plotting equipment is guaranteed to work at depths of at least 4.5 metres.

The transmitter is attached to a drain rod and inserted into a drain. The line of the drain can then be plotted by 'tracking' the transmitter with the hand held receiver from above the ground. The transmitter can also be used to locate the position of concealed bends, Y-branches, buried manhole covers and blockages with minimum inconvenience and avoids costly, time consuming excavations. A full replacement warranty is offered and complete service facilities are also available.

Mike Flanagan — who played in this year's F.A. Cup Final at Wembley for Queens Park Rangers against Tottenham Hotspurs — presenting John Fitzgerald with his winner's prize at the Mosten golf outing. On right is Sean McAuley, M.D., Western Engineering. See report page 4.
Hazardous Waste Management Symposium

The first international symposium to discuss how countries and communities can operate centralised chemical waste management facilities will be the subject of a four day symposium in Odense, Denmark, September 20-23, 1982. A host of speakers will address on social and political implications as well as the technical aspects of the "Danish System". Participation is encouraged by public officials and those in private industry concerned with hazardous waste generation and management.

The symposium is being arranged by Chemcontrol A/S and co-sponsored by the Danish Environmental Protection Agency, Kommunekemi A/S.

Kampsax International A/S, I. Krüger A/S and Battelle Columbus (Ohio) Division.

Entitled "Operating European Centralised Hazardous (Chemical) Waste Management Facilities," the symposium will focus on the Danish and other European national systems for collecting, treating, and disposing of chemical wastes.

---

THE BIGGEST RANGE OF VENTILATION IN THE NATION - FEATURES:

GEMINI TWIN FANS

As more and more local authorities are specifying fans with a failsafe standby capability, Roof Units Group are increasing their range.

Besides the well proven twin roof extract unit, there is now a twin centrifugal in-line duct fan and a twin bathroom/toilet model.

All Gemini twin fans can be wired for full automatic change over should one motor fail or for shared duty as required.

Also included in the biggest range of ventilation in the nation:-

Apollo, Venus & Europak Roof Extract Units, Euroflow In-line Centrifugal Duct Fans, Euroseries & Eurofoil external motor axial fans, and the incredible Maico range of Unit Ventilators.

---

The new booklet provides heating installers with complete technical data, dimensions and ordering information on the Danfoss range of energy efficient heating controls, and covers both products and applications. Products covered include 'S' and 'N' series radiator thermostats, RAVL radiator thermostats for single loop systems, RAK manifolds for 2-pipe microbore systems, ECT 601 and 602 weather compensators, AVDO and AVDSA automatic bypass valves, and the RAYI hot water cylinder thermostat.

Applications data includes schematics of pipework arrangements for 2-pipe smallbore and microbore systems with pumped HWS primaries; solid fuel smallbore heating systems; single-pipe systems; and low water content systems.

Copies of the new 'Energy Efficient Heating Controls' booklet are available, on request, from J. J. Sampson & Son Ltd.
The NEW range of THERMOLIER UNIT SPACE HEATERS, brings space heating cost down and there is a size to meet your needs.

- Easy to Install
- Economical to Run
- Steam or Water
- Rapid Warm-up
- Low Maintenance
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- Quick Delivery

Phone or post coupon for full details now.

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Name ____________________________
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Stillorgan Industrial Park,
Stillorgan, Co. DUBLIN

NEWS

PATRICK BENSON — Untimely Death

It is with profound regret that the C.I.B.S. learnt of the untimely death in a boating accident of Mr. Pat Benson of the College of Technology, Bolton Street. Pat Benson will be sorely missed not only by students but also the profession at large for his expertise and infectious enthusiasm. Many will recall his lectures on computer application which drew the largest attendance ever for a C.I.B.S. meeting.

The C.I.B.S. extends its deepest sympathy to his family, friends and colleagues. H&V News also wishes to join the C.I.B.S. with their expression of sympathy.

BTR at Gas Ireland

There is no doubt that enthusiasm and interest in the Irish Gas Industry is gaining by the day with the news that Dublin Gas will begin to distribute Kinsale natural gas to all its customers in early 1983.

BTR Silvertown Limited, Pipeline Services is already well established in Ireland, their Silverkit range of encapsulation repair kits being marketed and fitted by Tilley & Barrett (Ireland) Limited, since 1978. Later that year Tilley & Barrett also introduced the range of Heath products of pipe and cable locators, leak detection equipment, gas alarms etc. to complement their leak repair work.

The BTR Silverkit system is being used by Dublin Gas where Tilley & Barrett initially fitted the kits then trained Dublin Gas personnel to use the system. Limerick, Cork and Waterford are also examples of other Irish gas companies utilising the Silverkit system.

Two important announcements were made at the exhibition:
- The recent news that the BTR Silverkit System with S41 encapsulant has gained full acceptance to BGC/PS/LC8 specification for use on low pressure lead yarn and screwed gland joints up to and including 48 inches diameter: the first encapsulation system to achieve this.
- It is also notable that S41 encapsulant does not require the use of a primer to aid adhesion to cast iron.

Please send me full details of the new range of THERMOLIER space heating units.

Mather & Platt (Ireland) Ltd.,
Stillorgan Industrial Park, Stillorgan, Co. Dublin.
Tel: Dublin 952301/952041/952078. Telex: 25646.

Members of the Irish District Council of the Institute of Plumbing with Mr. Derek Gordon, Sales Manager at a recent trade evening hosted by Armitage Shanks (Ireland) Ltd. at their Arklow sanitary ware factory.
McGratten & Kenny Limited of Ballsbridge, Dublin are discovering the unique benefits of computerised estimating programs available.

Mr. Eamon McGratten, Managing Director of this medium sized mechanical and plumbing contracting company, explained that he was unable to find an experienced estimator when they needed one so decided to find an estimating aid instead. He investigated the computer market and was impressed at the suitability of the LS2000 computer system which is produced specifically for the construction industry. This system is marketed by Estimation Limited based in Solihull, England and comprises an LS2000 computer and high speed printer, both manufactured in the USA, and standard estimating programs produced in Europe for each construction trade.

After two days initial training at Estimation's offices the estimators entered their prices for materials and their labour rates and within about four weeks of familiarisation the system was used on "live" tenders. The change-over from the old manual method was very simple because the whole concept of the Estimation system is that it is designed to operate in a similar fashion but with more accuracy and greater speed.

A larger quantity of tenders is now being produced because less time is needed to complete each one. The company no longer needs to choose which job to bid for; they can now attempt them all and most importantly each tender now goes out to the client on time and with the added confidence of accuracy, having more time for a thorough evaluation. The extra time available allows the quotation to be reviewed and any alternatives or changes made and each section of the job can be sorted out at a glance.

There is a 50% saving of time in producing completed summary totals due partly to the fact that the computer is accurate. "There is very little likelihood of mathematical error" Eamon McGratten explained and he further noted that the totals don't have to be re-checked.

He described the Bill of Quantities and Schedule of Rates facilities as excellent "saving at least 95% of clerical time - if not more". He felt that these could now be produced in 10 or 20 minutes instead of days which is an immense saving of time and effort, with the estimating system presenting a precise and orderly record of the relevant information. Normally it is a condition that a Bill of Quantities be produced within 14 days of the request and so clients are impressed with the manner in which a Bill of Quantities is presented by McGratten & Kenny since the format is easy to read and understand, consistent with their requirement and provided well within the time allotted.

With the old method of estimating it was very difficult to change and update prices, bill rates, etc. but now it is simplicity itself with the computer, and percentages may be varied at the touch of a button.

Once initially entered, the prices for materials may be easily altered. A copy of the price schedule may be produced in as little as half-an-hour and the document then stored for future reference, or to enable them to give a basic list of materials' prices with a Bill of Quantities to a consultant for use with the Price Variation Clause. Another record of materials is available during take-off when a verification tape records all items and quantities "lifted" from the drawing, and is sectionally broken down. This record together with the marking up of the drawing by the "take-off" probes helps to eradicate under or over measures thus achieving up to 100% accuracy and consistency claimed by the Estimation System. One of the main attributes of the LS2000 is that instead of the normal computer keyboard, it has a series of keys which actually refer to specific materials, such as a tee or a bend or a union and so forth.

Therefore they have found the system easy to use and noted it didn't require the estimating engineer to have typewriting or computer experience, and they adapted very quickly. Whichever estimator then produces an estimate the result is consistently accurate and similar in its build-up. "Whatever size or detail is involved in the tender the Estimation System has the flexibility to cope with it" Mr. McGratten added.

Eamon McGratten concluded by saying he was sorry they hadn't moved earlier into the computer market.
The following paper was read at the Gas Ireland Seminar recently held in the Burlington Hotel, Dublin.

**PART 1**

In order to burn, a fuel requires an adequate supply of oxygen which is usually provided by the surrounding air; after burning, a fuel-gas yields products of combustion in gaseous or vapour form. In the case of the common gaseous fuels, burned in a properly adjusted appliance which is in good working order and with a sufficient supply of fresh air, then these products of combustion consist of non-toxic carbon dioxide and water vapour. If, however, these products are not immediately removed and replaced by further fresh air then the following sequence of events will occur:

1. The atmosphere will become vitiated due to removal of the oxygen and accumulation of carbon dioxide and water vapour.
2. This decreasing proportion of oxygen in the atmosphere will eventually cause incomplete combustion of the fuel, producing the highly-toxic gas, carbon monoxide.
3. The appliance will cease to function correctly and efficiently, and ultimately the fuel will cease to burn.

So for safe, efficient, and effective operation of gas-burning equipment (as with all other fuels) it is necessary to remove the products of combustion by means of a suitable and adequate flue, and to replace them with an ample of fresh air (by way of purpose-made ventilation openings if necessary).

When considering the flueing and ventilation requirements for equipment burning a gaseous fuel, certain combustion properties of the gas have to be taken into account, viz:-

- How much air will be needed to completely burn the gas at a given rate of heat output? This dictates the ventilation requirements.
- What will be the volume of the products of combustion? This will determine the size of flue needed.
- To what temperature may the products be cooled before condensation of water-vapour content commences? This will set a maximum limit on the efficiency of the appliance unless special arrangements are incorporated to handle the condensate.

Table 1 shows these characteristics for the fuel-gases at present commonly used in Ireland. It will be noted that there is a slight difference in the theoretical amount of air required for complete combustion of the various gases — natural gas for example requires about 6% more air at the unit of thermal input than Dublin town gas, and this will necessitate particular attention being devoted to ventilation when converting from town gas to natural gas. The total volumes of combustion products of the various gases differ only slightly; but the proportions of water vapour and hence the dew-points decrease markedly as one progresses from town gas (with its high hydrogen content) through to butane (with its relatively low Hydrogen-to-Carbon ratio).

Flues may be categorized in three ways, being described as either:

- natural draught or fan-assisted flues
- open or room-sealed flues
- individual or shared flues

For example, the old fashioned domestic brick chimney originally intended to accommodate an open coal fire would be classified as an individual, open, natural-draught flue. This short paper will consider the more common flue-types associated with gas appliances, and the important points of which the installer must be aware if he is to leave his customer with a safe and effective installation.

**Table 1 — Combustion Properties of Fuel Gases**

<table>
<thead>
<tr>
<th></th>
<th>Town Gas (Dublin)</th>
<th>Natural Gas (Kinsale)</th>
<th>L.P.G. (Commercial)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calorific Value</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross (MJ/M³)</td>
<td>17.9</td>
<td>39.2</td>
<td>93.9</td>
</tr>
<tr>
<td>Nett</td>
<td>15.7</td>
<td>35.3</td>
<td>86.4</td>
</tr>
<tr>
<td><strong>Stoichiometric dry air requirement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(m³/MJ)</td>
<td>0.230</td>
<td>0.244</td>
<td>0.253</td>
</tr>
<tr>
<td><strong>Total Volume of Products of combustion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(m³/MJ)</td>
<td>0.270</td>
<td>0.270</td>
<td>0.274</td>
</tr>
<tr>
<td><strong>Volume of Dry Combustion products</strong></td>
<td>0.214</td>
<td>0.219</td>
<td>0.232</td>
</tr>
<tr>
<td>(m³/MJ)</td>
<td></td>
<td></td>
<td>0.234</td>
</tr>
<tr>
<td><strong>Dew-point of Product minimum air, dry (°C)</strong></td>
<td>65</td>
<td>59</td>
<td>55</td>
</tr>
</tbody>
</table>
Open Flue Systems
(a) Natural Convection
The open flue relying on natural convection, is still the most common flue used with conventional domestic gas appliances. A typical example would be the case of the common radiant-plus-convector gas fire installed in a former open coal fireplace and utilizing the original brick chimney. A simple open flue is shown in fig. 1.

![](image1)

fig. 1
- Operation of Simple Open-Flue

In such a flue, the pressure difference necessary to produce movement of the waste gases results from the temperature difference between the hot gases and the cooler surrounding air. In fig. 1:-

Pressure at A =
- Atmospheric pressure at top of flue
+ Pressure due to column h of cold air

Pressure at B =
- Atmospheric pressure at top of flue
+ Pressure due to column h of hot gases

Since the hot gases are lighter than the cold air, the pressure at A is greater than at B, and so cold air tends to enter the flue via the appliance, forcing the flue gases upwards. This upward movement within the flue is opposed by resistance due to friction between the gases and the flue walls, turbulence created by bends, etc.; horizontal sections of flue will not contribute any extra ‘pull’, but will impose extra frictional losses. Therefore, flue walls should be as smooth as possible, the flue should contain the minimum number of bends, and horizontal sections should be avoided.

Generally, the performance of a natural draught open flue will also be affected by the following factors:-

Flue height
Raising the height of a flue increases the flue draught, but at the same time adds to the pressure loss due to friction. Increasing height is very beneficial for short flues, but has progressively less effect as the height is increased. A typical relationship between flue flow and height can be seen in Figure 2.

Cross-sectional area
The flue draught is unaffected by changes in the cross-section, but the frictional pressure losses decrease as the area is increased, resulting in greater flow. As the flue area is increased, the flow induced in the flue increases approximately in proportion.

Thermal input
The flue draught increases as the flue jet temperature is raised. The pressure losses are also increased as a consequence of the greater volume flow of the hot gases. The net result is that increased temperature generally leads to a greater flow rate, but the effect becomes less marked at higher temperatures (Fig. 3). Indeed, above about 260°C there is a reduction in flow as the temperature is further increased.

Heat losses
Heat losses through the flue wall lower the mean temperature of the flue gases, causing both the flue draught and pressure losses to be reduced. The new effect on the flow rate is usually quite small; the increase in flow obtained by using a well insulated flue in place of an unlagged one is only about 10%. It is nevertheless important to minimise heat losses if condensation is to be avoided.

Wind effects
Wind blowing across a building is likely to produce a pressure difference between the bottom of a flue and the point of termination. This pressure difference will depend on the wind speed and direction; the positions of the top and bottom of the flue in relation to the building; and the presence of neighbouring structures or geographical features.

The wind effect may assist or oppose the natural flue draught, causing increased flow up the flue, or reduced flow up the flue, or downdraught. It should be recognised that the magnitude of wind pressures can be many times greater than the flue draught. For this reason it is important to minimise their effects by careful attention to terminal position.

Draught Diverters
Fig. 4 shows the components of a typical open flue for a gas appliance. All such flues (except those for incinerators and gas fires) should be fitted with a ‘draught diverter’ or ‘baffler’ as it used to be called.

Often, the diverter is built into the appliance; however, when it is a separate component it must be fitted in the same room or enclosure as the appliance and generally directly onto the appliance flue outlet.
Even with a flue terminal fitted in the best possible situation, adverse weather conditions can occasionally and briefly cause a wind to blow down the flue — if this down-draught was allowed to enter the combustion chamber it could interfere with the operation of the burners and maybe extinguish them altogether, so a diverter is used to deflect the down-draught away from the primary flue and into the room. Because it consists only of the products of complete combustion and fresh air transitory down-blow is harmless, but persistent down-blow can be a nuisance and should be investigated as it probably indicates a fault in the flue system.

An additional advantage of a draught-divertor is that it allows air to be drawn into the secondary flue, diluting the products of combustion and thereby helping to prevent condensation within the flue. The location of a terminal is however more important than its design. It must be situated outside the building in such a position that it is freely exposed to the wind and not shielded by any roof, wall or other structure which under certain wind conditions could cause undesirable pressure conditions around the terminal which could lead to excessive down-blow in the flue. Preferred positions are:
- at or above the ridge of a pitched roof (special ridge terminals are available which resemble a normal ridge-tile)
- above a flat roof (minimum height 0.25m above roof or surrounding parapet)
- at least 0.25m above intersection of flue and pitched roof.

Disadvantages include fan noise, extra capital cost, additional servicing requirements and in some cases the need for special safety devices and interlocks to ensure that the appliance may only operate when

(b) Fan-assisted Open Flues
The use of fans to promote the removal of products of combustion is quite common in larger commercial and industrial appliances, but the use of such mechanical aids has now spread to shared domestic flues (see later) and individual open domestic flues. The use of a fanned draught system has the advantage of making the removal of combustion products more positive and less affected by factors such as flue resistance, wind conditions, and gas temperature. This results in greater freedom when planning the positions of the appliance and flue terminal and the route taken by the flue. Disadvantages include fan noise, extra capital cost, additional servicing requirements and in some cases the need for special safety devices and interlocks to ensure that the appliance may only operate when
the fan is running satisfactorily.

For open-flued appliances the fan may be sited anywhere in the secondary flue, and such a system must have a flow-sensor (usually a simple vane-operated switch) which shuts down the appliance if the flow in the flue should fail. If such an appliance is situated in a room which also contains other natural-draught, open-flued equipment care must be taken to ensure that there is an adequate supply of ventilation air and that the fan pull does not have an adverse effect on the natural-draught system.

When installing a flue-extract fan the makers instruction should be followed carefully.

Fan dilution systems are used in situations where large, high-power appliances must discharge their flue gases at low level; most local authorities would insist that such waste gases are cooled sufficiently to prevent any hazard to persons near the point of discharge and that they contain less than a certain percentage of CO2 and water vapour. The use of fan-dilution to meet these requirements is shown in fig. 9.

(c) Shared Open-flues

Where several open-flued appliances are fitted in the same room or enclosure, it is possible to connect them to a single main flue or common flue system. Each appliance must be fitted with a draught diverter and flame-failure protection device to prevent unburned gas issuing from the burner in the event of flame extinction. The secondary flue of each appliance should be at least 600mm high before it joins the common flue — see fig. 10. Of course, the common flue must be of a size which is adequate to accept the total flow of waste-gases when all appliances are operated together.

- CONTINUED NEXT MONTH
VAT AT POINT OF ENTRY

The recent mini budget before the Dail's summer recess has buried for once and for all the myth that Fianna Fail is the party that favours business, because the imposition of VAT on point of entry shows that when the chips are down and it is between the public sector and the private sector, the Government does not go overboard to favour the private sector.

It is interesting to note how this VAT arose. In the run-up to the election, Charles J. Haughey, Albert Reynolds and Martin O'Donoghue held a press conference to present their alternative budget. The objective, of course, was to gain power, and in the course of gaining power they had to eliminate the infamous John Bruton Budget, with his VAT on clothing.

This was done in the alternative budget by bringing in of VAT on point of entry. In other words, to substitute the £33 million on VAT on clothing, which the Bruton budget was obtaining, by a £45 million VAT on non-essential goods.

As Table 1 shows, the original proposal at the press conference prior to the last election, was £45 million. You will also see that the £45 million was coming from non-essential goods. The fact is that it is now coming from all goods, as and from 1 September 1982. So, to coin a phrase, it would appear that “after the election, all promises are off”.

It is difficult to have any respect for the political parties as to how, over the years, millions was spent on Social Welfare benefits on semi-State albatrosses like NET, CIE, Gaeltarra Eireann, etc. It is difficult to have any respect for political parties that have consistently said they will move against this kind of expenditure.

employment was their goal, when in their hearts they knew it couldn't be achieved.

It is, however, impossible to have any respect for political parties when, by their actions, they bring the creators of wealth and the only entering in our State to their knees. VAT will not bring all of industry to its knees, it will bring some but not all. However, in a period of time when you have continual deep recession, a major credit squeeze, high interest rates, a drop in personal consumption and demand, the last thing in the world you need is an increase in working capital.

The more galling thing is that this increase in working capital is to fund excess Government settlements. This, in essence, is what VAT on point of entry is all about.

We now have the ridiculous situation where we were told last March that the projected current budget deficit for the year would be £697 million. However, it now appears less than three months later that the figure will be closer to £880 million. As a result, there is an urgent need to obtain the £120 million from VAT on point of entry by 31 December 1982. This is a ridiculous situation. As an opposition spokesman said in the Dail recently, it was a “rickety cornerstone on which to build a budget for 1982”.

The fact is that it is a totally artificial transaction. Government accounts are not like the accounts of everybody else. Government accounts are all based on cash; therefore, all this is a bringing forward of cash flow. The proposals, however, have a serious effect on the working capital requirements of industry. Many industries import goods for further process or use services and goods provided by other industries, which themselves do not re-export those goods.

There is no doubt that the proposals are very serious, not only for industry and employment, but because it will also increase the cost of living. Everybody selling anything imported or containing ingredients which have been imported will have to charge a higher cost to cover the interest cost to enable them to pay VAT in advance. This, of course, will lead to the usual madness.

Naturally, the Trade Unions sector will be looking after their members and don't want to take any further decrease in their cost of living. In turn, they will look to be compensated for the increase. The only people who can compensate them are the companies, but these companies will already be under pressure with high interest rates, continuing recession, loss of confidence, PRSI and the VAT burden.

What the Government is asking is that the business sector should pay additional money to finance Government borrowings undertaken by successive Governments. The business sector is being asked to pay for their mistakes.

Since about two-thirds of all imports consist of materials for use in manufacturing, the greater part of the tax would fall on the manufacturing sector. This is a serious situation, because it is estimated that the working capital requirements of the manufacturing sector would be increased by £70 million. Given the fact that there are also credit restrictions and high
interest rates, it is difficult to see how these industries are going to cope.

There is no doubting that there will be redundancies and lay-offs. Yet, at the same time the Government states that it has an employment policy. This is difficult to see.

The essence of the proposal is that it will place an additional working capital burden of 19 days VAT payments on goods imported for direct sale or incorporated into goods for sale on the home market. An additional working capital burden of 5 to 6 weeks VAT payments would be imposed on materials imported for incorporation into goods and exports.

There are other problems. Goods will have to come in from one of seven specified areas. To get your goods, you have either got to pay VAT on point of entry or get a bank guarantee. The problem arises, however, in that where you have a bank guarantee but are unable to specify the point of entry, then each port of entry would require a separate guarantee by the importer to pay the VAT. Companies would have to hold guarantees at a number of ports. The effect of this would be to tie up a considerable amount of working capital, which could otherwise be applied to the company.

Another problem is where you’re importing by way of groupage. By the failure of one party to meet his VAT liabilities, it could arise that the total consignment could be blocked at the port.

Finally, it probably occurs to most people that the more inefficient the Revenue Commissioners are in giving VAT repayments, the better it is for the Government, because they have more money, and most people should also be aware that the Revenue Commissioners are under direct instructions from the Department of Finance.

In addition to all of this madness, we now have the ridiculous situation, whereby the IDA, SFADCO and Udaras na Gaeltachta are giving grants to new industries, both from home and especially abroad, to set up in Ireland. They are giving them grants for new factories and new machinery. Now we have another section of the Government involved in the collection of VAT on raw materials components at point of entry. In other words, we give with one hand and take with another.

However, the people who are now proposing to take will need additional employees, that is the Revenue Commissioners and the Customs Officers have stated that they will need additional manpower to monitor the situation.

All in all, this proposal is ludicrous. In the long term it will be extremely damaging. In the short term, it is bad for business, bad for employees and bad for any future employees.

---

**Table 1**

*Fianna Fail Proposed Budget Amendments 1982*

<table>
<thead>
<tr>
<th>Current Budget</th>
<th>Cost Items</th>
<th>£m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>1. Abolish VAT on clothing and footwear</td>
<td>51</td>
</tr>
<tr>
<td>8. Additional levy on Banks</td>
<td>2. Maintain food subsidies</td>
<td>47</td>
</tr>
<tr>
<td>9. 1% levy on insurance company turnover</td>
<td>3. Abolish tax on Social Welfare Benefit</td>
<td>10</td>
</tr>
<tr>
<td>10. Reduction in time for payment of Corporation Tax</td>
<td>4. Abolish £20 charge on charter air flights</td>
<td>4</td>
</tr>
<tr>
<td>11. Impose VAT on imports at point of entry</td>
<td>5. Restore mortgage grant and subsidy for single people</td>
<td>4</td>
</tr>
<tr>
<td>12. Charge on foreign travel: £3 air, £2 sea</td>
<td>6. Keep SDDA loan rate at 12½%</td>
<td>-</td>
</tr>
<tr>
<td>13. Additional Buoyancy</td>
<td>7. Other spending (education, gardai, etc)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>119</strong></td>
<td><strong>119</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capital Budget</th>
<th></th>
<th>£m</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. Provide capital for National Enterprise Agency</td>
<td>15. Reduce provision for extra equity for state bodies</td>
<td>30</td>
</tr>
<tr>
<td>18. Contingency Reserve</td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>

*Source: Fianna Fail Press Office*
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STARDUST: Conclusions and Recommendations

"Hose Reels and Sprinklers Should be Compulsory"

The 120-day Tribunal of Inquiry into the Stardust fire tragedy issued its report in July. Here, IHVN summarises the conclusions and recommendations, both of the Tribunal and of the special investigation carried out by the UK Fire Research Station.

The fire which destroyed the Stardust Disco in Dublin on 14th February 1981, in which 48 young people died and 128 suffered serious injuries, was "probably caused deliberately". The Tribunal of Inquiry's 1,200-page report, released on 5th July, says that "the most likely mechanism was the slashing of some of the seats with a knife and the application of a lighted match or cigarette lighter of the exposed foam or the ignition of newspapers on or under the seats".

However, the 120-day tribunal, headed by Mr. Justice Ronan Keane, also lays blame on the club owners, Patrick and Eamonn Butterly, on Dublin Corporation and on the Department of the Environment for the...
STARDUST REPORT

manner in which the disused jam factory was converted to an entertainments complex and subsequently managed. The report also concludes that there were serious shortcomings in (a) the training of officers and firemen and the equipment of Dublin Fire Brigade, (b) Dublin’s Major Accident Plan, and (c) the forensic investigation by the Gardaí and the Department of Justice.

The fire began in a partitioned off alcove and spread rapidly through the entire ballroom. When the first fire brigade appliance arrived at 01.51, some 18 minutes later, the fire had begun to diminish. The rapid spread of fire was caused, says the report, by three principal factors:

(1) The presence of a tier of combustible seats, at least one of which was ignited, against a wall completely lined with carpet tiles having a relatively high surface spread of flame rating and heat evolution.

(2) The presence of large quantities of combustible material in the alcove, the floor carpeting in the alcove playing a secondary role in the growth of the fire, but did at some critical point assist the spread of the fire from one seat to another.

The collapse of the ceiling in the early stages of the fire probably slowed down the flow of smoke and combustion products throughout the ballroom to a significant extent and probably resulted in a substantial mitigation in the number of casualties.

The venting of the fire through the roof (which was broken through by the flames in the early stages) probably slowed down the fire spread and may have accounted for the survival of a number of people in the ballroom.

The raising of the roller from the rest of the ballroom did not have any significant effect on the spread of fire.

There were no hose-reels in the building and the use of portable extinguishers was entirely ineffective.

The combustion of the furnishings in the alcove produced quantities of carbon monoxide sufficient to cause or contribute to many of the deaths. The combustion of the polyurethane foam produced quantities of hydrogen cyanide, but it was unlikely that the quantities were sufficient to contribute substantially to the total lethal effect of the combustion gases.

“The low level of professional expertise attested to by the owners contributed specifically in two respects to the scale of the disaster”, says the report. Carpet tiles were used as wall linings and inadequate consideration was given to the main entailed by the - both of which constituted non-compliance with the Draft Building Regulations.

The drawings were prepared and the conversion supervised by Mr. William White and Mr. Harold Gargan, who says the report, “did not have suitable qualifications and experience”.

Mr. Eamonn Butler initiated a policy of having all emergency exits locked and chained until midnight at the earliest to prevent unauthorised persons gaining entry. “This policy was pursued by Mr. Butler with a reckless disregard for the safety of the people on the premises”, states the report.

On the night of the disaster, one exit was locked and chained, two were obstructed by empty bottle skips and seats, and locks and chains were draped across unlocked exits to give the impression that they were locked.

The report charges that Dublin Corporation gave inadequate consideration to the drawings and inadequate inspection of the building which, with serious deficiencies in the fire prevention and fire-fighting services of the Corporation, “contributed significantly to the disaster”.

The Department of the Environment share responsibility for the scale of the disaster in three areas:

(1) Their failure to make Building Regulations under the Planning Acts, notwithstanding the lapse of nearly 20 years since the enactment of the legislation, a failure which greatly increased the workload on the already overburdened and understaffed Fire Prevention Department in Dublin Corporation.

(2) Their failure to respond to the crisis of morale and efficiency in Dublin Fire Brigade, although warned of its seriousness by the City Manager in 1978.

(3) Their failure to ensure that adequate training facilities existed for firemen and fire officers in Ireland, although they had been advised in 1975 of the importance of establishing a National Training Centre.

The Tribunal’s report observes that “the tests carried out established that it was not easy to measure certain significant characteristics of materials, and that other characteristics which indicate the fire risk more accurately were not included within the tests. New tests and changes in the existing testing procedures are, accordingly, required”.

Among its many recommendations, the Tribunal’s report says that:

(1) The Minister for the Environment should give immediate legal effect to the Draft Regulations,

(2) The Regulations should incorporate a code on electrical installations omitted from the existing Draft,

(3) Wall linings in places of assembly should be stringently controlled,

(4) All furniture in places of assembly should satisfy the latest British Standards and in higher risk places should be required to pass a more stringent test (the procedures for which are specified).

(5) A warning system of heat or smoke detectors should be essential in all places of assembly holding upwards of 100 people.

(6) Hose reels should be compulsorily installed in places with an occupancy in excess of 100.

(7) Sprinkler systems should be compulsory in certain circumstances, specifically in basements holding more than 100 people,

The report asserts that “there has traditionally been a tendency in Ireland and the UK to treat sprinkler systems as more relevant to the protection of property than of life, but the experience of the fire indicates that this approach requires urgent reconsideration,

(8) The Public Resort Bye-laws should be repealed and replaced by new regulations made on a national basis,

(9) The sections of the Building Regulations dealing with means of escape should be extended,

(10) The Fire Services Act 1981 should be amended to make it illegal for a premises capable of holding 500 people to be open until a Fire Certificate has been issued by the Chief Fire Officer,

(11) An Inspectorate of Fire Services should be established with responsibility, in broad terms, for supervising and directing fire-fighting services throughout the State, supervising fire prevention measures, and establishing a National Training Centre.

The Tribunal of Inquiry stated that “Fire safety control in the case of new buildings is exercised only through the legally questionable, and in practice unenforceable, machinery of the Planning Acts, and in such areas as they are enforced, local bye-laws, which in the case of Dublin are in many respects out of date”.

Building Services News, Vol. 21, Iss. 9 [1982], Art. 1

http://archive.library.dublin.ie/bibliolink/hsis99/1

D01:80.21427/DPW/1R/September 1982

20
Tru-Flow’s Continuing Success

The steady and planned growth of Tru-Flow Ltd. is one of the major success stories of the last few years. What started off as a low key operation in ducting manufacture has under the guidance of Sean Keegan and Declan Murphy grown into a company which now owns its own 16,000 sq. ft. premises and has a staff of 85.

The Tru-Flow story began in 1973 when Sean and Declan set up business in a small workshop in Inchicore. At that time their main efforts were directed into the domestic heating sector but this market soon slumped and as a natural progression Tru-Flow looked to the industrial heating and air conditioning market which at that time was going through somewhat of a boom. As in the domestic heating market Tru Flow excelled in the quality and standard of their work and their reputation grew with every project. During those early years the company moved from their Inchicore premises to Ballyboughall and then to Chapelizod Garden Industrial Estate where they still retain their 10,000 sq. ft. premises.

Tru-Flow’s recent move to headquarters at Crossbeg Industrial Estate was prompted by the purchase of an £100,000 spirotube machine which was much too large for their Chapelizod premises. The machine can form spirotube from 3” to 80” sizes which covers every possible size they are likely to be called for in industry in Ireland. Another recent purchase is a flexible ducting machine which meets a certain demand in the air conditioning market. While the heating, ventilating and air conditioning markets still take up much of Tru-Flow’s time they also supply to industry in general and Tru-Flow’s sister company Tru-Flow Panels manufacturers casings or panels for perimeter heating and also metal wall partitioning.

Sean and Declan are justly proud of their success but they are also very aware of the rapidly changing nature of the markets they deal with and so are always open to new developments and are willing to do what is necessary to keep up with the changes. According to Sean they are at the moment keeping a close eye on the progress of natural gas, as domestic warm air heating and flexible flues are very much part of gas heating systems and they are just the people who can supply the goods.
Following reports from a tenant in Antrim that they had experienced some minor discomfort of the eyes and nose the N.I. Housing Executive have suspended the use of formaldehyde foam cavity wall insulation. The Executive have made wide use of this form of insulation and this is the first complaint they have received and so it is natural that in view of the large number of dwellings for which they are responsible, that they ban the material while the problem is investigated.

A spokesman for the National Cavity Insulation Association has pointed out that U.F. foam is perfectly safe and has been in use in the U.K. for many years.

John Kelly Ltd., Agency Dept., 23 Station Street, Belfast, have been appointed sole distributors for Northern Ireland and The Isle of Man for State Boilers (UK) Ltd. State Boilers of Nashville USA are one of the largest manufacturers of direct fired water heaters in the world. The products produced in the USA and imported to comply with all British and European standards.

The units of a large domestic, commercial and industrial range may be fired by oil, gas or maybe electricity. The direct firing method results in both substantial savings both in fuel and space, as we only heat the water being actually used and this makes them ideal for hotels, clubs, canteens, laundrys, in fact anywhere where ample supplies of hot water are required. Full details of the units will be announced within the next month, when a large promotional launch will be held.

Rumour has it that Belfast has been chosen as the city in which a combined heat and power plant will be based. The Government appointed a firm of consultants to produce a resume of the applications of several cities in the U.K. who had applied to be considered. It is said that £600 million will be made available for the setting up of this CHP plant and that it will be based in a new coal fired power station to be built in the Belfast Harbour Estate. If this

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*Published by ARROW@TU Dublin, 1982*
rumour proves to be true, one cannot but wonder how the decision will affect the future of the proposal to bring the Kinsale Gas north. It has been announced that agreement has been reached between the British and Southern Government regarding the gas link.

In view of the fact that while oil may at the moment be dear, and that there is an excess of electrical generating capacity together with ample supplies of competitively priced coal, it seems ludicrous to embark, in these days of capital cuts, on a massive expenditure for both gas and CHP.

Stories have also been circulating about a massive gas find in Morcombe Bay. Does this mean that British Gas may want to enter the competition for the N.I. market?

Suddenly, N.I. finds itself in a position where all forms of energy are going to be available but all at the cost of a massive capital expenditure, which in turn prompts the question — can the economy afford it even on a long term — the answer would appear to be — some yes but all no.

Alex McConnell has been appointed a Mechanical Engineering Partner in Building Design Partnerships Belfast office. Prior to this appointment

Mr McConnell was in the works Dept. of the Dept of Health and Social Services and had been responsible for the carrying out of a number of major hospital projects.
The following are the conclusions of a study in the UK on the provision of sanitary appliances in schools. It was on this study that recent regulations were based. A full report based on this research carried out by the Building Research Establishment is available from them, the author is P. J. Davidson.

By comparison with the scales required by the 1972 regulations, substantial reductions may be made in the number of appliances provided, particularly in the case of wash-basins. The reduction in the numbers of wash-basins can be explained by the fact that their occupancy time is approximately half that of WCs in primary schools and a third that of WCs in secondary schools. The scales therefore reflect this rather than the 1:1 ratio of wash-basins to WCs embodied in the 1972 regulations. The 1981 regulations have taken some account of this by reducing the number of basins required in each secondary school cloakroom by two-thirds the number of toilet fittings (WCs and urinals). The scales presented here have been constructed assuming that all the children wash their hands on each visit to the cloakroom, even though this ideal is rarely observed.

It should be restated that these scales apply to individual cloakrooms and that the total number of appliances required will rise as the number of cloakrooms serving a given population is increased. To illustrate this the scales have been applied to secondary schools, and Figures 1 and 2 show how the resulting total number of WCs and urinals depend on both the number of pupils and the number of cloakrooms. It can be seen that in some cases the total provision would be greater than that required under the regulations, but as the overriding criterion in the formulation of these scales has been the uniform standard of service provided by each cloakroom, this inevitably occurs as the number of distinct cloakroom rises. Although there may be good educational or social reasons for providing a degree of dispersal, there are two possible consequences of increasing the number of cloakrooms behind a certain point. Either extra resources will be needed to provide fittings beyond the minimum required by the regulations, or a reduction in the standard of service offered by some of the cloakrooms will have to be accepted.

It should also be noted that these levels will provide a '5 per cent' standard of service only in those schools in which the discipline and

### Table 1 Proposed scales for provision of sanitary appliances in schools

<table>
<thead>
<tr>
<th>WC</th>
<th>Urinal</th>
<th>Wash-basin</th>
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</thead>
<tbody>
<tr>
<td>Population No</td>
<td>Population No</td>
<td>Population No</td>
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<tr>
<td>Infants</td>
<td>1 - 10</td>
<td>1 - 10</td>
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<tr>
<td>11 - 40</td>
<td>11 - 40</td>
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<tr>
<td>41 - 70</td>
<td>41 - 70</td>
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<tr>
<td>71 - 120</td>
<td>71 - 120</td>
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<tr>
<td>Junior girls</td>
<td>1 - 10</td>
<td>1 - 10</td>
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<td>11 - 40</td>
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<td>41 - 80</td>
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<tr>
<td>81 - 120</td>
<td>81 - 120</td>
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<tr>
<td>Junior boys</td>
<td>1 - 50</td>
<td>1 - 50</td>
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<td>51 - 120</td>
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<tr>
<td>61 - 120</td>
<td>61 - 120</td>
<td></td>
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<tr>
<td>Secondary girls</td>
<td>1 - 10</td>
<td>1 - 10</td>
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<td>11 - 25</td>
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<td>26 - 50</td>
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<td>51 - 80</td>
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<tr>
<td>81 - 110</td>
<td>81 - 110</td>
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<tr>
<td>111 - 150</td>
<td>111 - 150</td>
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<tr>
<td>Secondary boys</td>
<td>1 - 50</td>
<td>1 - 50</td>
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<td>51 - 150</td>
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<td>61 - 150</td>
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Published by ARROW@TU Dublin, 1982
EIRLINE

Top of the Taps

https://arrow.tudublin.ie/bsn/vol21/iss9/1
DOI: 10.21427/D7V71R
**Guaranteed Irish with style from Sanbra Fyffe.**

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

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

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

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

They speak eloquently for your good taste. And volumes about your faith in Irish craftsmanship.
Figure 1 Comparison of provision of WCs and urinals for secondary boys assuming that (a) regulations are applied to the whole school, and (b) proposed scales are applied to 3, 4, 6, 8 and 10 equal-sized cloakrooms

Figure 2 Comparison of provision of WCs for secondary girls assuming that (a) regulations are applied to the whole school, and (b) proposed scales are applied to 3, 4, 6 and 10 equal-sized cloakrooms

daily routine produce a fairly high level of peak demand, similar to that used in the computer model for defining the scales. If children are permitted to use cloakroom freely during the day the standard of service will be better. Unfortunately, the nature of the school organisation cannot be predicted at the time the school is being designed — and may alter during the course of its life — so provisions must be made that will cope with the upper range of demand.

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

Ideal Standard
If you have heard a "Whisper" about a new colour concept from Ideal Standard, you had better keep it to yourself because it's not being launched in Ireland until the Building Exhibition, but in the meantime their Irish agents K. M. Reynolds will be pleased to show you the new Dualux basin pillar taps which, housed in a neat and easily removable brass cartridge, are washerless and guaranteed against liming, and offer drip free operation over a long life.

Other recent additions to the Ideal Standard ranges include a new 170 x 75 cm Brasilia bath for the smaller bathroom, and new back-to-wall bidet and closet bowl in the Michelangelo collection which now offers toilets and bidets for floor standing, wall mounting and back-to-wall together with four sizes of wash basin.

Sanbra Fyffe
An Irish firm has decided to take on the foreign competition in the area of brassware and bathroom fittings. Sanbra Fyffe have launched a new range of bathroom taps and mixers, under the trade name Eirline. The new range was introduced to representatives from builders and plumbers merchants in the Burlington Hotel on 2nd June. Speaking at the launch, a company spokesman described

- A single flow sink mixer, one of the new Eirline range from Sanbra Fyffe.
SANITARYWARE

IDEALBLEND
It's surface mounted. It overcomes liming up problems. It's ideal for replacement

The Idealblend surface-mounted shower has all the performance benefits of the built-in model. No drips from the mixer cartridge when it's off. No wear or corrosion problems. The elegant single lever gives easy positive control. Turn for temperature. Lift for flow. It works beautifully . . . and will carry on working year after year.

The mixing valve consists of two extremely hard ceramic discs which form an airtight, water tight seal. The mechanism of the Idealblend won't lime up even in the hardest water areas! And that's guaranteed! Idealblend's mixing mechanism carries a unique 5 year guarantee against the effects of lime.

Ideal for the shower replacement market. It has standard 150mm centres and is designed to match the majority of showers already installed. So when a shower needs replacing . . . the new Idealblend fits straight on. 5 Year Guarantee on this ceramic disc mixer cartridge against the effects of lime.

Agents in the Republic of Ireland

K. M. REYNOLDS LTD.
Unit 2
D.C. Industrial Estate
Knockmitten Lane
Naas Road
Dublin 12.
Telephone: 520333

Published by ARROW@TU Dublin, 1982
**Sanitaryware**

**Twyfords Bathrooms**

Twyfords Bathrooms formed a new division, Twyfords Showers, early last year which has launched two new ranges, the “3000” and “1000” by Huppe of Germany.

The 3,000 luxury range includes a side panel, the Butler, moulded with extra shelving outside and inside the shower itself. A raindrop design is moulded into the polystyrene doors and sides. The “1000” series is a limited range for the budget conscious. Available in Clear or Topaz Brown polystyrene, all the framework is in silver anodised finish and incorporates a front gliding door, fixed side panel and a corner unit.

All doors on the “3000” range incorporate a full length magnetic strip to ensure a positive closing action and glide smoothly along the fully enclosed lower guide rail for which a patent has been applied. This lower guide rail is specially designed without a groove so that it will not harbour dirt and can be easily wiped clean.

Twyfords also launched two new colours last month. “Almond” is a “creamy” off white and represents the launch of a seventh new colour within three years by Twyfords.

The third generation two-tone colour is “Harlequin Pampas” along with another alternative choice of basin. In addition to Astral and Louise is the Nocturne, now available in Harlequin Avocado, Harlequin Sandalwood and now Harlequin Pampas.

Now part of London’s Barbican Centre and a design council award winner, Twyfords Barbican handrinse basin was so named because the Barbican architects and Twyfords bathrooms’ designers worked together to produce a space saving washbasin. The Barbican takes up just over 1 square foot of wall space and is built in to a depth of only 2½ inches projecting only 6 inches overall. Designed on classic lines, the Barbican has a concealed toilet roll holder and a neat mixer fitting with a small single nozzle from the Aztec range.

Twyfords top selling baths, the York and their Montrose corner bath, allow more baths per gallon of hot water used. With more curves and contours than the average bath, they are cheaper to run as they use very little hot water. The baths are manufactured from high quality acrylic sheet, which means they are light in weight, easy to install, warm to the touch and resistant to water staining.

Details on the full Twyfords range are available from their Irish agent, John Usher.

**Chloride Shires Ireland**

An attractive range of Comisa taps, mixers and various fittings has just been introduced on the Irish market by Chloride Shires, who stock and distribute this brassware together with their many bathroom and sanitary ware products from their southside headquarters at Broomhill Road, off Airton Road, Tallaght, Co. Dublin.

In taps Comisa manufacture basin and bath designs and moving to mixers there are monoblock basin mixers with chain holder swivel spout plus the alternative mixer with pop-up and waste-swivel spout. There are further variations in mixers, namely the three-hole design with pop up and waste plus a monoblock basin mixer with pop up together with a stylish bath shower mixer which features a long 4ft. hose, a wall bracket with pin a knucklejoint screws and plugs plus a handshower.

Comisa are Italian made and bearing in mind the strong creative design tendencies of Italy the styling in this collection of modern brassware is evident. In bidets Comisa offer a set with spray and pop up plus a monoblock bidet mixer.

The high neck pillars are elegant and Cornica can provide a monoblock dual flow sink mixer with a hot rinse as well as a monoblock dual flow sink mixer without the added advantage of the hot water.

The Comisa brassware collection is designed using acrylic heads with durable hardwearing chrome plated alloy bases and they are manufactured to BS Standards. The Comisa taps can be supplied in a selection of colourful heads.

Shires have just introduced two new acrylic baths to their collection: the Largo — a spacious bath offering a double bathing area and the sumptuous, circular Rondo. Two new shower screens, the Cantata and Cadenza, have also been added to Shires Irish range.

**Salvarani**

Salvarani Kitchens are well known on the Irish market and now their new Irish distributors, Exclusive Kitchens & Bathrooms, have introduced Salvarani’s exclusive range of bathroom furniture. The basic idea is that you can now obtain a fully fitted bathroom with a vast selection of units.
Guaranteed quality in bathrooms, that's the promise of Armitage Shanks. The only company in Ireland who manufacture supreme vitreous china sanitaryware.

And the choice of colours, styles and designs is enormous. A range so complete, it's ideal for all domestic uses and specialist applications such as hospitals, hotels and laboratories.

Almost all of our products sold in Ireland are expertly manufactured in Arklow. And you also have the pick of the entire U.K. range of Armitage Shanks bathroom products direct from our Dublin office.

To find out more about superior quality in bathrooms from Armitage Shanks write to our Dublin office for further details.

Armitage Shanks (Ireland) Ltd., Dublin Sales Centre, Cookstown Estate, Tallaght, Co. Dublin. Tel: Dublin 510731 or 510951

Published by ARROW@TU Dublin, 1982
Salvarani bathrooms are now available in Ireland from Executive Kitchens & Bathrooms.

The bathroom furniture is not just suitable for domestic situations but also suitable for hotels, bars and schools. In areas of extreme hard use, the Salvarani type worktop appears to be the solution to many problems. The worktop is made in phenolic anti-scratch laminate and is available up to six metres in length of a saniopache finish. The worktop has a return on the front and has an upstand at the back so as to prevent any chance of spillages. The fact that the worktop is a complete block rules out the problem of edging peeling away from normal surfaces, hence giving rise to further severe problems.

The Salvarani worktop because of its uniqueness in durability and quality, is now being applied to laboratory situations. Also included in the ranges of products available from Executive K & B Ltd. are corner baths and showers complete with valance from Gainsborough. The Baths and showers are available in most popular colours. The shower unit, because of its design, allows for plumbing and fixing above floor level, which is a tremendous advantage to architects, builders and plumbing contractors. To complete the range are washroom units complete with upstand, instantaneous electric showers, over sink water heaters, hand dryers and soap dispensers complete with enamelled and stainless steel sink bowls.

Part of the new range of high quality, competitive priced all metal fittings in chrome plate finish from Armitage Shanks Solara range of fittings. The range includes pillar taps, mixers and monobloc fittings for baths, basins and bidets.

Suggest SHIRES . . . . Specify SHIRES
NEITHER YOU nor your clients will regret it.

Put in SHIRES BATHROOMS and SANITARYWARE, they are the proven solution, whether one needs our Contract or our luxury BATHROOM SUITES.

Select from SHIRES superbly designed collection of Suites — ALLEGRO, OPUS, BALMORAL, DENBIGH, NAIAD plus several more, for complete customer satisfaction.

* CALL INTO our NEW fully fitted and furnished SHOWROOMS and see the RONDO the latest circular Bath from SHIRES, plus new Shower Screens, the CANTATA and the Cadenza, together with the Samson and Delilah Shower Trays, plus many more Shires accessories.

Shires ALLEGRO Suite with EROS corner bath, featured with Columbia Overtray Enclosure on a Delilah Shower Tray, plus Pavan VC Vanity Basins.

CHLORIDE SHIRES IRELAND LIMITED
Broomhill Road, off Airton Road, Tallaght, Co. Dublin. Phone: 916877 Telex: 24325
MEETING THE CHALLENGE

The continuing recession in industry has added a further sense of urgency to an already very energy conscious industry. This has forced companies to step up their programmes of increasing the level of monitoring and control to further reduce costs. The instruments and controls industry is keen to meet this challenge and research and development is continuing to bring out the best that technology can offer. The main problem apart from the lack of finance in the industry at the moment is that skilled personnel are still at a premium and a great deal more training will have to be undertaken to keep pace with the technological developments.

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

Industrial Instruments

A new low cost, on-line instrument for automatically monitoring water hardness has been introduced by Industrial Instruments Limited as representatives for EIL/Kent Industrial Measurements Ltd. The instrument - Model 6775-400 — is the latest in the well-established Testomat range and provides many new features. These include 'reagent low' alarm and a much wider choice of time intervals which are customer selectable, and control facilities which make the instrument ideally suited for the automatic control of water softening plant.

Using the simple colorimetric technique to establish whether the hardness of each water sample is above or below the preset limit, the Testomat is essentially a go/no-go instrument. It contains a photoelectric cell which monitors the colour reaction taking place when an indicator is added to the sample water, and an amplifier which controls the sampling frequency and alarm functions. The type of reagent used determines the level of hardness at which a colour change takes place, and spans the range 0.5 to 9 ppm calcium carbonate. The colour reaction taking place in the cell is visible through a window on the front panel of the instrument.

Water passes continuously through the instrument, automatically flushing out the measuring cell between testing cycles. On initiation of a testing cycle, the cam driven dosing plunger closes the cell exit and delivers a measured dose of indicator reagent. The cell fills with water, and the colour of the reaction is measured by the photocell.

If there is no colour change, the residual hardness is below the predetermined alarm level and a green LED on the front of the panel is illuminated. In the case of a colour change, a red LED is illuminated and an alarm contact is activated.

A number of alternative alarm routines can be programmed into the instrument. These include a continuous alarm until the next satisfactory result; inhibition of analysis after an alarm, until the alarm is manually cancelled; or a one-minute alarm after an unsatisfactory result.

The wall mounted instrument requires only simple routing maintenance — a periodic replenishment of the reagent bottle — and is the robust, low cost answer to many water hardness problems.

Dwell Controls

A substantial contract to supply Sauter pneumatic air conditioning controls for the new Gilbeys 'Baileys Cream' factory in Dublin has been won by Dwell Controls Limited of Dublin, official agents for Sauter Automation Limited in Ireland.

This major contract has been placed with Dwell Controls by consulting engineers Varming Mulcahy Reilly Associates for contractors Climate Engineering Limited and involves the installation of the Sauter Centair pneumatic control system for air conditioning.

This plug-in type controller provides centred control of conditions with a mode of operation being both proportional and proportional plus integral. Sequence control is also available for heating, cooling and air conditioning systems.

The Centair system has been specially designed to meet air conditioning and heating control applications and can be fitted with indicating gauges showing actual measured conditionings of temperature, pressure and relative humidity.

The contract for Gilbeys follows on the heels of a similar Centair installation at Vervatim Limited, an electronics factory in Limerick.

J J Sampson

Danfoss has introduced a new self-contained pressure regulator type AVDO designed for a number of regulating jobs in heating systems.

Type AVDO opens to

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INSTRUMENTS AND CONTROLS

flow on a rise in the differential pressure across the valve and is, depending on the purpose, used for differential pressure regulation or for maintenance of minimum flow.

Examples are large heating plants where type AVDO can be used for de-centralised regulation of the differential pressure (constant flow function) in each individual heating circuit.

When mounted in the circuit of a circulating pump, AVDO ensures that the pump will always work at the optimum operating point.

With gas-fired and heating pumps, AVDO ensures that a required or desired minimum flow volume will be maintained on a decrease in load.

Type AVDO is easy to install since it works without impulse lines.

It is available in ½ BSP and ¾ BSP sizes, both as straightway and angle-way valves.

Details from J. J. Sanderson & Son Ltd., Unit 71 Cherry Orchard Industrial Estate, Ballyfermot Road, Dublin 10, Tel: 2681111 Telex: 92219.

Landis & Gyr

Landis and Gyr Limited, one of the world's leading manufacturers of environmental control equipment, announce the introduction of two new motorised valves for the domestic central heating market.

The new SK2, a two-port motorised valve for zone control, provides individual control for both domestic hot water and central heating circuits whereas sister product, SK3, is a three-port motorised mid-position valve for fully pumped systems which may require partial heat supply to both hot water and central heating circuits at the same time.

The sophisticated design of these two units perfectly facilitates the economical and safety features which must be inherent in the concept of any motorised valve.

The SK2 is available in three bore sizes — 15, 22 and 28mm — and the wiring-in is extremely simple, requiring only two wires. The unit has a quiet and reliable synchronous motor and incorporates auxiliary switches for manual override, if required.

Compact and attractive in design, the SK2 is available off-the-shelf at a highly competitive price. The SK3 shares all of these advantages with its two-port counterpart except for a few minor differences. The unit is only available in 22mm bore as this is the most popular for this type of fitting. A further difference between the features of the two units is that on the SK3 there are no auxilliary switches for manual override.

However, only four wires are required for wiring-up the motor of the three-port unit, rather than the usual five, and no relay was necessary in the design of the product so any need for additional equipment or wiring is wholly eliminated.

Details from Brown Boveri Ltd.

Satchwell

Satchwell Sunvic of Motherwell and Slough, Britain's largest manufacturers of domestic central heating controls, have taken a major step in helping to educate the public in the need for energy saving controls by publishing an 8-page booklet on the subject.

Mr. John Mossman, Satchwell's heating division sales manager, says that the new publication is intended to assist installers in informing the public, in layman's language, of the benefits a well-controlled central heating system can bring.

"We emphasise in the booklet that homes fitted with adequate temperature controls not only keep the occupants comfortable, but that the controls will pay for themselves within two or three heating seasons," he says.

"It is a determined effort on our part to show the public how a great deal of energy can be saved in the home, having the dual effect of cutting costs and preserving the nation's resources."

"We are not making any extravagant claims, so
DANFOSS
GIVE YOU THE CHOICE

INDUSTRIAL RANGE
- Variable Motor Speed Controls
- Solenoid Valves
- Thermostats
- Pressure Switches
- Steam Valves
- Contactors & Motor Switches
- Thermostatic Water Valves
- Humidity Controls
- Flow Meters

HEATING RANGE
- Radiator Thermostats
- H.W. Cylinder Control
- Differential Pressure Regulator
- Weather Compensator
- Pi Motorised Valves
- Return Temperature Limiters
- Burner & Boiler Controls
- Solar Energy Controls
- Fan Speed Controllers

REFRIGERATION RANGE
- Thermostatic Expansion Valves
- Sight Glasses
- Filter Driers
- Pressure Regulators
- Main Valves
- Pilot Valves
- Capacity Regulators
- Liquid Level Controls
- Differential Pressure Switches

Irish Agents For Over 25 Years
J. J. SAMPSON & SON LTD.
UNIT 71, CHERRY ORCHARD INDUSTRIAL ESTATE, DUBLIN 10. TEL: (01) 268111. Telex: 92219
A Condensed Guide to MANOTHERM activities

THOMMEN CALIBRATOR EM

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

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

West WE 01 process controller

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

Barksdale piston pressure switch for pressures up to 315 bar.

Rueger thermometers.

MANOTHERM LTD.
Controls and Gauges for all industries

THE CONTROL CENTRES
4 WALKINSTOWN ROAD, DUBLIN 12
Phone: 522365, 522018, 522229. Telex: 24467

10 KNOCKBRACKEN PARK, BELFAST BT6 OHL
Phone 645966
INSTRUMENTS AND CONTROLS

often publicised by suppliers of energy saving equipment. All our information has been taken from published data by independent organisations.’’

The booklet outlines why heating controls are required; what controls are available; what controls are required for different types of housing and what savings can be achieved. A large section is devoted to the upgrading of existing systems and a variety of schemes are suggested.

For example, upgrading the system in a terrace of approximately 8,500 sq ft by introducing time control (programmer), room temperature control (two room thermostats) and hot water control consisting of a cylinder thermostat, each thermostat operated by a two-port motorised valve, can affect approximate savings of thirty-three per cent per year.

The launch was generated by increased wholesaler demand for ease of stocking and trade counter handling; and central heating installers’ requirements for competitively priced, completely compatible domestic controls.

The three package plans, timed sundial C, S and Y, also contain concise wiring and installation details. These have been designed to simplify domestic control system planning and give installers the opportunity to quote customers for a heating

Attractively illustrated, showing which systems suit different sizes homes, the booklet is regarded by Satchwell as a breakthrough in manufacturer-installer-consumer relations.

‘‘At Satchwell we manufacture six million products per year and export to 60 countries,’’ Mr. Mossman states.

‘‘Yet we have always been aware that the public is largely unaware of the savings these products can achieve. This publication is intended to break down the communications barrier and give the public a chance to understand what controls are all about.’’

Honeywell

Honeywell have packaged and released three new timed sundial heating control plans for gas or oil fired systems.

The Thermox AIR-MIZER is a system that continuously calibrates the boiler controls based on oxygen measurement. An excess oxygen measurement monitors the effect of all the variables that can change the supply of and the requirement for combustion oxygen, and an oxygen controller and actuator provide a percentage of flow correction. It accurately maintains the minimum safe excess air level for all air and fuel conditions and firing rates, even during rapid load changes, and it works with all boilers, jackshaft or pneumatic, single or dual fuels.

You can buy a more expensive system, but you can’t get one that will do a better job of saving fuel. Compare:

• Available with combustibles (CO) measurement in addition to oxygen.
• Extremely Reliable
• Dual Fuel as Standard
• Easily Installed

For further details and demonstration of how you can save on fuel please contact:

FOSS ELECTRIC (Ireland) Ltd.
Sandyford Industrial Estate, Leopardstown Road,
Foxrock, Dublin 18. Tel: 01-953301 Telex 24316 foss ei
In Northern Ireland Contact Des Nelson at Carrickfergus 67974

IHVN, September 1982 35
system which is economical to run and helps them get to the heart of their fuel bill problem.

All three packaged plans contain the present components in the sundial range with the addition of the Honeywell ST699 timer and junction box in each case.

Of particular interest and value to wholesalers and installers is the fact that the convenience this packaging is provided at no extra cost.

The components involved will therefore cost no more than if bought individually.

The three plans are suited to the following applications:

Timed Sundial C Plan
For new or existing installations having large gravity circulation pipes to the domestic hot water cylinder and small bore pumped circulation to both domestic hot water and heating circuits.

Timed Y Plan
For new installations having pumped small bore circulation to both domestic hot water and heating circuits.

Timed S Plan
A zoned plan for existing or new installations having small bore pumped circulation to both domestic hot water and heating circuits.

Foss Electric
In the past decade, the challenge of efficiently burning fuel gases of variable composition has received increasing attention as the cost of purchased fuel has escalated, the quantity and uniformity of supplies have become less reliable and greater efforts have been made to use by-product gas streams.

For optimum combustion efficiency, the flow of air to a burner must precisely match the amount of fuel delivered through the burner orifice. Changes in fuel-gas composition can change both the required ratio of air flow to fuel (air/fuel ratio) and the specific gravity of the fuel-gas which, in turn, determines its flow rate through the orifice. Measurements used to predict the air requirement for a variable-composition gas include specific gravity, complete compositional analysis, calorific value and a combination measurement called the Wobbe Index which indicates the heat release rate.

Until now, there has been no instrument available to measure directly the flow of air needed to burn the flow of gas delivered by a burner. The Thermox Cari Analyser makes this measurement.

In the steel industry, it is common practice to supplement coke oven gas with a blend of natural gas and air when the coke oven gas supply is insufficient. The Thermox Cari Analyser was developed in cooperation with an integrated steel company to provide a fast combustion-index measurement for coke oven gas/natural gas air mixtures that would also compensate for the variable amount of oxygen in the fuel. (The heat-measuring and specific gravity instruments are blind to oxygen already in the fuel gas.) For all fuels, it was found that the Cari Analyser was both faster and more accurate at predicting air requirements than Wobbe-type instruments.

For further information contact Foss Electric (Irl) Limited, Sandyford Industrial Estate, Foxrock, Dublin 18, Phone 953301.

New MiniTrims system trims small boiler fuel costs automatically.

Low cost, low profile
Now even the smallest packaged boilers from 5 Million British units can be automatically controlled for optimum fuel saving combustion, regardless of load fluctuation. The new Westinghouse MiniTrim is compact, low cost, and easy to fit to most existing boilers, thanks to the latest microprocessor technology.

Continuous LED readout
As well as providing a continuous digital readout of the combustion efficiency or oxygen levels in the fuel gases, the controller incorporates LED alarms for high flow O2, flame out, etc.

Easily programmable
An integral keyboard is used to head in the oxygen level set point and no further attention is required during normal day to day operation.

Zirconium probe
At the heart of the system is a zirconium sensor which sniffs out excess oxygen in the fuel gas stream and transmits the data instantly and continuously to the control unit.

Sole Sales Agents
BENTLEY INSTRUMENT CO. LTD.

DOI: 10.21427/D7V71R

September 1982
Pressure Gauges

Instrumentation

Seals, Accessories

WIKA
Mark Controls International

Using computer aided design, Mark Controls has developed the FlowSeal high performance butterfly valve. From the outset, Mark Controls established a goal to develop high performance butterfly valves that would be superior to existing designs.

Extensive analysis was conducted to identify the weaknesses in existing designs and to determine the feasibility of special features that would improve performance and service life.

Given the wide difference of component design among the manufacturers, Mark Controls chose to design its high performance butterfly valves using Finite Element Analysis. Using FEA technology, stress levels and deflection characteristics were determined, optimising the design of the critical components.

To verify the analysis, extensive performance tests of the computer design were conducted; the FEA programme was "98% accurate" the first time. Further confirmation was received through independent laboratory tests and subsequent installation of numerous valves in dynamic process application in a wide range of services. In each case, the FlowSeal HPBV out-performed valves previously used in the same application.

MK Electric

MK "Timeswitch" is the self explanatory name for a new range of products from MK Electric. MK can now offer the Timeswitch user a competitively priced range of compact timeswitches, giving a reliable and efficient means of energy control, and backed up with comprehensive sales and service support. The switches have a 16A resistive current capacity and are designed for use mainly with heating and lighting controls in industrial, commercial and office environments. However, the timeswitches are suitable for many other applications including simple industrial process control, air conditioning, ventilation, alarm systems, sprinkler and irrigation control, and the control of heating, water and feed in farms and greenhouses.

Important features of the MK Timeswitch range include the reliability and ease of installation of the products, the use of captive tappets and the compactness of the design, the manual override, flexibility of switching programme and the battery reserve of the high-accuracy quartz models.

The range is comprised of four models with a choice of a 24 hour or a week-long dial and standard synchronous or quartz stabilised time switching. All the units make use of captive tappets (as opposed to loose slider switch points or pins) and in this way a large number of switching periods is possible and the problems of lost pins or loose slider switch points are avoided. MK Timeswitches have a minimum switching period of 30 minutes on the 24 hour model and three hours on the seven day model.

All models are controlled by a readily accessible, manual override. When used for on/off switching this allows the single load to be permanently on, off or under timed control.

Alternatively, in the case of a double load, when the timeswitch is used for changeover switching, it allows selection of either load to be permanently on or it allows for the timed control of both loads.
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Published by ARROW@TU Dublin, 1982
WHITEGATE OIL — COUNTING THE COST

Don't say you hadn't been told! In our previous issues we alerted all readers of the H&V News as to the problems of the Dublin Gas Company. We also stated categorically that the management of the company could expect problems, particularly as Donal Kinsella and his associates had such a large shareholding. We anticipated the problem, but certainly couldn't have anticipated the request of Mr. Kinsella to remove the entire Board. At the time of writing the argument is still raging and it is not our intention at the present moment to comment on the matter any further. We will, however, come back to it, we will.

This month I want to turn your attention to the State takeover of the Whitegate Oil Refinery. In ways I suppose this owes its origin to the 1973 oil crisis when the world was left like the Smirnoff add — breathless — at the rapid increase in oil prices. This, of course, caused a major recession and Ireland of course being no exception.

However, I am also of the opinion that the problems Minister O'Malley with the major oil companies some time ago did not help. Whatever the reason, both the Coalition Government and the Fianna Fail Government have committed themselves to the purchase of the Whitegate Oil Refinery. Are they right? Is it a mistake? Should we have a refinery? Do we need it for security reasons? All of these have been the arguments.

The question we should first ask ourselves is why the Government is taking over a refinery. Well there are two reasons. One given is that of the need for security of oil supplies and the second is a political one. Let's take the second reason first.

The decision to go ahead with the takeover of the Oil Refinery was made by the Coalition Government during the transition period of having lost an election and about to turn over power to Fianna Fail. Cynics would say that the reason for keeping the refinery was to ensure the vote of the Workers Party in trying to retain power. Whatever the reason, it would appear that the decision was taken in spite of the fact that the reports given to them from three consultancy companies appear to be negative as to the takeover of the refinery. This is an assumption I am making because the reports have never been made available. These reports were the accountants report from Craig Gardner, an engineering report for Snapergetti and an economic and commercial report from Chemm Systems. Fianna Fail, in coming to power was faced with the same dilemma as the Coalition, that is, they wanted the Workers Party vote. Therefore, they continued ahead with the takeover of the refinery. This, in the main, is the political reason.

The second argument is one of security of supply. This is a difficult argument, because nobody can ever argue against security of supply, but there is always a danger that the public accept any project which relies on this argument. It has also been a feature of decision-making in Ireland that the State gets involved in large and costly commercial ventures without the public and maybe even the Dail having adequate opportunity to consider the alternatives. This is the reason that we have had such organisations as NET, Irish Steel and the Sugar Company having significant losses. Before arguing the pro's and con's with regard to security of supply of oil the important question to ask is — is the situation in the oil industry/market the same in 1982 as it was in 1973? The answer here has to be no. Since 1973 we have seen: — an excess of crude oil and finishing oil products on offer in a market characterised by sharp and continuing falls in consumption. In 1981 consumption for oil products in the EEC was down by 8.5%.

— As a result in the decline in demand for oil products there has been a progressive deterioration in the profitability of down-stream activities (refining and distribution) within the EEC.

— A switch from oil to coal as recommended to countries by the International Energy Agency. As a result there has been a decrease in the demand for oil.

— The coming on-stream of oil from the North Sea. Britain is now a net exporter of oil, whereas she was a large importer in 1973.

So, in any argument with regard

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<th>Ex-Whitegate ($/Tonnes)</th>
<th>Spot Price ($/Tonnes)</th>
<th>Difference between Ex-Whitegate and Spot</th>
<th>Production Ex-Whitegate (000's Tonnes)</th>
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<tbody>
<tr>
<td>Petrol</td>
<td>410</td>
<td>330</td>
<td>80</td>
<td>358</td>
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<tr>
<td>Gas Oil</td>
<td>350</td>
<td>287</td>
<td>33</td>
<td>418</td>
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<tr>
<td>Heavy Fuel</td>
<td>185</td>
<td>155</td>
<td>30</td>
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* Includes estimates of ESB draw-off
Loss (Include ESB) $64 million
Loss (excluding ESB) $40 million
to security of supply, it is important to remember that the 1982 situation is not the same as that as prevailed in 1973. Even still, it was decided to go ahead with Whitegate. The important thing then to consider is what are the economic arguments for going ahead. The answer is none. Table 1 shows the projected loss of Whitegate.

The main argument for security of supply is that if you have a problem of security it is usually a problem of short duration. This problem can be due to wars, political problems and then you have a problem in securing supply. In such a situation you have to behave in a non-business manner if you are to obtain supplies. The question is with regard to Whitegate, is it a short time problem? The answer would have to be no. Whitegate will be with us for at least seven to ten years and will bring in continual losses.

However, even ignoring the Whitegate decision, if you have a short term problem of supplies, whether oil or any other products, what options do you have? The first option is to ignore the problem, forget about it and take your medicine. This, indeed, is not much of an option.

The second option is to purchase products you think will be in short supply. The third one is to subsidise production in Ireland for these products. The first option, which is doing nothing, is really a Margaret Thatcher type approach, that is, let the market forces decide in dealing with the problem. If there is short supply, the price goes up. There is an economic argument to say that you will enjoy a higher standard of living if you do nothing and work on your own particular advantages, in economic jargon, comparative advantages. The second option, which is to stockpile products, in my opinion is a better option for the Whitegate operation. The Government's proposal in taking over Whitegate is likely to evolve an annual cost to the nation of £25 million to £50 million per annum. But part of this sum could be spent on the provision of extra storage of product for their crude oil or finished products like heavy fuel oil. Whitegate could be retained as the main storage terminal in Ireland. This would provide a real increase in security and would give more flexibility to the Irish National Petroleum Corporation in buying oil products at the most economic prices under normal and crisis conditions. The capital cost of 25 days extra storage would be about £60 million or no more than two years the estimated cost of running Whitegate. If one considers that Whitegate has an economic life of 10 years the number of days storage provided given the anticipated loss in Whitegate, could be anything up to 120 days. This would be one-third of our entire requirements per annum.

Option three, which is the one which the Government has pursued, involves a substitution of imports through subsidisation. This is not a good idea. A lot of our industries were started up on this basis, industries like the Sugar Company and NET were the result of subsidies for domestic production, but since then they have lost any advantage and a considerable amount of money. Given our economic conditions, it is an absurd solution to our problem.

Another argument is that we could say that we already have a reasonable security of supply by way of the purchasing of the Irish National Petroleum Corporation (INPC). So, do we need a refinery? Firstly, an explanation of the INPC. It was formed in 1978 with the intention to purchase crude oil on a Government to Government basis. The idea was to refine it abroad and then distribute it on the Irish market, mainly through the major oil companies and the independent oil companies. Unfortunately for the INPC, who purchase oil on a contract basis, as a result of the spot price continually declining the INPC has brought in considerable losses. The Electricity Supply Board, on occasions, make noises as to the effect that they are being forced to buy oil from the INPC at a higher price than they could but it on the Rotterdam spot market. Naturally, the INPC costs have to be passed on to the consumer, so it is Joe Citizen who has financed the losses of the INPC. However, the argument in favour of the INPC is that it has helped to obtain oil supplies with a greater degree of security, and that is a fact.

The problem is, what additional security is achieved by purchasing and operating Whitegate? A refinery purchase is first and foremost a hedge against movements in refining capacity. But there is a problem with regard to refining capacity. The European Economic Community states in its Commission document 82/360 that there is a surplus of refining capacity in the Community. Furthermore, the report states that virtually all major companies are reviewing their refinery operations with a view to reducing capacity and costs by taking out of service redundant units at large refineries and/or by closing refinery sites and supplying from elsewhere. Yet, we in Ireland are buying a refinery.

So, even though the Whitegate running costs are anticipated to be between £25 million and £50 million per annum, will it give us greater security? The answer again has to be no. The objection to these costs is that it is purchasing effectively nothing in the way of increased security. The only case that can be made is that the cost of running Whitegate would give a return where crude oil was freely available during a period when refining capacity could not be obtained. Such a situation has never arisen in the past, and given the refining situation throughout Europe, it is unlikely to arise in the future.

Therefore, the two decisions, which are that the INPC purchases crude from Saudi Arabia, does give you security of supply. The second one is that the INPC purchases a refinery, gives you no additional security and if it does, it is only in an extremely unlikely scenario. So, while you can conclude that the contribution of the INPC oil contracts to national security is negligible, you can only be certain that the contribution of owning and operating a Whitegate oil refinery with regard to security is zero.

Ireland is a small open economy, extensively involved in international trade, not big enough to be in a dominant position, either as a buyer or a seller. The decision in Whitegate's case will do nothing for the economy. It will cost industry about £20 million extra, farming about £6 million extra, and the householder about £13 million extra, mainly in the form of dearer petrol and electricity. It is a regrettable decision. It is all the more regrettable when the costs are so enormous, running between £25 million and £50 million per annum. Yet the savings of a freeze in the public sector with regard to their 5% increase is saving only £27 million. These are the scale of things.
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September 1982
NEW PRODUCTS

Ideal-Standard Enter the Kitchen Sink Market

With two ranges of luxury ceramic inset sinks — the Hostess and Module ranges — and a new Dualux sink mixer, Ideal-Standard, traditionally recognised for bathroom equipment, have entered the complementary kitchen market.

There are three models in the new Hostess range, distinguished by round-ended or circular bowls, and three models in the Module range which feature rectangular bowls, and a range of accessories — wire baskets and cutting boards — is also available.

The new sink mixer extends Ideal-Standard's high technology Dualux range into the kitchen.

The new sink units are made in a strong and dimensionally stable high-fired ceramic and finished in a hard and serviceable satin glaze. There is a choice of colours — Coffee, a warm blend of two dark browns, and Cream, an off-white shade.

NEW FAN COIL FROM WALKER

Walker Air Conditioning Limited have recently introduced their new range of direct expansion, in-space fan coils.

Designated the 42MW/MZ range, these units are easily coupled with Carlyle condensing units and are available in four sizes.

Cost saving features, extras on most competitive units, are standard on this new range. The preset thermal expansion valve accurately regulates refrigerant flow for optimum cooling efficiency over the entire range of operating conditions. It also ensures compatibility in matching a large variety of Carlyle condensing units. Carlyle compatible fittings cut installation costs by providing a fast, leak tight refrigerant connection to the outdoor condensing unit. Two corrosion-resistant drain pans allow for either horizontal or vertical mounting.

Each unit is also equipped with three speed switch with OFF fan and heater positions. A 24 volt control circuit permits convenient interlocking to the control circuit of the condensing unit.

Optional accessories include remote control packages for ceiling mounted application, a range of electric heaters with capacities ranging from 4000 to 7000 watts and a cabinet decorator kit.

The four units have nominal capacities of 3.08, 4.98, 6.44 and 9.08 kW.

New from WAC Chesterton

A cartridge mounted mechanical seal that can be installed and running in less time than it takes to pack a pump and adjust it has been introduced by WAC Chesterton, Dublin. The 123 Mechanical Seal eliminates the need for installation measurements and adjustments to control leakage.

The 123 Seal fits into standard cross-section stuffing boxes of vertically and horizontally split pumps without requiring the pumps to be dismantled. Because of its slotted integral gland, the product can be adapted to virtually all pump bolt circles.

Personnel with limited experience can quickly and easily install the 123 Seal because neither measurements nor adjustments are required. Start-up leakage is controlled automatically.

A unique tangential flushing arrangement in the 123 Seal converts the pump stuffing box into a centrifugal separator. When it is combined with the Seal's continuous self-cleaning capability, the 123 can avoid clogging. A built-in self-aligning capability, which Chesterton has patented, minimizes penetration by abrasive particles. This makes the 123 particularly effective in slurry applications.

Quenching on the atmosphere side of the Seal can be affected by an integral gland equipped with quench and drain ports and a safety throttle bushing. This feature enhances the sealing of crystallizing fluids in petrochemical, petroleum and other installations.

For further information, contact WAC Chesterton, 100 Slaney Road, Dublin Industrial Estate, Finglas Road, Dublin 11. Telephone: Dublin 729988. Telex: 25831.
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NEW PRODUCTS

Condensing Unit from Lennox

Many features, frequently only offered as options, are standard in the new Lennox HS17 condensing unit, claim the manufacturers. These include crankcase heaters which, for reduced energy usage, operate only when required, high-capacity driers, high and low pressure switches, coil and fan guards and solid-state timed-off controls. HS17 is a genuine 50 Hz five-ton condenser with a 'U'-shaped, wrap-around coil to attain maximum cooling capacity in the compact 820 x 870 x 1000mm cabinet. When matched with a Lennox CB3 fan-coil-filter unit, the HS17 is particularly suitable for applications requiring a high S/T ratio. While some manufacturers have switched to aluminium tubing, Lennox continues to use only proven, dependable copper tubing for their coils. Copper, they say, is easier to work with, more flexible, less brittle, and makes tighter joints more easily than aluminium. As with other Lennox condensing units, which range in capacity from 7-130 kW (2-37 tons), the new unit is shipped factory assembled, piped and wired, and test operated in the factory. An installer has only to connect refrigerant lines, charge the system, and make the necessary electrical connections for simple, speedy installation. Details from C&F Ltd.

NEW FINISH ON MYSON VALVE

Myson Domestic Products' pump isolating valves are now available in an attractive swarf blasted finish. Available in three sizes, 49, 50 and 52mm, each valve is individually tested screwed and flanged connections and sizes to suit all pump makes. The valves, which are manufactured in brass to BS2872 CZ122, have simple and fast shut-off and are easy to install.

Potterton Group Boiler Units

The Potterton Diplomat boilers are proving their efficiency in use in multiple group installations. For greater economy and ease of installation, designers are increasingly specifying the use of multiple groups of boilers in preference to one or two units each sufficient to meet the desired load. New Potterton have developed a series of readily interconnected boilers, complete with water header, interconnecting flow and return pipework, valves and pumps based on the highly successful Diplomat One. Each Diplomat boiler has a rating of 72kW, giving users an extremely flexible and economic subdivision of the total installation output. They are compact, easy to maintain, with all connections for water, gas and electricity conveniently situated at the rear. They are delivered fully assembled and tested, keeping installation costs to a minimum and allowing a more immediate 'start up' date.

The Potterton group boiler units can be installed in any combination of double and triple units to meet exact requirements, forming an efficient, flexible and, therefore, more economical system.

For further information contact:- John R. Taylor Ltd.

Hunter Gutter Connectors

Hunter Building Products Ltd. are now offering an extensive range of connectors that enable their Highflo 112mm half-round section gutter and Squareflo 114mm rectangular section gutter to connect to most existing cast iron, asbestos and other such traditional gutters.

Manufacturer in UPVC, the connectors are intended to facilitate maintenance work where only a portion of the existing gutter requires replacement. Accordingly, the connectors are designed to fit existing half-round or oggee-shaped gutters.

Full details of connection procedures is detailed in Hunter rainwater brochures available on request. Hunter products are available in Ireland through the following distributors: Ward & Goldstone (Ireland) Ltd., Bishopstown, Cork; Cork Plastics Ltd., Little Island, Cork; Northern Ireland: W. H. Mastrin Plastics Ltd., Mallusk, Co. Antrim.

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