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The Irish Plumbing and Heating Engineer, March 1969 (complete issue)

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plumbing
and
heating

et al.: The Irish Plumbing and Heating Engineer, March 1969 (complete iss

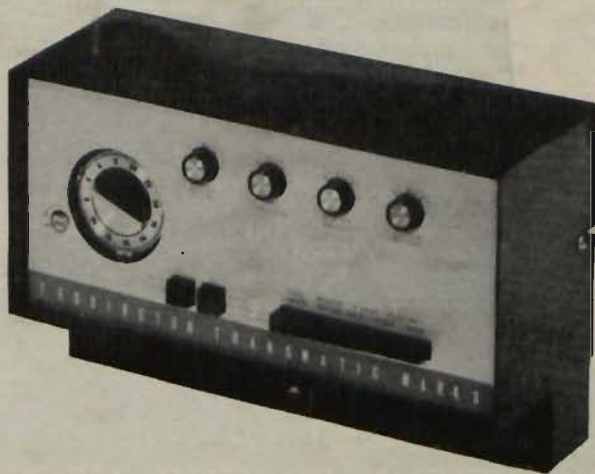
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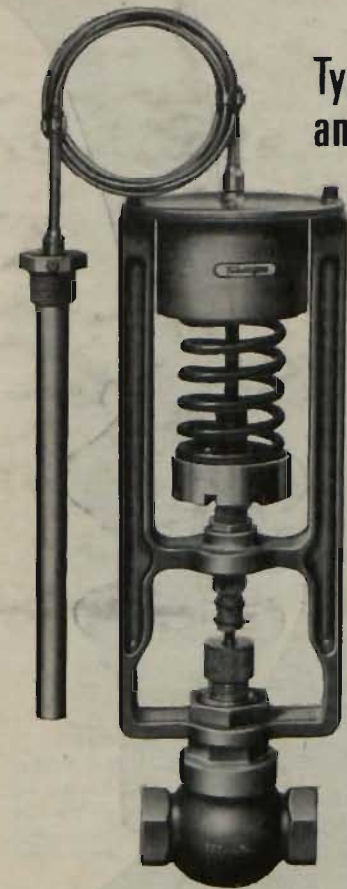
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MARCH, 1969. Vol. 8. No. 12

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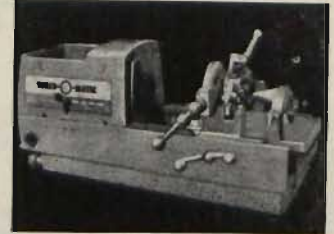
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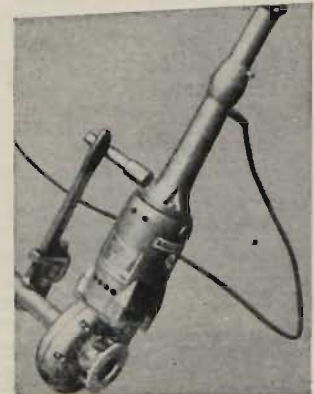
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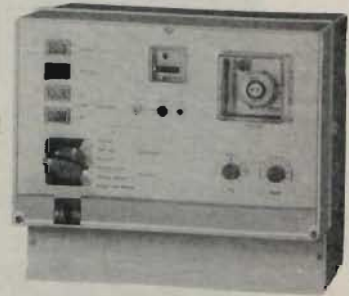
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● AT the Hamco Exhibition were, from left : Don F. Earley, Account Executive, Fogarty Advertising, Ltd.; Mr. J. C. Bigger, Hamco Enterprises Ltd.; Mrs. D. Dooley, National Rehabilitation Institute; Mrs. B. Sweeney, National Rehabilitation Institute, and Mr. Maher, Maher & O'Neill, Heating Engineers.

HAMCO HOLDS DUBLIN EXHIBITION

THE exhibition of Hamco's paraffin and diesel fired cookers, held at 3 Stephens Green, Dublin, during February, proved a very big success, attracting considerable attention and interest, both from the trade and from the general public.

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trade Topics

The exhibition was staged by Hamco Enterprises Ltd., 111 Pearse Street (a member of the Hammond Lane Group), under the auspices of the National Development Association, which specialises in the promotion of quality Irish goods.

Also involved in the promotion were Esso Ltd., and Maher and O'Neill, who advised visitors on installation costs.

The National Rehabilitation Institute took advantage of the occasion and of Hamco's hospitality to participate in the exhibition and present its case to visitors.

Among the exhibits were fully non-stop operational Hamcos and cut-away models.

HEATOVENT Ltd., the Crumlin Rd. (Dublin) Heating and Air Conditioning firm, are shortly to

**HEATOVENT
MOVING
SHORTLY** move to new premises in Harolds Cross, where they have acquired a 1½ acre site

and 20,000 square feet of covered space.

Continued expansion forces the move to Harolds Cross, where Heatovent expect to give a more comprehensive and better all-round service.

In their new premises, which will include an administrative block, showrooms and stores, the company will have a testing and repair room where servicing of all products handled by the firm can be undertaken. This is expected to be one of the finest features of the improved service that Heatovent will provide with the move.

In addition, the company will also improve its transport facilities with the purchase of new one-ton vans in addition to existing transport forces.

irish plumbing and heating engineer

THE IRISH PLUMBING AND HEATING ENGINEER is the only publication produced in Ireland catering exclusively for the heating, plumbing, ventilation and environmental industries with a guaranteed circulation covering the Republic of Ireland and Northern Ireland every month.

* * *

SPECIAL articles this month include a study of flues for domestic appliances.

THIS issue sees our Control of Domestic Heating Systems series go on to discuss applications.

SPECIAL review topics this month deal with — in the domestic section — roofing materials, including drains, water heads, gutters and outlets and — in the industrial section — calorifiers, heat exchangers, pressure vessels, tanks and cylinders.

ALSO in this issue — pages 35 and 36 — are check lists for the 1969 Directory of Manufacturers, Agents, Representatives & Distributors.

* * *

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MARCH ————— 1969
VOLUME 8 ————— No. 12

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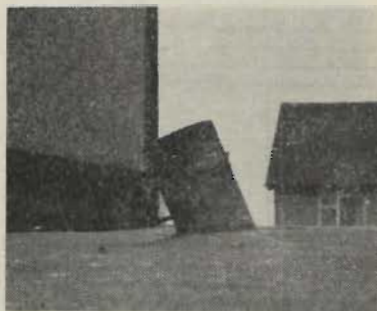
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NO human endeavour is ever likely to be perfect, and we are certainly a long way from perfection in our standards of domestic heating installation throughout many parts of Ireland. There are many reasons for this, including a deep need for improvement in training facilities and technical communication generally.

There is an unfortunate proliferation of agencies in the heating trade importing a bewildering variety of obscure, badly represented and badly serviced equipment. There is a general lack of working capital throughout the trade and, last but not least, a public that is price conscious to the point where installation standards have to give way to survival tactics. Factors like these are not susceptible to immediate control. However, there



● IN this article — by W. J. R. Couchman — our illustrations, gathered at random from Dublin estates, speak for themselves!

FLUES FOR DOMESTIC APPLIANCES

performance, fuel economy and reliability that could be produced by spending possibly £20 or £30 more on the average job, then many of our troubles would vanish almost overnight. An increasing number of domestic heating installers have, through bitter experience, become aware of the need for good standards in this respect.

Virtually all of the flue problems that arise are due to a lack of appreciation, somewhere along the line, of the simple basic rules that have always applied to flue design.

A flue is intended to ensure that a relatively constant natural draught is available so that combustion products may be drawn away from the appliance under controlled conditions. If this is to be achieved, then the following conditions must be satisfied:—

- (1) The flue must have sufficient height.
- (2) The flue must be warm enough, or, more accurately, it must have the correct thermal characteristics.
- (3) The flue must not offer too much frictional resistance.
- (4) The flue must be of the correct size.

- (5) The flue must, as far as possible be free from adverse wind influence.
- (6) The flue must be soundly and permanently constructed.
- (7) The flue must be safely constructed—this above all.

These rules are broken at one's peril!

Good flues are never cheap, but a bad flue can, in the long term, be so expensive, or even dangerous, that one wonders at the present permissive attitude on the part of the Nation's law-makers.

To take the listed points in order:—

Height: An updraught is created when a vertical column of flue gas, with its density reduced by an increased temperature, is opposed by a column of air at atmospheric temperature. The degree of updraught is essentially dependent on height, as well as on temperature difference. Other things being equal, more height means more updraught; therefore, height is essential. Manufacturers vary in their requirements—whatever



is one very common source of trouble that we could eliminate, or at least cease to perpetuate, at very short notice.

It is part of the writer's function to investigate and seek to rectify faults and complaints in domestic heating systems throughout the country. Upwards of 40% of all complaints investigated are primarily due to unsatisfactory flue conditions. In many other instances the flue condition is not as satisfactory as it should be.

If the trade and the public, particularly perhaps the latter, were fully aware of the hideous potential of a bad flue and of the difference in



they may be they should be followed—but as a general rule there should never be less than twelve feet of flue above an appliance; in some cases fifteen feet minimum may be more appropriate. If, of course, this minimum height leaves a flue well below a ridge, or subject to down-draught in any other way, then the flue will be unsatisfactory. A flue should always be taken up to a point where

Continued overleaf

Everything for the Heating and Plumbing Engineer

HEITON M^cFERRAN HAVE IT

surrounding objects cannot rise to turbulence and down-draught.

Temperature: As mentioned above, temperature difference is essential to satisfactory updraught. Due to the high efficiency of modern appliances, flue gases temperatures are allowed to go high enough to give good results on a properly constructed flue—but no higher! Therefore, the flue must have a low rate of heat loss to the outer air. Single thicknesses of metal or asbestos are not good enough for an outside flue, their use will always lead to trouble. Even a lined brick flue, if it is exposed on all four sides, may not be good enough. Cold flues give bad starting, unsatisfactory running and low updraught. They are also likely to cause trouble by condensing the water vapour that is formed when hydrogen (present in oil, gas and solid fuel) is burned. The condensed vapour tends to form corrosive compounds which, at the best, disfigure, and, at the worst, demolish, any flue that receives them.

Apart from the question of insulation, the thermal characteristics of a flue may be important in other respects. Modern appliances tend to be fully automatic—in other words on-off. A massive flue, which is slow to warm is wrong for such appliances. What is needed is a well insulated flue with the inner section, at least, of low mass such that it warms quickly when the appliance starts.

FLUES FOR DOMESTIC APPLIANCES

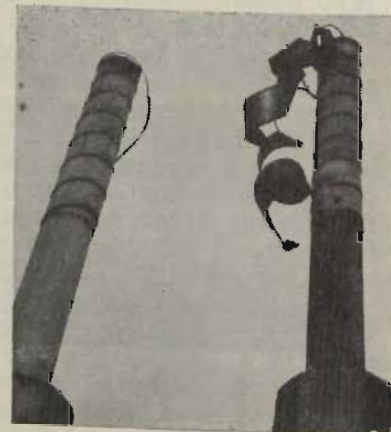
Building Services Engineering, Vol 8 [1968], Iss. 12, Art. 1

with a free cross-sectional area totalling not less than one and a half times to twice the cross-sectional area of the flue. If this ventilation is

• From previous page

Friction: The motive force associated with a satisfactory flue is of a fairly low order. Pending the advent of metrication updraught is still measured in hundredths of an inch water gauge and a satisfactory figure for many types of appliance might be 0.05 inches w.g., in other words a force that would move a column of water one-twentieth of an inch, only, out of balance. It follows that such a small amount of energy may soon be lost if the passage of the flue gas is impeded by square bends or internal projections. Flue gases tend to move vertically, so, therefore, should the flue that carries them.

Bends should be avoided if at all possible. Square bends or horizontal runs should never be used. The aim should be a smooth straight vertical duct. Bends close to an appliance are particularly objectionable. This has often been said before, but it bears repeating; a flue starts as well as stops at the outside wall. Therefore, an appliance must receive a constant and adequate supply of incoming fresh air. Ideally, there should be ventilation at high and at low level,

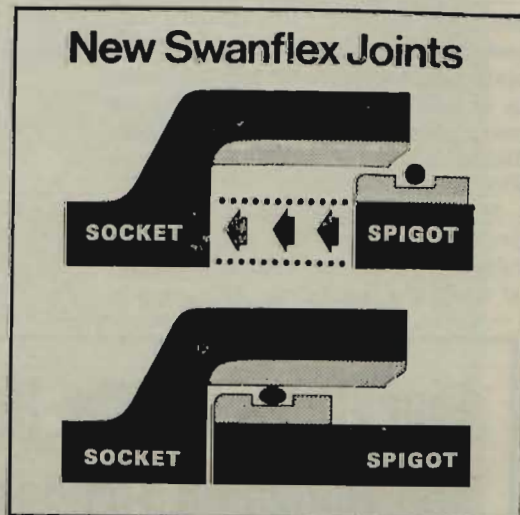
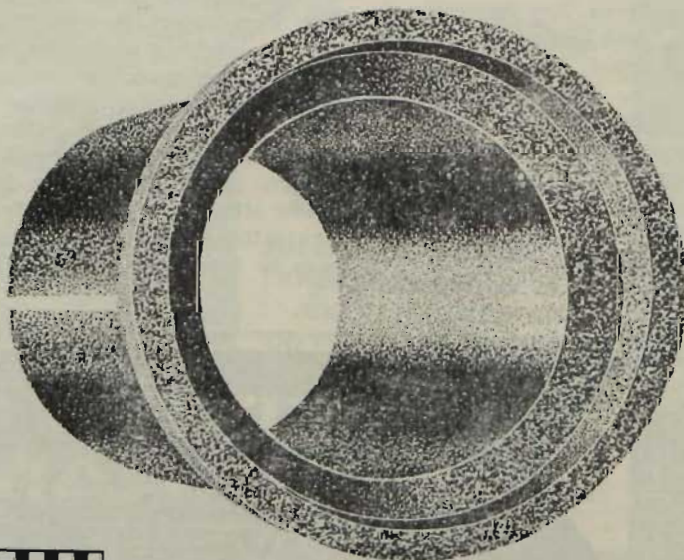


not present then the effect will be the same as a restriction in the flue—the appliance will not be able to work properly.

Size: There are various standard tables relating flue size to appliance output, but it is probably better to refer direct to a given manufacturer's requirements. Certainly, the standard nine-by-nine lined flue is large enough for the normal run of domestic appliances. There are occasions when it may be too large. A main flue that is one size larger than the appliance flue connection is generally satisfactory. Often with a straight, smooth piped flue the appliance flue size may be maintained throughout. It should

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Traditional jointing methods for clay pipes are troublesome, wasteful, time-consuming. The new Swanflex polyester joint overcomes all these difficulties. Precision-moulded around the spigot and inside the socket, the polyester incorporates a rubber 'O' ring which compresses to give a permanent leakproof seal ten times faster than traditional methods. There is no caulking, no waiting; just lubricate the joint and shove it home. Test and back-fill immediately. A minimum crew is required, unskilled and using no special machinery. Lay any time, even in wet weather, and at any depth. When subjected to a water pressure of 20 lb psi, a Swanflex joint will withstand up to 5° of angular movement in any direction, or up to 3/8" linear movement.



FLUES FOR DOMESTIC APPLIANCES

et al.: The Irish Plumbing and Heating Engineer, March 1969 (complete issue)

● From previous page

never, of course, be reduced. Large flues result in excessive temperature losses and unacceptably low flue gas velocity. The very large stone built flues that are often found in old buildings should always be lined if a new appliance is to be fitted.

Wind Influence: One seldom finds a stable condition in a flue. As a rough working rule, the "cold" draught reading is generally about half the figure that may be expected, under the same conditions, with an appliance in use. However, as the wind changes everything else is prone to change.

Quite often the influence of wind assists updraught by exerting an aspirating effect on the terminal. An excessive updraught can, of course, be dealt with by using a stabiliser which will open automatically to reduce the draught, closing again when the need passes. This sort of condition is not really a problem.

One's troubles start, however, when, due to the proximity of other buildings, trees, or even mountains, a moving air stream is deflected downwards against and into the flue terminal. It is sometimes possible to raise the flue terminal clear of the obstruction and it often pays to experiment with a temporary extension. As a rule, however, a cowl is the best answer. When one sees neighbouring roof-tops bristling with cowls trouble may generally be expected.

A cowl works by deflecting a downward moving airstream into an upward direction. If the moving airstream is near the vertical, as sometimes happens, then a special type of cowl is required; the "H" pot is a good example of this type. Serious trouble can occur when high pressure on one side of a house is relieved via the flue to the far side. A cowl cannot cure this condition — fortunately it is fairly rare — the only cure is to ensure both ends of the flue are in the same pressure zone.

Flue Construction : As a general rule the traditional nine by nine flue with a liner is good enough. If, however, it is badly exposed insulation should be introduced between the liner and the brickwork, provided this can be kept dry. If there is any risk of condensation high-alumina cement should be used for the liner joints. If socket joints are



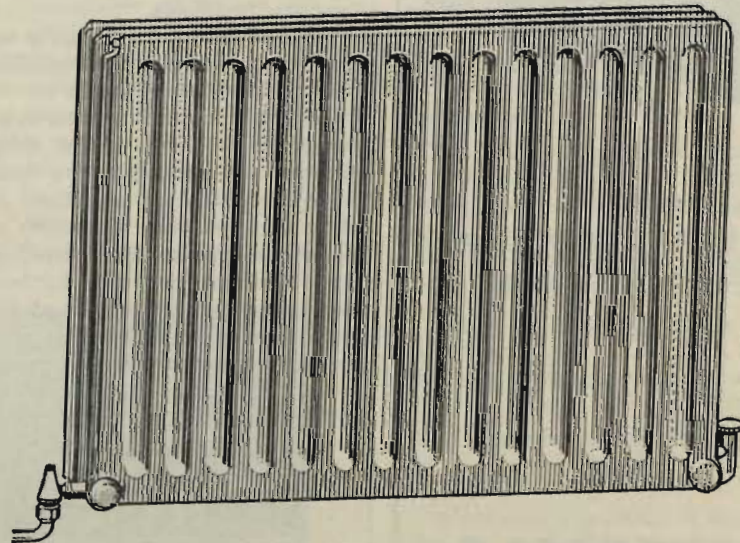
used, then the sockets should face upwards and if they are in the open, the sockets should be properly weathered.

If a pipe flue must be used, then it is good practice to use metal for the first few feet from the appliance. Single or

double thickness metal flues constructed from light galvanised steel are not durable enough or warm enough. There are a number of proprietary insulated pipe flues on the market; the best of these are very good indeed. The materials vary from a stainless steel—insulation aluminium construction to pre-cast light-weight concrete with asbestos liners and there are many variations on the theme. They represent good value for money since flues of this type seldom give trouble.

One cannot too often stress the need for really durable fixing materials; stays and anchorage points used with free-standing piped flues should have a non-ferrous finish and be properly maintained. Jointing materials must be suitable for the purpose and, where appropriate, properly and permanently weathered. Attention should be paid to the effects of expansion when, for example a piped flue enters a brick flue it should enter via a sleeve with an asbes-

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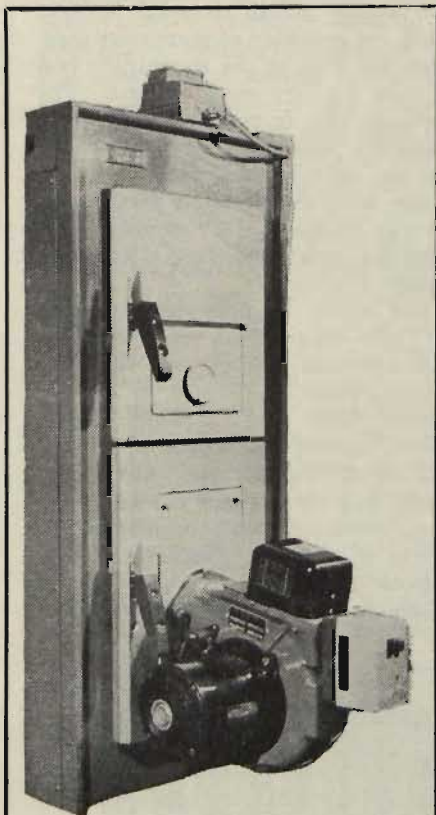
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● Mr. Albert Wilson (Honeywell) recently lectured to the Institute of Domestic Heating Engineers in Dublin on Control Systems for Domestic Heating. With Mr. Wilson at the lecture were Mr. W. J. R. Couchman (Irish Shell & BP Ltd.) and Mr. Gerry O'Malley (Irish Heating Centre Manager).

LECTURED TO IDHE



THE Parca 200 range of domestic boilers, designed to provide full central heating plus all domestic hot water requirements in houses with from three to five bedrooms, is fully described in an attractive 8-page colour brochure just produced by Parca Heating Products, Middlesex.

Detailed information is given on all the various models, which include combination units with built-in hot water battery or domestic hot water cylinder; models for oil or solid-fuel firing, or with two separate combustion chambers which allow the use of either oil or solid fuel without alteration; and a heating-only boiler. The versatility of these advanced boilers is further enhanced by the fact that models with built-in water storage are also provided



with tappings for an electric immersion heater.

Of particular interest are the combination central heating and hot water boilers. These are range rated at from 60,000 to 90,000 Btu/h. as standard, and at up to 120,000 Btu/h by the fitting of simple and inexpensive turbulators.

The brochure is available from Parca's Irish Representative, J. S. Lister Ltd., of Dublin.

FLUES FOR DOMESTIC APPLIANCES

● From previous page

ties rope joint between the flue pipe and the sleeve. Cleaning access is commonly overlooked. It is downright bad practice to erect a flue without a soot door.

Safety : It seems likely that within the next year or so new and more effective legislation will be available for our guidance in respect of safety standards in flue construction. Existing Building By-laws tend to be differently interpreted all over the country. In the last resort if a job is judged to be unsafe the local authority have the right and the duty to prevent the building being used until the work has been put right.

Quite obviously, a flue must be kept away from any combustible material and yet it is still not uncommon to find a piped asbestos flue taken straight through a timber floor and in physical

contact with the wood. Old flues can often be a source of danger. Eighteenth and nineteenth century builders were sometimes known to rest joist ends in chimney breasts in such a way that there was a distinct possibility of the joists burning. Old flues, too, can be a danger because of faulty construction leading to gas leaks or to a situation where two appliances may share a single flue, or may have inter-communicating flues. When working on old flues it is essential that a careful test should be carried out using smoke pellets. If in any doubt, the flue should be lined with a rigid or flexible liner.

Lest anyone should think that this article merely repeats a familiar story, which may be taken as read by all members of the trade, some photographs are appended. All of these installations are within five or six miles of the centre of Dublin. Most of them have been installed within the last three or four years. To the writer's knowledge this sort of work still goes in from time to time. It is high time we put our house in order.

**trade
Topics**

**WOBIG
RAD VALVE
LAUNCHED
IN DUBLIN
AND CORK**

SUCCESSFUL trade evenings were organised during March in both Dublin (Ormond Hotel) and Cork (Imperial) by Controlled Heating Services Ltd., of 66 Francis Street, Dublin, when the Wobig four way radiator mixing valve for one pipe heating systems,

which is distributed here by the Dublin firm, was the chief centre of demonstration and discussion.

The Managing Director of the Wobig Works in Germany, Mr. Alberto Wobig, was guest speaker at the functions, which attracted representative attendances in both centres.

The Wobig 4-way radiator mixing valve, used extensively in Germany, offers considerable advantages for installers, builders, architects, heating engineers and contractors.

Each radiator requires only one valve of this type and the pipe connections are made into the valve from radiator to radiator with a maximum output of 40,000 Btu/h on one circuit, using $\frac{3}{4}$ " x $\frac{1}{2}$ " x $\frac{1}{2}$ " size valves. Using $1\frac{1}{4}$ " x $\frac{1}{2}$ " x $\frac{1}{2}$ " 60,000 Btu/h can be obtained on one circuit.



● AT the Controlled Heating Services Ltd. demonstration at the Imperial Hotel, Cork, were, from left : Mr. Karl H. Theisen, Mr. Alberto Wobig, Mr. Claassen, of Controlled Heating Services, with Mr. Ted Scanneil and Mr. John O'Byrne, Central Heating Equipment Ltd., Cork.

The valve means less piping and insulation cost for the installer and for the architect it allows itself to be easily concealed behind skirting boards. It presents no system noise or short circuiting for the heating engineer and for the contractor it brings a 40 per cent. shorter pipe layout.

Controlled Heating Services are also agents for the Schallenberg range of high performance boilers for domestic and industrial applications. The range of boilers start from 72/80,000 Btu/h and go to 4,500,000 Btu/h. Larger boilers are also available on request.

The Francis Street concern also distributes glandless WILO Pumps which are maintenance free. WILO pumps are automatically lubricated by the water from the system and the design of the pump itself is very simple.

Controlled Heating Services are also closely concerned with Taifun, the German industrial firm which manufactures light oil burners, and distributes their products here. Among the most interesting of their products is the Taifun fully automatic oilburner Type TII.

It has also been reported that Taifun plan to establish an assembly plant in Dublin. The plans — as yet at a preliminary stage — are being conducted by Controlled Heating Services chief, Karl H. Theisen.

Controlled Heating Services, in offering the trade a comprehensive service also distribute here Fil'trol diaphragm type expansion tank with automatic system fill valve and the extensive range of R+S Contro's.



● WOBIG mixing valve explained — the Ormond Hotel reception being addressed by Mr. Alberto Wobig (left) with Mr. Karl H. Theisen.

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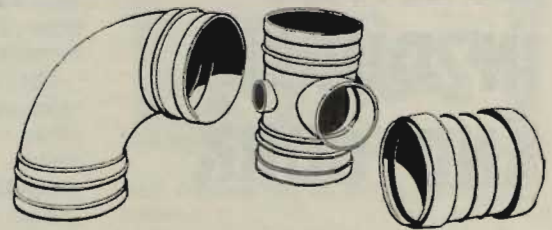
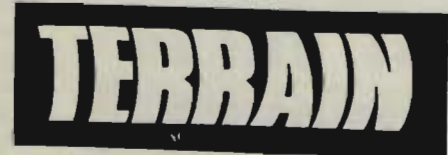
you can collect your TERRAIN PVC systems from Unidare on your way to the site.

And you'll probably meet some of your friends in the trade there!

The early opening of the trade counter at Unidare enables you to get the materials you need to get on with the job without delay. We're always pretty busy, even at 8.31 a.m.—not surprising when we sell such products as 'Terrain'!

After the success of 'TERRAIN' Rainwater and Soil and Waste Systems, in such projects as the New Dail Eireann buildings and Ballymun, architects and builders have a very high opinion of 'Terrain'. And rightly so. It is the most comprehensive system of PVC fittings available today. The 'Terrain' Rainwater system has been specially designed to cope with the problems a builder is most likely to come across in roof drainage. It is a highly efficient twelve unit system of roof drainage, with plain ended pipe and true half round gutter. The gauge of pipe and gutter ensures a rigid, stable and durable system.

The 'Terrain' Soil and Waste system incorporates simple adhesive plus reliable Expansion Joints which slip together in moments, on the site. Prefabricated stacks can be obtained, thus reducing 'on site' work to a minimum. This is supported by an advisory service through a Technical Department which will interpret standard sanitation schemes in 'Terrain' PVC Soil and Waste. With 'Terrain' Rainwater and Soil and Waste systems the Architect and Builder can be assured of a constant high standard and immediate supplies.



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Thos Dockrell Sons & Co. Ltd., Sth. Great Georges Street, Dublin 2. Phone 776871.

SPECIAL REVIEW

THIS MONTH

Roofing materials, incl. drains
water heads, gutters & outlets

THE mythical man-in-the-street, if there is such a person, would probably say if he was asked that a roofing material needs to be water-proof and would leave it at that. The list of essential features is, in fact quite long and there are also features which, while not essential are certainly highly desirable.

If one pays enough, one can get the whole package, often by paying, considerably less than the maximum, one can find a material which is absolutely right for a particular application although unsuitable for many others.

Of course a roofing material must be waterproof. It must also be fire-proof, or at least fire resistant. It must be easy to lay and to maintain. For most applications it needs to have a good appearance and good thermal characteristics. It usually needs to have good inherent strength and to tie in with present-day construction techniques. The list could be extended, there is for example the question of availability and ease of replacement, of which the best possible example is a thatch or sod roof.

These roofs, of course, also had the advantage of low cost and, in their day, would have held a logical place in this sort of discussion and one that could be defended in several respects including those of appearance and thermal characteristics. (There is nothing warmer in winter or cooler in summer than a good thatch roof).

Where houses are concerned, the standard material nowadays seems to be the concrete tile. This has most of the required advantages except light weight and good thermal characteristics and these features do not pose any insuperable problems. Most of the developments that are taking place at the present time in roofing are in the fields of rain water fittings and roofs for larger buildings

PLASTICS ARE VERY MUCH TO THE FORE

including industrial buildings.

As one might expect, plastics are very much to the fore here, one may reasonably include asbestos-cement in this definition since, strictly speaking, it is a plastics material. A great deal of development has taken place with rainwater goods, particularly in extending existing ranges. Modern materials have very definite advantages over the traditional cast iron, both in handling and in maintenance.

Asbestos-cement, in the form of corrugated sheets, has been used as a roofing material for the past forty years or more. There is now a

noticeable tendency for transparent or semi-transparent plastics sheeting, of various types to be bonded into an asbestos roof, serving as roof glazing. Indeed, prices are so competitive for this type of material that its use is by no means confined to the provision of roof lights and some very large roofs have been installed complete.

Purpose-made plastics roof lights or lantern lights are also being fairly widely used, their maintenance is virtually nil and there are, of course, no weathering problems.

The industry as a whole is faced with the problems associated with metrication, these are already with us, with the complete change-over due in the early nineteen-seventies. One thing is for sure, the weather will not improve in the meantime and Irish roofs in particular, will have their fair share of rain to contend with.



In this equipment review we take a look at new developments in the fields covered by this month's special review. (All claims made are those of the manufacturer).

● A familiar sight — Terrain system in use on a Dublin estate.

to the trade has proved a tremendous success.

The centre, opened 18 months ago, has made the Terrain system available to the whole of the trade.

The use of P.V.C. as a building material has caused something of a revolution in drainage techniques and has proved to be one of the most

Continued overleaf

Everything for the Heating and Plumbing Engineer

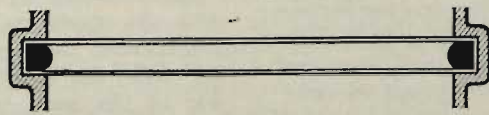
HEITON M^cFERRAN HAVE IT

these 3

Ruberoid precision plastic plumbing systems

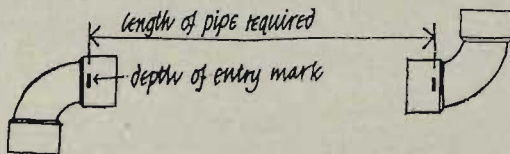
soil

4-inch system in pvc with a highly effective seal of neoprene with a D-ring profile which fits snugly into a moulded socket groove. All sockets on pipes and fittings are injection moulded and will not distort under normal working temperatures.



waste

ABS plastic which withstands up to 95°C. System is in 1 1/4 in., 1 1/2 in. and 2 in. bores. Depth of entry marks ensure speed and accuracy in determining pipe assemblies. Readily connects to Soil System.



rainwater

True 4-inch half round guttering with a flow capacity as high as 36.4 gallons per minute. Simple silt bridge completely eliminates leakage at gutter joints yet allows normal expansion and contraction.



Ruberoid

Full details from
THE RUBEROID COMPANY LTD.,
 110, VV, COMMONWEALTH HOUSE, 1 NEW OXFORD ST., LONDON WC1

SPECIAL REVIEW

● From previous page

significant developments in both the plastics and building industries.

The Terrain rainwater system employs a 4" half round gutter with a flow capacity of 11 gallons per minute when laid level and 15 1/2 g.p.m. when laid to a fall of 1" in 50 feet. The gutter outlet, together with the downpipe, is adequate to accommodate the full capacity of the gutters flowing in from each side, i.e. approximately 31 gallons per minute. Thus with sloping gutters, 1,200 square feet of roof may be drained by straight runs flowing to one centre outlet.

While specific details are not yet known, it is understood that Unidare and Terrain will have an announcement of an important nature to make on rainwater drainage products in the next few months.

★ ★ ★
BRODERICK Insulated Copper Roofing—available here from Thomas Dockrell Sons and Co. Ltd.—is a system comprising prefabricated roofing panels faced with copper by a patented method, with projecting flanges at sides and ends for site jointing.

It is normally supported on a light timber grid usually involving softwood rafters, either trussed or fixed over or between purlins. Certain other constructions—various boarded, slab or cast roof decks—can be used. For most softwood constructions, design supply and erection is available if required.

Other prefabricated Broderick systems utilising colour—plastic-coated aluminium and roofing systems providing optimum sized self-supporting pre-weathered panels are also available.

It is also possible to obtain fully detailed lay-out and working drawings for the materials and their supporting frameworks for the use of the architect, builder and their site representatives. Those are based on the architect's working drawings and will be submitted for his approval before being generally distributed.

Broderick systems also include the supply of all flashings, fastenings and any other accessories required for the erection of the work and, when required, the trussed rafters, studding or other supported timber framework.

★ ★ ★
 A NEW RANGE of Unilux dome-lights—known as the "Dominaire range"—has been launched by Cape Universal Building Products Limited.

"Dominaire" domelights have a light transmission value of over 85 per cent in both standard and fire resistant grades. The upstands and ventilation louvres are manufactured from white opaque Unilux to provide good light reflectivity. The products are available throughout Ireland.

SPECIAL REVIEW

The Irish Plumbing and Heating Engineer, March 1969 (complete issue)

● From previous page

A NEW P.V.C. corrugated roof sheeting material — Osmagaze — has been launched by Osma Plastics Ltd., for whom Victor H. Campbell of 11 University Road, Belfast, is Irish distributor.

Because Osmagaze is being used mainly externally, special attention has been paid to its weathering qualities.

Osmagaze is sold through the company's newly formed Building Division. It is available in three standard profiles: 3-inch and 6-inch standard to suit asbestos profiles and 3/3-inch to suit corrugated iron or aluminium profiles; each in a complete range of lengths.

★ ★ ★

CELANESE Building Components Limited, the Courtauld's Group subsidiary, have announced the immediate availability of a U.P.V.C. 6" Sealed Rainwater System.

This new system, the fifth in the 'Series Ten' Rainwater Range, utilizes components from the extensive 6" Soil System announced earlier this year.

C.B.C. also market 1 1/2" and 1 1/4" polypropylene waste systems, a 4" soil system, complementary venting systems and a 3" overflow system in P.V.C. Also available from C.B.C. are 'Larkwood' header tanks, cold water cisterns, B.C.L. polythene film LD.20 and LD20-S polythene damp courses.

Heiton McFerran, Pearse Street, is Irish distributor for Celanese.

★ ★ ★

A VERY wide range of products is available from Asbestos Cement Ltd, whose rainwater goods, flue pipes and soil pipes accessories have made a big impact on the market.

Enquiries are supplied direct by Asbestos Cement Ltd., whose offices are at 19, Pembroke St., Dublin.

Modern trends for beauty and durability are showing more than ever the advantages obtained by using asbestos cement. The combination of two outstanding durable materials, asbestos fibre and cement, has given a product exceptionally resistant to normally destructive agencies and which is at the same time strong, light and fire resistant.

Recent developments in paints and undercoats have enabled asbestos cement goods to be satisfactorily painted.

The product range, as stated, is extensive. Rainwater pipes are manufactured in 2 1/2", 3", 4" and 6" diameters. The pipes are supplied in natural grey and black dipped bitumen.

★ ★ ★

THE ROOF is one of the four main escape routes of heat in the average three-bedroomed semi-detached home, accounting for 25 per cent of total heat loss.

Weatherglaze—one of the leaders in the insulation field—are designing means and products calculated to cut this loss. It is possible to reduce the



● Series Ten P.V.C. stop and outlets incorporating multi-vane seals and hidden screw fixing hole.

rate of heat loss, sometimes by as much as 40 or 50 per cent, and that is what the Weatherglaze group sets out to do.

Roof heat loss is caused by attic draughts which cool the warm upper surface of thin ceilings.

Prevention is by laying down 2 inches of glass fibre over the entire

attic floor which prevents the movement of air. All pipes in the attic are fully lagged and water tanks encased in expanded polystyrene, for the attic temperature drops dramatically as soon as the house warmth is prevented from escaping.

Weatherglaze — who have their *Continued overleaf*



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Special Review

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★ ★ ★
WAVIN Pipes Ltd., Balbriggan, manufacture their Wavinrain PVC rainwater system with the profiled gutter from un'asticised PVC which is accepted as a particularly durable material.

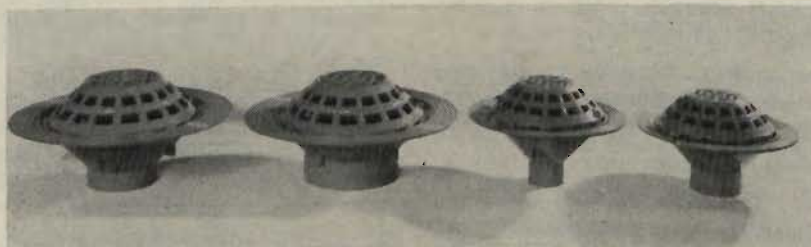
It is eminently suitable for roof drainage and once erected it does not need to be painted.

The Wavinrain gutter is made specially strong to ensure rigidity at all times. It is safe even to lean a ladder against it and even the strongest gale-force wind will not dislodge it. This property, which is exclusive to the Wavinrain System, is due to the patented lip or profile running the whole length of the gutter. The profile is such that the support bracket and gutter are firm'y interlocked.

★ ★ ★
D. ANDERSON and Son Ltd., Ealing, London, whose Northern Ireland office is at 143, York Street, Belfast, are manufacturers of a wide range of roofing felts and damp proof courses, which are available here through builders providers.

Most major organisations here stock most of their products

In recent years, Andersons have specialised in roofing component products, such as Dalite rooflights, rainwater outlets, pipeflash collars, wallflash and aluminium and glass



● A selection of Osma outlets

reinforced polyester roof trims.

Of particular interest to the heating and plumbing trades are the ranges of rainwater outlets and pipe-flash colours. Rainwater outlets are made of a material known as glass reinforced polyester resin (G.P.R.) and, therefore, are not subject to damage by extremes of heat.

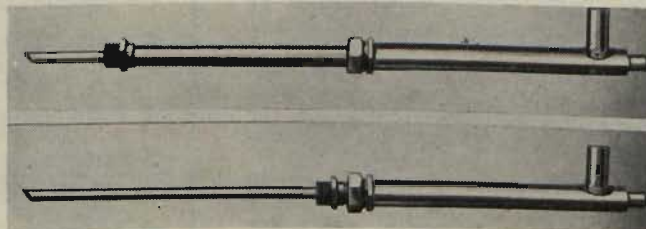
★ ★ ★
THE SERIES TEN polyvinyl chloride rainwater goods of British Celanese Ltd., of London are distri-

buted in the Republic by Heiton McFerran Ltd., while representatives in Northern Ireland are Gordon Bennett and Co. Ltd., and W. D. Henderson.

In producing the Series Ten range of rainwater goods every likely problem of adverse conditions were anticipated and satisfactorily overcome.

The Series Ten is undoubtedly thus one of the most advanced range in its field.

● The Barrimatic Connector—IPHE last month — which can save up to 2 hours in the installation of solid fuel room heaters. Distributed by Kenneth M. Reynolds (23 Herbert Place, Dublin 2) enables pipe-work to heater connections to be made in minutes.



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ALL SET FOR EXHIBITION

IRELAND'S shop window on the heating, ventilating and air conditioning industry opens in Belfast next week with the second annual Heating and Ventilating Exhibition. It will run from April 1 to 4 in the Trade Centre of the Northern Ireland Chamber of Commerce and Industries, Great Victoria Street.

More than fifteen exhibitors, representing some of the leading firms in Ireland and Britain, will be showing a range of the products and services which are playing an increasingly important role in the economic well being of industry.

The Exhibition will be supported by a series of evening lectures and film shows highlighting industrial heating and underlining recent progress within the industry as a whole.

The success of last year's "Pilot" Exhibition augurs well for this year's participants. A number of previous exhibitors report that as a direct result of the 1968 venture they have an increase



● Mr. L. Maple (Babcock & Wilcox Ltd.), Chairman of the Organising Committee of Heating & Ventilating Exhibition 1969, with Mr. W. Caughey, Chamber of Commerce Exhibition Officer, and Mr. Eric McBride (Institute of Fuel).

on order intake approaching 100%.

The Exhibition provides a unique opportunity for Architects, Builders and Engineering Consultants to see at first glance the latest developments in the field of Heating, Ventilating and Air Conditioning Equipment. So much so that a number of overseas exporters are expected in Belfast to view the exhibits.

The "1969 Heating and Ventilating Exhibition" is organised by the Chamber of Commerce and Industries in conjunction with the committee, representative of the industry, under the chairmanship of Mr. Leonard Maple. It will be opened by the Northern Ireland Minister of Commerce, Mr. Roy Bradford, M.P.

Says Mr. Maple: "This provides a rare opportunity for manufacturers and

the people who use our products to connect together in the right environment. Our industry and techniques are changing so fast that we welcome the chance to let our customers see up-to-the-minute developments at first hand."

The exhibitors, who will include The Irish Plumbing and Heating Engineer, comprise: Belfast Corporation Gas Department; Babcock and Wilcox; Air Conditioning and Engineering (Northern Ireland) Ltd.; Clarence Engineering Co.; The National Coal Board; Isaac C. Reid; John Doyle & Co. Ltd.; Luke, Martyn and Co. Ltd.; McMullans Ltd.; J. Hamilton and Co.; Alfred Allen (Maxeta) Ltd.; Runtalrad Ltd.; Kosangas (Northern Ireland) Ltd.; Ulster Merchant Finance Ltd., and Structane Ltd.

Northern Ireland monthly review

MARCH 1969

B.S.A. Hartford Heating Limited, Cockfosters, Herts, have announced startling reductions in the trade price structure of their Opiomatic Compact 5 and 10 circulating pump range. The reductions apply in Ireland.

OPIOMATIC PRICES DOWN

As a result of these price reductions, the Opiomatic Compact 5 is now claimed to be by far the lowest priced circulating pump on the British central heating market.

A spokesman for the Company states that "this action has been taken in view of the highly competitive state of the central heating market. We are confident that these incentive price reductions will allow for greater profit margins to be made by trade customers in general."

Following the announcement, B.S.A. Hartford have decided to terminate their published installer rebate scheme at the end of the first rebate period, i.e. March 31st, 1969, in favour of the new low price.



● Members of the Organising Committee of the Heating and Ventilating Exhibition, 1969.

WITH their latest gas-fired ducted warm air central heating unit, Radiation Central Heating Ltd.

'PERSONAL CONTACT' CONTROL

are able to offer a system which not only offers efficiency and economy, but also dispenses with the need for a separate water heater while providing heating which is really under the direct control of the user.

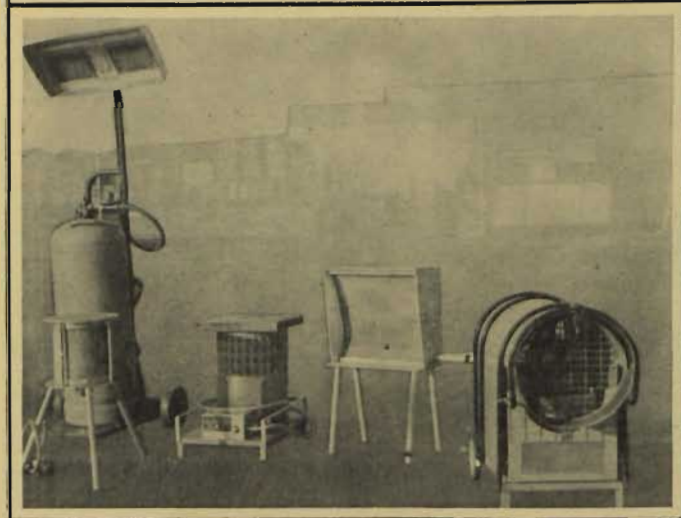
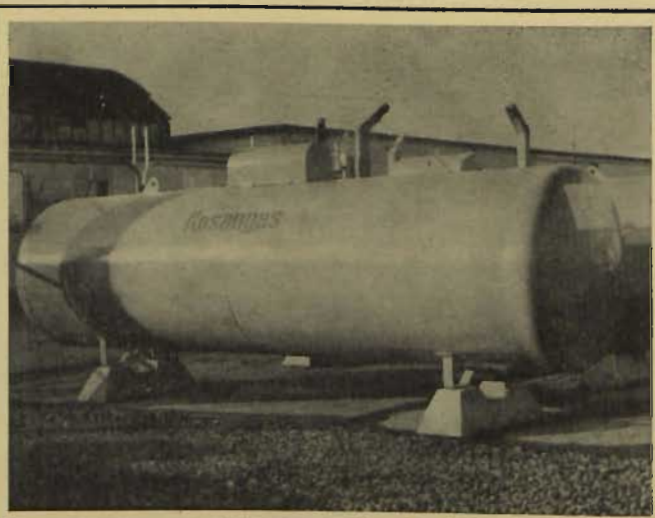
With an output of 30,000 Btu/h. this new appliance, the Ductair 30, is designed for installation in two or three bedroomed houses, flats or bungalows with a total floor area of up to 1,300 square feet.

The Ductair 30 incorporates a device new to warm air appliances, known as a modulating control, which although pioneered by Radiation Central Heating Limited, has previously been available on their Heatmaster small bore central heating boilers.

The modulating control enables the Ductair unit to automatically turn the gas burning rate down when the outlets in some of the rooms are closed. This control responds to the temperature of the air returned to it from the room, and adjusts the heater output subsequently. As fewer outlets are open, less air passes through the ducts; this means less gas has to be burnt.

THE Stainless Steel Development Association has issued a Progress Report concerning the experience gained in the use of thin-wall stainless tube and describing the developments which have occurred since 1966 when the Association's booklet "Stainless Steel for Domestic Water Services" was first published. Copies of the Report are available, free of charge, from the Association at 7 Old Park Lane, London W.1.

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Kosangas (Northern Ireland) Limited, 7 Fountain Street, Belfast, BT1 5EF. Telephone 43221

Northern NOTES

FORDHAM INTRODUCE FLUSH PANELS

At a reception and exhibition held at the Building Centre of Northern Ireland, Belfast, this month, Fordham Pressings Limited introduced to Northern Ireland Architects, Builders and Merchants, their new Flush Panel.

This flushing unit is distinguished by its extremely slim projection of only 4½", and provides the modern Architect and Builder with a flushing unit for contemporary bathrooms. As well as its slim projection, the appearance of the Flush Panel is enhanced by the patented Fordham 'Presto' top press operation and, as the unit is fitted with bottom inlet and overflow there are no unsightly projections to spoil the smooth panel effect achieved.

● Attending the reception and exhibition of the Fordham Flush Panel at the Building Centre, Belfast, were, from left: Mr. C. Myatt, Managing Director, Fordham Pressings Ltd., Wolverhampton; Mr. George Hughes, Director, Stevenson & Turner Ltd., Belfast, and Mr. Victor Stephens, McLaughlin & Blair Ltd., Belfast. RIGHT — Mr. F. Hughes, Joint Managing Director, Stevenson & Turner Ltd., Belfast; Mr. J. G. Linton, Fordham Northern Ireland Agent, and Mr. Raymond Jackson, McLaughlin & Blair, Belfast.

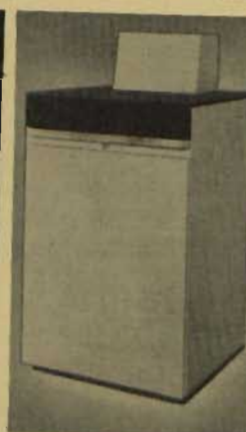
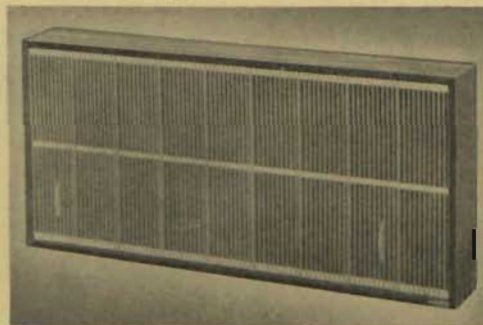
The internal parts of the Flush Panel are manufactured from high quality materials and can be relied upon to operate in any hardness of water. The Flush Panel has also been

Continued overleaf



DOMESTIC HEATING ?

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● Illustration showing how the Fordham Flush Panel can be used for converting old high-level cisterns to low-level without moving the existing soil pipe.

FORDHAM

● From previous page found extremely useful for converting old high level cisterns to a modern low level suite. By using the Flush Panel this can often be done without moving the existing pipe.

The Flush Panel has been selected by the Council of Industrial Design for the Design Centre, London, and has also been approved by the British Waterworks Association.

The Managing Director of Fordham Pressings, Mr. C. Myatt, attended the reception as well as Fordham's resident representative in Northern Ireland, Mr. J. G. Linton, 8, Corporation Street, Belfast.

APPOINTED MANAGER

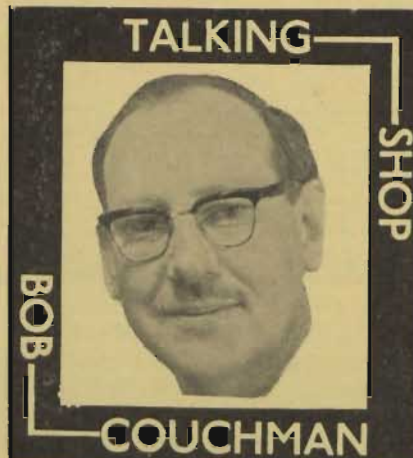
BARRY MacNab has been appointed manager of Frenger Ceilings Ltd., 65 Balfour Avenue, Ormeau Rd., Belfast 7. He succeeds Fred Dobie, who, after six years in Ireland, is moving to Glasgow as general manager of William Beardmore. Mr. MacNab, who was previously Technical Manager of Frenger Ceilings in Manchester, will be assisted by Mr. Derek Sheriff and Mr. Joe Sheridan.

CELANESE Building Components Limited, a member of the Courtaulds Group, announce that their new leaflet CBC.84, giving full information about the 'Series Ten' ball valve, is now available.

A PROBLEM AND ITS CURE

I FIND that an increasing number of boilers are coming on the market these days provided with only two connections, i.e. one flow and one return. These tie in with continental practice where the thermo-syphon circulation to a storage cylinder, as we know it, is a rarity.

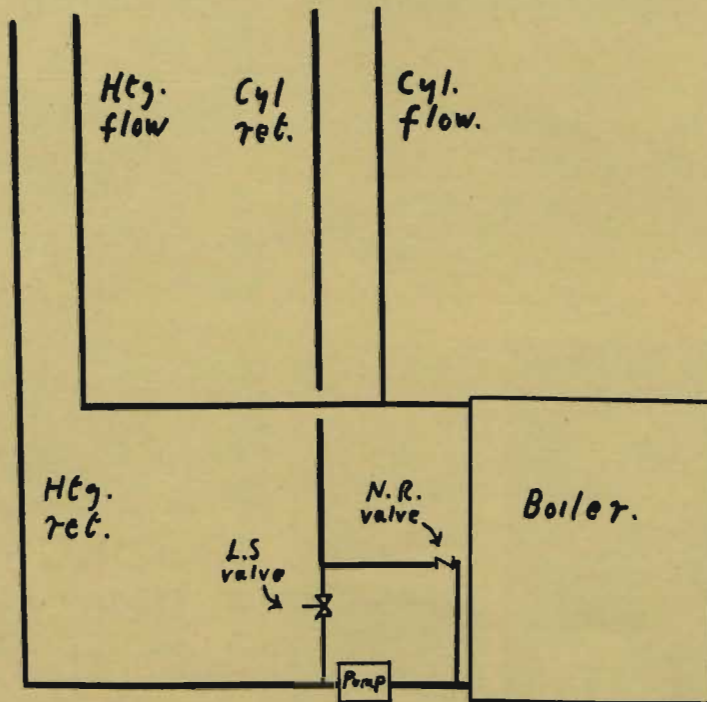
However, such an arrangement can give rise to some rather awkward problems when one is trying, with the same pair of tappings, to achieve a thermo-syphon circulation to the cylinder and a forced circulation to the radiators. If one does the wrong thing, the chances are that, either the thermo-syphon circulation will short-circuit the heating pipe work, or that the thermo-syphon circulation will come under the influence of the pump to such an extent that, with the pump running, circulation to the cylinder is either stopped or reversed. There is a cure to this particular problem, which I sketch below, because one drawing is usually



worth an awful lot of words.

This simple lay-out will cope with either of two situations. Let the first situation be that the pump is stopped, either because it is summer time or because it has been stopped by a room thermostat or programme. Under these circumstances the thermo-syphon circulation will take place in the normal manner, moving through the open non-return valve. Fair enough. Next we get the situation when the pump is running. The small, usually 1/2-inch, connection from the thermo-syphon return to the suction side of the pump then comes into play. Note that there is a lock shield valve shown to ensure that the system can be properly balanced. The non-return valve also comes into

Continued page twenty





Did the Babylonians only hang their gardens ?

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under in those days were enough
to drive anyone up the wall. No Matthew Hall around
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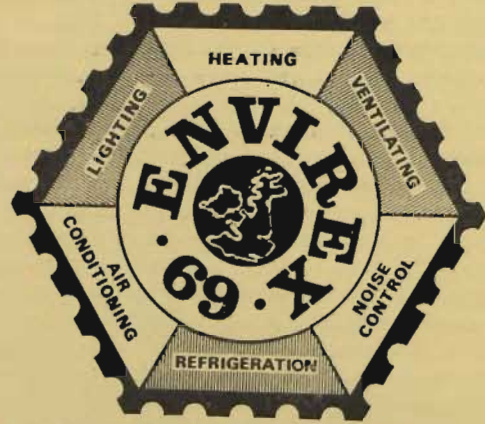
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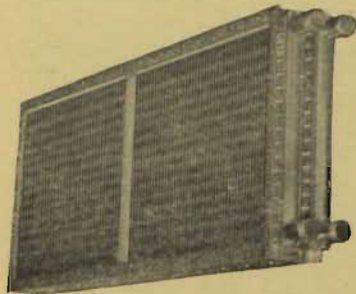
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industrial heating & ventilating

IN IRELAND



Trade Topics

IRCO of 180 Pearse Street, Dublin 1, have recently introduced a new burner

A NEW BURNER FROM IRCO

which has been very well received by the Trade. It is a high-efficiency type burner suited for use with 35 secs fuel and made for the domestic as well as small industrial boilers. The range is highly adaptable and can be made to vary between 60,000 and 360,000 Btu/h. This variation is achieved by, firstly, nozzle size and secondly by changing the stainless steel combustion head. This arrangement, of course, is immensely attractive to the installer since it means that the greater part of his installations would all have the same burner.

It simplifies not only stocking of spare parts, but also makes life easier for the man who does the servicing.

Another recently introduced product by the IRCO Company is the sealed expansion tank, which is also enjoying remarkable success with contractors who find they can save—in some cases—up to two days labour by using this system. The actual components cost approximately as much as the conventional small expansion tank together with its associated fittings and pipework, so that the nett gain amounts to the labour saved.

These units are in stock for the smallest to the largest installations and are very competitively priced.



KELVIN Hall, Glasgow, is the venue for Britain's first-ever Environmental Engineering Exhibition

ALL SET FOR ENVIREX — ENVIREX — from April 22 to 26 this year.

The exhibition — which is organised by Lintex Ltd., and sponsored by a leading trade journal, will incorporate heating, ventilating, air conditioning, lighting and sound control in the biggest U.K. display of its kind ever held outside London.

For the first time, engineers, architects, designers and contractors in Scotland and the North of England will be able to see all aspects of environmental engineering grouped together within easy travelling distance of their offices.

ENVIREX, however, is more than merely a Scottish heating and air conditioning exhibition. It is the first show in the U.K., and probably in the world, to be devoted to the concept of total environmental engineering. With today's commercial and industrial world demanding far higher

CLYDE TOAST THE 10,000th

THE major oil companies were represented at a reception given at the New Dolphin Inn by Clyde Fuel Systems (Ireland) Ltd. to celebrate the ten thousand Clyde burner installed in the Republic of Ireland.

Pictured above are — Mr. Oliver O'Kane, Esso; Mr. D. P. Gallivan, Texaco; Mr. Gerry O'Malley, Manager of the Irish Heating Centre; and Mr. Michael Higgins, Irish Shell & BP Ltd.

standards of working conditions than ever before, the companies which exist to provide these services have come to realize that full consideration of all the factors which go to make up a working environment is essential.

Everything for the Heating and Plumbing Engineer

HEITON M^cFERRAN HAVE IT

The Irish Plumbing and Heating Engineer.

IMPRESSIVE TEDDINGTON CONTROLS LINE-UP

AN IMPRESSIVE line-up of Teddington automatic controls formed the background of a most successful reception for the trade hosted jointly by Teddington Autocontrols Ltd. of Sunbury-on-Thames, Middlesex, and their Irish distributors, The British Steam Specialities Ltd. of 33 Leeson Park, Dublin.

The reception, which was held in the Leeson Park offices of BSS, was particularly well-attended by trade personalities from many parts of the country.

On display was a comprehensive exhibition of Teddington automatic controls for heating, ventilating, air conditioning and refrigeration. Four technical representatives from Teddington outlined for visitors the features of the various products on view.

Visiting Teddington personnel in attendance included Mr. John Harrison, Managing Director, Teddington



Bellows Ltd.; Mr. Alan Hague, General Sales Manager, Teddington Autocontrols Ltd.; Mr. Peter Doolan, Company Manager, Teddington Bellows Ltd., and Mr. Robert H. Hogarthy, Publicity Manager of the Teddington Group of Companies.

British Steam Specialities personnel present included Mr. Robert Sellick, Deputy Managing Director, and Mr. David Wheeler, General Manager.

In addition to the exhibition of existing product ranges, advantage was taken of the occasion to introduce two new units, a central heating control system and a general purpose motor actuator.

The Transmatic 3 central heating control system (Type DBH) is for use with all hot water systems employing radiators or similar heat emitters and fulfills two main requirements of heating and economics by maintaining comfortable temperatures regardless of outside conditions and programming the heating so that when full heating is not required the output is reduced.

The Teddington Type DBR/A 24 volt motor actuator provides the power to drive (a) valves or (b) dampers for heating, ventilating, air conditioning, boiler combustion control, etc. It is extremely versatile, being available in three speeds to cover the majority of applications and, once installed, minimum maintenance is required as the complete unit is oil sealed.

* * *

FROM cannons to castings, that is the story of De Forenede Jernstøberier A/S-D.F.J.

D.F.J. CO. — a progressive APPOINTS company still DISTRIBUTOR expanding after more than 200

years. Now the D.F.J. Co. Ltd., is represented here with the appointment of Shannon Heating Products, 7, Lough Quay, Limerick, as distributors in the Republic.

The great figures in D.F.J.'s history are the Founder John Frederik Classen (a renowned Copenhagen merchant), and Anker Heekaard, the industrialist, who drove the company along the crest of free enterprise to a key position on the Danish industrial scene.

All D.F.J. products carry the Royal insignia, a reminder that the Danish iron founding industry was established when Frederik V appointed Classen at the age of 31 to control the Royal powder mills and cannon foundry. Classen replaced a Frenchman, Jandin de Peyrembert, who had not been too successful as a cannon maker. The company's main works were established in 1766 at Frederiksværk - Denmark's first real industrial city. D.F.J. dominates the town with a delightful group of buildings, each with its own story to tell of Denmark's industrialisation. This is where Denmark's first steam engines, locomotives, kilns, domestic cookers and utensils were produced.

Down by the harbour, which until a few years ago was owned by the D.F.J. company, is the new fully mechanised ferrous foundry. Here are made high quality castings for domestic use and overseas consumption. It is at Frederiksværk that the reliable Salamander cast iron sectional boiler is produced.

The company, apart from Frederiksværk, has two works in Naestved,

Continued page twenty-six

OBTAIN YOUR REQUIREMENTS

OF

- ★ SCOTCH FIREBRICKS
- ★ HIGH ALUMINA REFRACTORIES
- ★ FIRE CLAY & CEMENTS
- ★ CASTABLES & RAMMING MIXES
- ★ INSULATING FIREBRICKS

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STOCKISTS:—

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ALBERT QUAY, CORK. TEL. 21531 * TEL. 53008

RIGID SECTION PIPE INSULATION

The things you need to consider	How FRS 950 meets them	*
Temperature Range	Up to 950°F	✓
Fire Safety	Non-combustible - BS.476:Part 1	✓
k Value	0.28 at 200°F mean 0.46 at 400°F mean	✓
Weight	5-7 lb/ft ³	✓
Range of thicknesses	½"-4" insulation thickness. Nested sections for minimum heat loss.	✓
Dimensional Accuracy	Complies with B.S.3958	✓
Damage Resistance	Robust and non-friable	✓
Permanence	Vibration resistant - unaffected when tested to B.S.2972 Non-hygroscopic Non-corrosive No sustenance to vermin Meets B.S. nos. 1334; 1588; 3708; 3958	✓ ✓ ✓ ✓ ✓

You can't match that full set of ticks

Top of the P.I.P.S. (Pipe Insulation Performance Scale) That's FRS 950

*In the last column, check any other product you can think of with appropriate ticks. You'll find it's no match for FRS 950—the only one that gets the full set of ticks. Not for nothing is Fibreglass known as the first name in insulation.

just how far, technologically, FRS 950 leads in this field. You'll see that this top-performer from Fibreglass is the answer to today's—and that means your—requirements in pipe insulation.

asking. The same goes for any answers you may need on specific questions about your own design or cost aims. Let FRS 950 wrap itself around your problem now.

The full FRS 950 technical story comes in a leaflet. It's yours for the

**The last word in rigid sections—
from the first name in insulation**



Agents: Monash, Mitchell & Co. Ltd., Heating and Insulation Division, Windmill Lane, 8-11, 24, John Rogerson's Quay, Dublin 2. Tel: 776292

21 Morrison Sq. North, Dublin, Tel. Dublin 07666.

The Irish Plumbing and Heating Engineer.



● From page twenty-four

offices in Copenhagen, Odense and Aarhus, and a recently formed subsidiary in the United Kingdom. In recent years, the company has been completely re-organised, and a considerable investment made in mechanisation, with the result that it is able to maintain the high quality of products, for which it has been known for over 200 years, whilst at the same time being competitive in world markets.

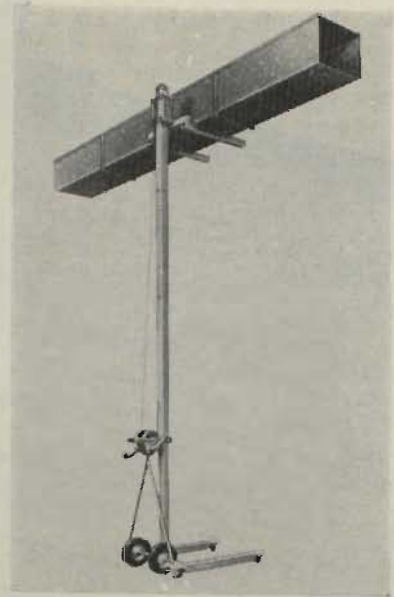
At Naestved the company's major factory produces steel tube boilers up to 16 million Btu/h. warm air furnaces, oil burners, fans, unit heaters, convectors and ship's ventilators, whilst the smaller harbour factory concentrates on producing alloy dye and sand castings.

NEW U.S. LIFTING AND POSITIONING EQUIPMENT

DUCTWORK (Engineering Services) Limited, Croydon, the largest distributor in the U.K. for Carlyle air conditioning products, have been appointed distributor for a range of lifting and positioning equipment designed specifically for use in the installation of heating, ventilating and air conditioning plant.

This equipment is manufactured by Vermette Machine Company Inc., Indiana, U.S.A. It has been widely used by contractors in America in recent years and can be obtained in Ireland by direct enquiries to Ductwork.

There are three Vermette products offered by Ductwork, each easily assembled low cost portable units designed to save time and manpower, and reduce operator fatigue in the installation of ducting, pipes, ceiling mounted unit heaters, packaged air conditioners and the like. They The Hi-Jack when freestanding,



● A Vermette model 512 with ducting on the platform

greatly facilitate positioning and connection.

will lift 500 lbs. to 10 feet, or with an easily fitted stabiliser, 500 lbs. to 15 feet. Two Hi-Jacks operating as a pair, with stabilisers fitted, can lift 3,000 lbs. to 15 feet.

Continued page thirty-six

THE DM/63 OIL METER

is designed to meet the demand for the accurate metering of gas oil, 200 Secs and 900 Secs Fuel Oil consumption of Industrial Heating and Steam Raising Boilers.

- Glandless transmission to Counter eliminates disadvantages of a mechanical seal.
- Highly accurate registration over widely varying flow conditions.
- Economical in price — reliable in operation.
- Ex-stock Delivery — Country-wide Service.

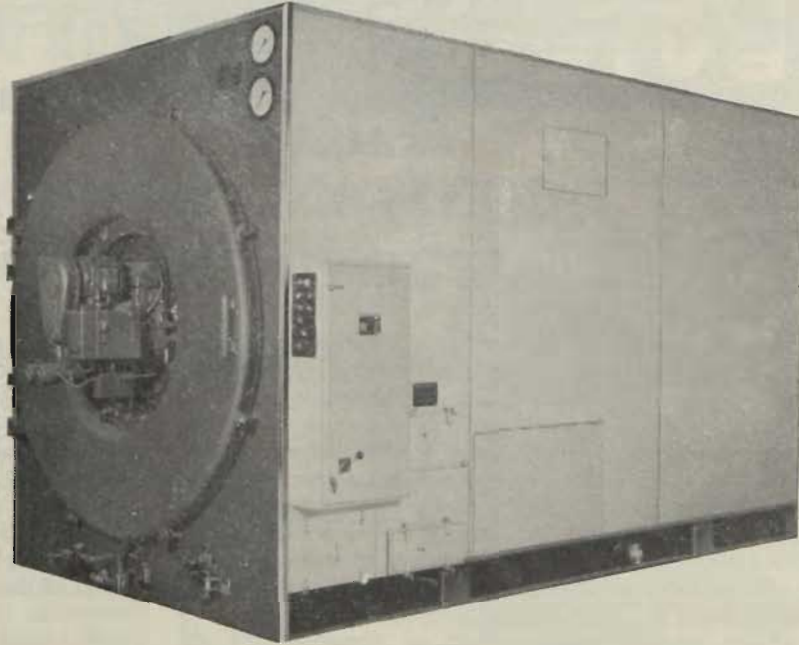
PUMP SERVICES LTD.

SYNGE STREET, DUBLIN. Tel. 58414 (5 lines)



★ Tylors DM/63 Rotary Piston of unique design.

The Cochran Clansman



The hot water boiler designed to meet the needs of Industry today

Positive design advantages incorporating the Cochran unique patented internal re-circulator, make the Clansman one of the world's most reliable and efficient fully flooded hot water boilers.

- ★ Gas and oil firing.
- ★ No water stratification.
- ★ Wide temperature differentials—up to 150°F (66°C)—more if required.
- ★ Automatic magnesite injection—neutralises sulphuric acid in flue gases.
- ★ High thermal efficiency—constant over full range of operation.

Cochran Clansman boilers are available for low, medium and high temperature hot water applications from 1 million to 25 million Btu/h.

COCHRAN CLANSMAN

Irish Agents :

S. W. CARTY & SON,
12 Lower Mount Street, Dublin 2 (Tel : 62018 and 66546).
SOUTHERN ENGINEERING CO., LTD.,
Parnell Place, Cork (Tel : 21712).
W. H. SCOTT & SON,
130 Upper Newtownards Road, Belfast 4 (Tel : 654680).

COCHRAN & CO., ANNAN, LIMITED, ANNAN,
DUMFRIESSHIRE, SCOTLAND.
TELEPHONE : ANNAN 2111. TELEX : 778183.
LONDON : 01-222 4441. TELEX : 27214.

The Cochran Construction Co. Ltd. is able to quote for complete boilerhouse installations, renovations and repairs.



MONTHLY SPECIAL REVIEW

Review of Calorifiers, Heat Exchangers, Pressure Vessels, Tanks and Cylinders

AS in most other fields of Engineering Science, heat exchangers have been the constant subject of attempts to extend their applications and improve their performance in operation. These moves have been made necessary by the gradually increasing size of plants, lack of space for such plants and costly removal of existing plant, higher working temperatures and pressures.

One of the most interesting heat exchangers of late is the "domestic cylinder," or as is commonly known the calorifier. When installing central heating in a house already fitted with a direct cylinder, it was necessary to have a new 'indirect cylinder' fitted or a new coil fitted to the old one, which meant removing the cylinder, etc. The fitting of an electric immersion heater is relatively simple to the experienced plumber. The new conversion unit for transforming a direct cylinder to an

CONSTANT EFFORT TO IMPROVE PERFORMANCE

indirect cylinder is similar to the electric immersion heater. The new hot water immersion heater is simply a heat exchanger, fitted in a similar manner as an electric immersion. The flow and return hot water circuit is connected through a pumped circuit to the hot water immersion heater. Such heaters are most welcome to the trade, thus eliminating costs of purchasing new indirect cylinders and costly labour of removing the old existing cylinders.

Controls: With rising costs and modern standards of living, the householder is becoming very cost conscious. For the average domestic

central heating installation, few, if any, domestic hot water controls were fitted. Generally, the domestic hot water temperature was always the same, or nearly so, as the central heating boiler. Such temperatures as 180°F for hot water may seem proper initially for the average 30 gal. domestic cylinder. On closer examination of the average house, such temperatures for ordinary use are too high, except for bath purposes. The use of a thermostatic control system is essential. The most effective type and that commonly used is that of the 'mellows' type fitted to the return

Continued page thirty

We can supply all types of CALORIFIERS !

Coppercraft Metal Works

Kylemore Park North, Ballyfermot, Dublin 10

Manufacturers of

- Copper and Stainless Steel Calorifiers and Tanks.
- Indirect Cylinders of all types.
- Steam and Hot Water Calorifiers to Engineers Specifications.
- Capacities from 5 to 2,000 gallons.

— ENQUIRIES INVITED —

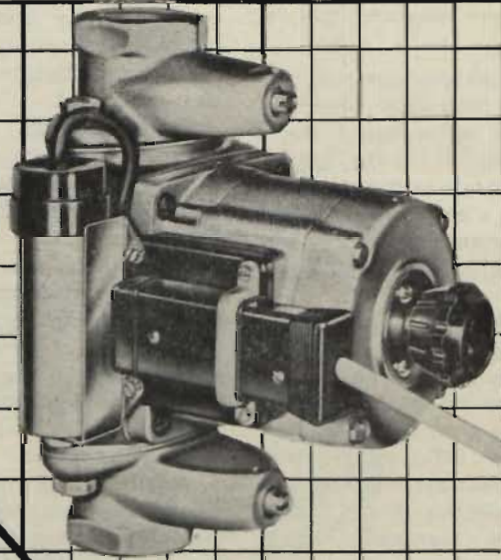
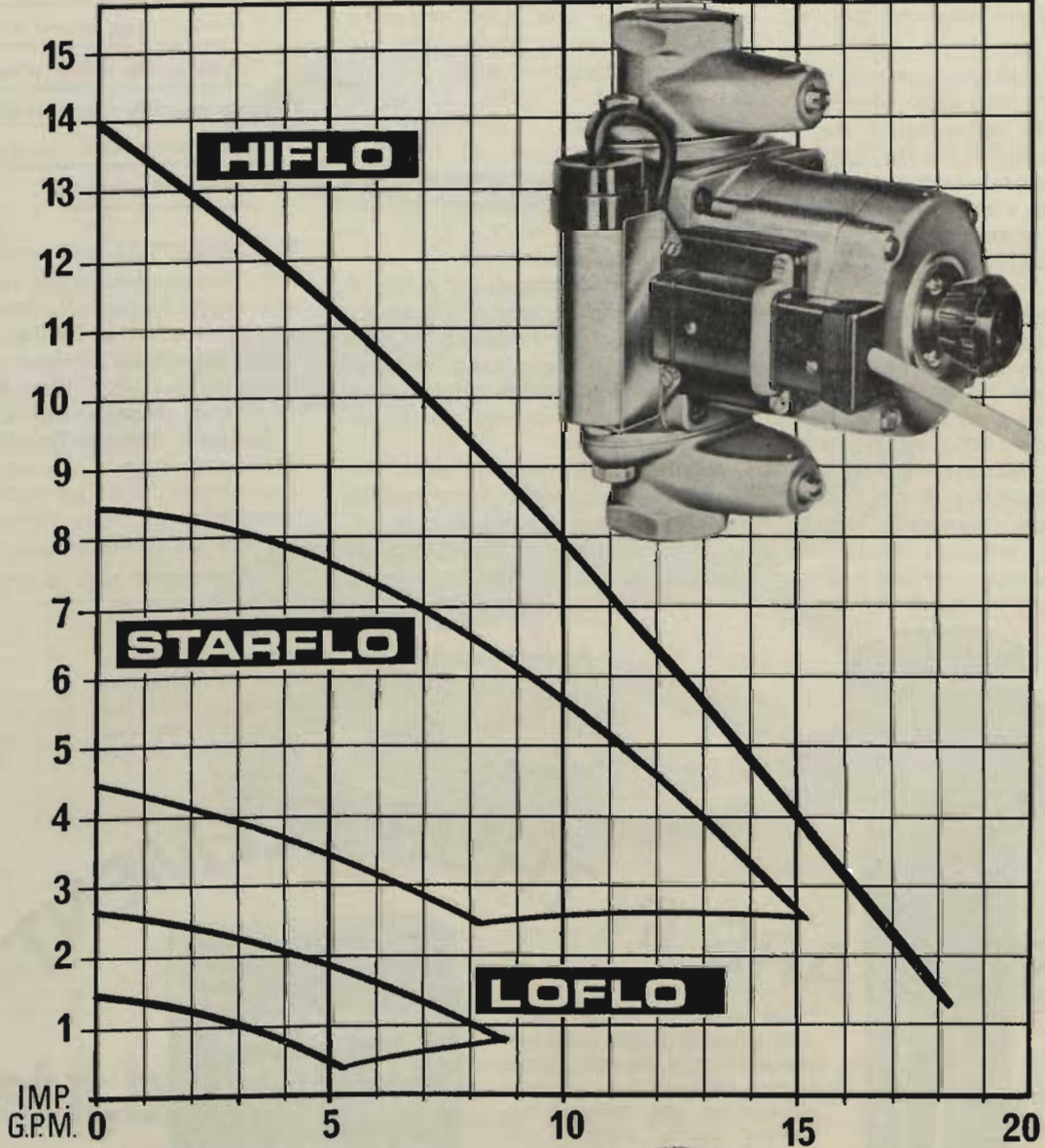
Telephone : 365146/7

Sundstrand Circulators

the name in every successful system



HEAD FEET



A Circulator for every type of domestic heating system.
Loflo—the Circulator for the smaller installation, where quietness is absolutely essential.
Starflo—50,000 to 120,000 B.T.U's/hr. this Circulator is a must.
Hiflo—for high resistant circuits i.e. Microbore.



Also from Sundstrand a range of larger industrial and commercial Circulators for both open and closed systems.

INSTALL A SUNDSTRAND—YOU CAN DEPEND ON IT.
J. S. LISTER LIMITED

HEATING DIVISION, LOMOND AVENUE, FAIRVIEW DUBLIN, EIRE. Telephone DUBLIN 373796

Please send me full details of your circulator type

I would like your Representative to call

NAME

COMPANY

ADDRESS

TEL: W.P.

circuit, as near as possible to the cylinder. The selected temperature can be set. An alternative method is the use of a thermostat and mini-valve. The latter system is more expensive than the former.

The use of the mixing valve, while costly, in comparison to the bellows method, is less favourable, since the average person seldom goes near the boiler house to adjust the valve. Furthermore, few central heating owners know or are instructed how to use it!

The use of stainless steel in the manufacture of calorifiers, formerly made of copper, is becoming more popular, particularly in the larger sizes. Such a change over from copper to stainless steel is due to the rising costs of present day prices for copper and at times unavailability of same.

Stainless steel are the most corrosion resistant of the ferrous metals and are the most resistant of all the common structural materials. Many types of stainless steel have been developed to meet different requirements. We will treat here very briefly the subject of stainless steel. Stainless steels are essentially high chromium steels, although often they contain other alloying elements. But

SPECIAL REVIEW

• From page twenty-eight

chromium is essential and must be present if the steel is to be corrosion resistant. The cheapest stainless steels contain 12% chromium as the only major alloying element, whereas more complex and more expensive steels may contain up to 18% of chromium together with various amounts of nickel, copper, molybdenum, etc. Generally the greater the amount of alloying elements, the more corrosive resistant is the steel. For general use, a chromium content of 12% to 20% is considered average.

Corrosion resistance is only one of the factors that determine the choice of a particular steel, others, such as weldability, mechanical and physical properties and the fabrication methods to be used, will clearly influence the choice.

Stainless steel resist corrosion, for all the common metals form surface oxide films when exposed to pure air. An oxide is also formed on stainless steel and is generally referred to as

'passive film' and highly resistant to chemical attack. The exact nature has not been fully investigated, the film is considered to consist of chromium oxide. The use of stainless steel in pressure vessels for oils, food industry and the heating industry is rapidly gaining momentum, particularly for calorifiers already fitted in packaged boilers.

In this equipment review we take a look at new developments in the fields covered by this month's special review. (All claims made are those of the manufacturer).

HORIZONTAL and vertical calorifiers are among the large range of products forthcoming from Hartley and Sugden Ltd. of Halifax, England.

The Northern Ireland representative is McCaig, Collins & Co., 6A, Greenwood Avenue, Knock, Belfast.

Standard Storage Calorifiers have shells made from mild steel of welded construction and galvanized after manufacture. The Pattern 2 and Pattern 3 Calorifiers have removable

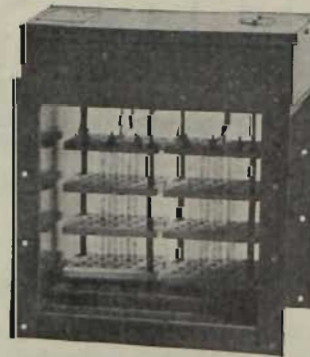
Continued page thirty-two



Rationalized production now means a quicker turn round between order and delivery for Eltron-made open coil air heaters. Choose from six stock sizes with variable outputs, the heater to suit your needs - get it delivered within 10 days! That's the new service for Eltron better-made heaters.

ELTRON ARE IN THEIR ELEMENT

Quick deliveries offered on a wide range of oil and water immersion heaters. Special purpose heaters designed for individual applications and made of the highest quality materials to Eltron high standards. Write for our latest catalogue of standard heaters, or phone for an appointment to discuss your custom-made requirements.



making IMMERSION AND AIR DUCT HEATERS

SEND FOR ILLUSTRATED BROCHURE

TO ELTRON (London) LIMITED,
Strathmore Road, Croydon, Surrey,
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Irish Agent:

Messrs. W. Finucane & Co.,
5, Upper Pembroke Street,
Dublin 2, Eire, Ireland.
Tel. No. 67086 7, Dublin.



**Twist it, bend it,
coil it, turn it,
ARMAFLEX
goes anywhere a pipe goes
-but quick**

Armaflex makes all pipe insulating jobs dead easy. For new piping, simply sleeve it on as the pipes are installed. For existing pipework, use pre-slit Armaflex and snap round. Armaflex is flexible foamed pipe insulation with a closed-cell structure, making it almost totally non-absorbent. It is self-extinguishing, has a low conductivity, doesn't break, and can be painted for instant identification of service pipes. *And there's no waste with Armaflex, so insulation work is clean and easy.*

Armaflex is suitable for all pipes from $\frac{1}{4}$ " to 4" o.d. and gives efficient insulation from below zero to 220°F. Because it's so quick and simple to use, *Armaflex can save you up to 50% on installation costs.*

ARMAFLEX BY  Armstrong

Write for details and the name of your nearest stockist to:
Heatavent Ltd., Crumlin Road, Dublin 12. Telephone: Dublin 576,38/9

SPECIAL REVIEW

● From page thirty

battery of copper 'U' tubes which is precision formed by our own modern plant and the tube ends expanded into a machined mild steel tubeplate using parallel expanders (as recommended by B.S.853) incorporating a torque controlled electronically operated unit.

The vertical calorifier comes with welded mild steel shell so arranged that the shell can be lifted up when cleaning is to be done, thus rendering the battery of tubes accessible for thorough inspection and cleaning without removal from seat. The shell can be galvanised or made from copper when required.

★ ★ ★

STANDARDISATION of design and construction has made it possible for Holden & Brooke Ltd. of Siruis Works, Manchester, to offer a wide range of calorifiers at most competitive prices.

G. C. Pillinger & Co. (Ireland) Ltd. of 20 Sycamore St., Dublin, and 35 South Terrace, Cork, is the Irish agent.

The Sharston non-storage calorifier is one of the extensive range of heating calorifiers. It is constructed of cast iron with scantlings complying to BSS 853. Tube batteries can also be supplied having tube pitching to this specification.

The Nordon range of non-storage calorifiers is a series of mild steel fabricated calorifiers, having cast iron steam boxes and solid drawn copper 'U' tubes, which are available on a short delivery.

MOVED TO NEW PREMISES

COPPERCRAFT Metal Works have moved to their new extensive premises on one acre of ground at Kylemore Park North, Ballyfermot, since late last year.

In their spacious factory they are now in a position to manufacture all sizes of Calorifiers and Cylinders, from 5-2,000 gallon capacity, both in stainless steel and copper.

The Company's new telephone number is 265846.

PARCA OFFER VARIED RANGE

PARCA Heating Products, whose agent in Ireland is J. S. Lister Ltd., of Dublin, manufacture a wide and varied range of heat exchangers and hot water heaters to suit every application whether it be steam, oil or water.

Forty-five years of experience in this field has led to the production of the Parcaterm MAP, a heat exchanger of the accumulator type capable of supplying instant and continuous hot water from 13 to 70 gallons per minute and the Parcaterm UA, a high output water heater of small dimensions which again is capable of supplying from 13 to 70 g.p.m.

The Parca Heat Transformer is another item of equipment which has been designed for the larger development where space saving is a necessity and economy and reliability essential.

Full technical details are available on all the equipment from Parca Heating Products, 90 Staines Road, Hounslow, Middlesex, or from J. S. Lister, the Irish Parca distributor.

A NEW 10-gallon cistern is the most recent addition of Osma Plastics Ltd. of Hayes, Middlesex, to their wide range of cold water storage cisterns.

The Irish Distributor for Osma is R. P. Lynch, of Wilton Avenue, Cork. Osmaglass Cisterns are hot press moulded from glass reinforced polyester and are light grey in colour. They are of robust construction yet are light to handle. Close fitting lids are available to dust proof all sizes.

The 70 gallon (long) Osmaglass cistern is supplied with a coated metal strap. This should be fitted centrally across the top of the cistern before filling with water. It is fixed by sliding on one end so that the turn-over ends are secured under the cistern flanges.

Osmathiene Cisterns are made from Elack Polythene except the 7 gallon (expansion) size which is Polypropalene. Fixing details are the same as for Osmaglass cisterns but particular care must be taken to see that flange locknuts are not overtightened and linseed oil based jointing com-



● Type GC Steam Generator from Holden and Brooke Ltd.

pounds must NEVER be used. A back plate, to be used for connection of ball valve, is supplied. This should be located under the rim on the outside of the cistern.

★ ★ ★

SWAN Polythene Cold Water Tanks are now available in actual capacities of 40, 60, 80 and 100 gallons.

Swan polythene cold water tanks are approved by the British Waterworks Association, having passed their rigid tests, and they are also approved for grant purposes by the Department of Local Government. Size for size, Swan polythene tanks are competitive in price with galvanised tanks and have the outstanding advantages of being light to handle and therefore easy to install, the ability to withstand their contents freezing without cracking and a complete absence of corrosion either from rusting or from electrolytic action between pipes, fittings and the tank itself.

★ ★ ★

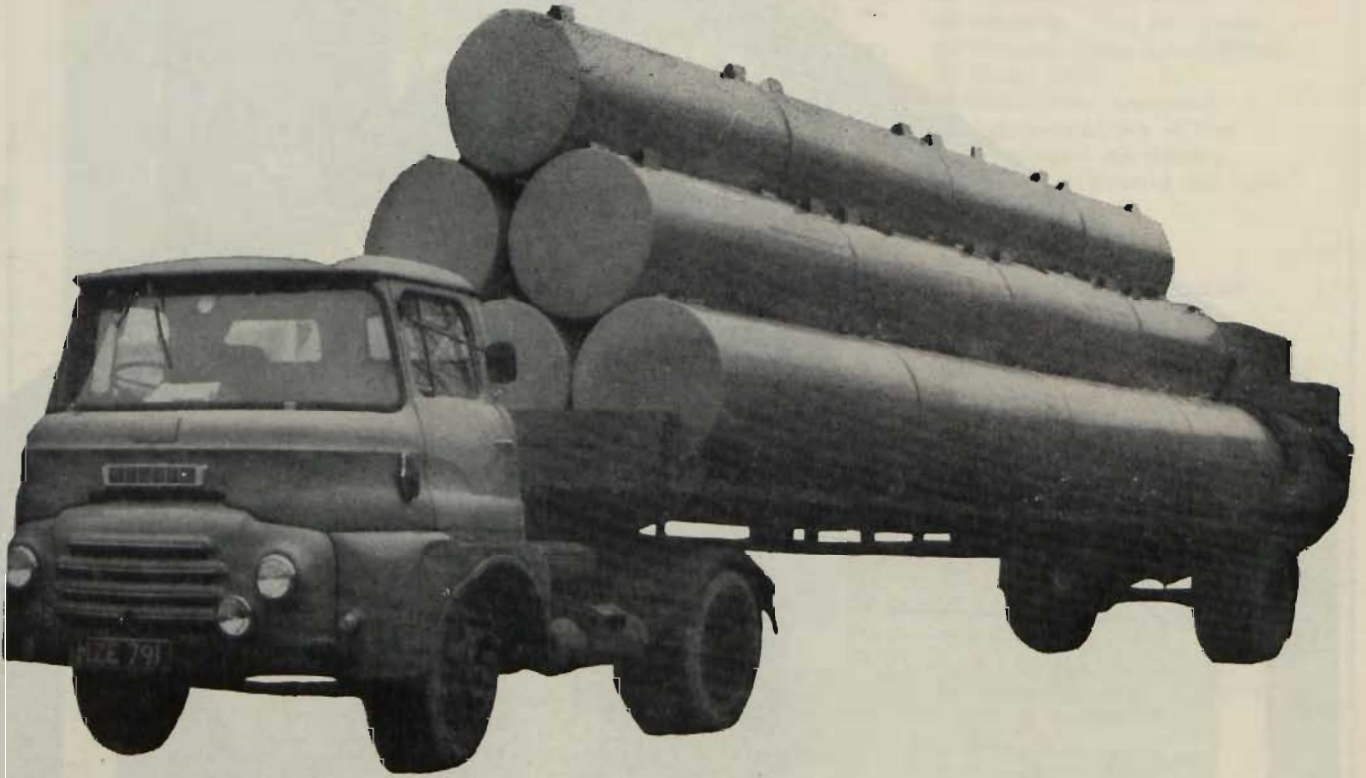
WHESOE (Ireland) Limited have been awarded a further contract by the Alliance & Dub'in Consumers' Gas Co. Limited for the supply, delivery and erection of three vertical storage tanks, size 80 ft. diameter by 60 ft. high, with open tops and floating roofs, giving a total storage capacity of over 23,500 tons of fuel oil.

This order sets two new records. It will be the largest single order for storage capacity placed by the company, and these tanks will be the largest and the highest open top floating roof units built in the Port of Dublin.

EUROPAIR (I)

WE HAVE been asked to point out that in our Trade Topics report last month of the marketing agreement reached by H. J. Godwin Ltd., the leading U.K. Pump Manufacturers, with Van Den Bosch Ltd., we should have stated that the agreement was reached between Godwins and Europair (Ireland) Ltd.

WHEN SELECTING YOUR OIL TANK



BE SURE YOU GET THE BEST...

Buy McCann-Kenway Quality Oil Tanks

Manufactured by :—

McCANN PLAN (ENGINEERING) LTD.

DUNDALK ROAD,

CARRICKMACROSS,

CO. MONAGHAN.

Telephone :

CARRICKMACROSS 61258, 61351

- ★ Large quantity always in stock.
- ★ Finished in Gloss Paint and Oven Baked.
- ★ Our Rectangular Tanks have a domed top.
- ★ Deliveries made by our own vehicles.
- ★ Each Tank is pressure tested.
- ★ 7-10 Day Delivery Service.

McCANN-KENWAY

A Member of the McCann Plan Group.



BM-70 protects... *night and day*



Here is a remote-acting fire protection valve made to British Standards Specifications. The BM-70 is especially designed for oil-fired domestic heating installations and incorporates these extra safety features:

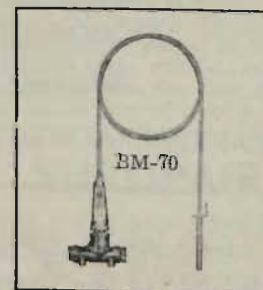
- * Simple manual operation for routine testing.
- * Instant manual closing of safety valve in emergency.

BM-70 protects simply and efficiently. Would you settle for second best in fire protection?

SEE THE BM-70 AND OTHER ACCESSORIES AT :
THE IRISH HEATING CENTRE
19 DAME STREET, DUBLIN

Stockists : OBC LTD., & HEATING CONTROLS AND DEVICES LTD.

BM CONTROL VALVES LTD., Gogmore Lane, Chertsey, Surrey. Telephone : Chertsey 2055-6



1969 DIRECTORY

of MANUFACTURERS AGENTS, REPRESENTATIVES and DISTRIBUTORS

★ The June, 1969, Register of Manufacturers, Agents, Representatives and Distributors of Domestic and Industrial Plumbing, Heating, Air Conditioning, Ventilation and Insulation equipment and materials available in the Republic of Ireland and Northern Ireland is now being prepared. The Directory this year will again be enlarged to accommodate the many additional entries which have been supplied during the year for inclusion under the various headings.

If you come under the heading of any of the categories listed here and have not supplied information already, or wish to make amendments or alterations to last year's entries, we would ask you to do so without delay. Changes of address should also be advised. Names and addresses of Irish Agents and/or Representatives should be included with all entries.

Specimen copies of the 1968 Directory are available on request.

★ NOTE: All Directory Entries are inserted free of charge.

Please Note!
CLOSING DATE
Saturday,
3rd May, 1969

Please Check This List Of Categories

— LIST NO. 1 —

- Accumulators, Steam and Hot Water
- Air Cleaners, Electronic
- Air Conditioning Equipment
- Air Curtains
- Air Diffusers
- Air Distribution and Handling Equipment
- Air Eliminators, Hot Water
- Air Flow Switches
- Air Receivers
- Air Vents
- Air Washers
- Aluminium Cladding
- Anti-Corrosion Compositions and Paints
- Autoclaves
- Automatic Clock Controllers
- Baths, Basins, Bidets and Sinks
- Blowers and Exhausters
- Blower and Fan Impellers, Wheels, Etc.
- Boiler Controls
- Boiler Fittings
- Boiler Mountings
- Boiler Non-Conducting Composition
- Boiler Tube Cleaning Units
- Boiler Water Level Indicators, Controls and Alarms
- Boilers (Domestic & Industrial)
- Burner Controls
- Burners, Gas/Oil/Solid Fuel
- Ca'orifiers
- Castings, Non-Ferrous
- Ceilings, Heated
- Chimney Construction
- Chimneys, Tops and Cowl
- Cisterns, Tanks and Cylinders
- Cocks, Coils
- Combustion Appliances
- Compressors, Air or Gas
- Compressed Air Traps
- Control Equipment and Controllers
- Control Panels
- Convector
- Conveyor Ovens and Paint Processing Plants
- Coolers
- Cooling Towers
- Cyclones
- Damper Motors
- Damper Regulators and Quadrants
- Data Logging Equipment
- Dehumidifiers
- Deodorising Plant
- Descaling Equipment
- Differential Pressure Controls
- Digestors
- District Heating Controls
- Drainage and Sanitation—Traps and Wastes
- Draught Indicators
- Draught Stabilisers
- Drying Apparatus
- Drying Ovens
- Ducting
- Duct Heaters
- Dust Collecting Plant
- Economisers, Fuel
- Ejectors, Steam
- Electric Heating Elements
- Electric Heating Equipment
- Electric Heating Tape
- Electric Motor Control Gear
- Expansion Joints
- Extractors and Ventilation Fans
- Fan Speed Regulators
- Filters, Air
- Filters, Liquid, Oil, Water, etc.
- Filter Loss Gauges
- Fixing Tools and Bolt Driving Guns
- Flame Failure and Protection Devices
- Flanges
- Flash Vessels, Condensers, etc.
- Floatswitches
- Floodlighting Equipment (Portable)
- Floor Heating Installations
- Flue-Gas Corrosion Protection
- Fuel Additives
- Fuel, Ash and Clinker Conveying Plant
- Fume Removal Equipment

Continued overleaf

Please Check This List Of Categories

— LIST NO. 2 —

- From previous page
- Gauges, Air, Pressure, Vacuum, etc.
- Gauges, Liquid
- Gauges, Liquid Level
- Gauges, Smoke Density
- Gauges, Tank
- Generators (Electric or Steam)
- Gilled Tubing
- Grilles, Louvres, etc.
- Grit Arresters
- Headers
- Heaters, Air
- Heaters, Balanced Fuel
- Heaters, Gas
- Heaters, Immersion
- Heaters, Oil
- Heaters, Tubular
- Heaters, Water
- Heating Advisory Service
- Heating Panels
- Heating Equipment Supplies
- Heat Exchangers
- Heat Pumps.
- Heating, Storage
- Hose
- Hospital Equipment
- Hot Water Blenders
- Humidifiers
- Humidity, Controllers, Indicators, Recorders, etc.
- Incinerators
- Indicators, Smoke Density
- Injectors, Nozzles, etc.
- Instruments, Meters, Indicators, Gauges, etc.
- Insulation
- Insurance
- Jointing Compounds
- Kitchen Units
- Laboratory Fans and Plant
- Liquid Chilling Plants
- Liquid Handling Equipment
- Liquid Level Switches
- Lubricators
- Manometers
- Mechanical Draught Systems
- Pipe Bending and Threading Equipment
- Pipe Cleaning Equipment
- Pipes, Tubes and Pipe Fittings
- Pipes and Tubes, Plastic
- Pipes and Tubes, Soil and Drain
- Pressure Booster Sets
- Pressure Controllers
- Pressurising Equipment
- Pressure Switches

- Pressure Vessels
- Pumps and Circulators
- Pyrometers
- Radiators and Radiant Panels
- Recording Equipment and Recorders
- Refractories
- Refractory Linings
- Refrigeration Plant
- Regulators
- Resurfacing Processes
- Roofing Copper and Materials
- Roof Drains, Waterheads, Gutters and Outlets
- Roof Units (Ventilation)
- Rust Preventive and Solvents
- Rustproofing
- Scale Remover
- Sealing Compounds
- Separators, Compressed Air, Steam, etc.
- Servomotors, Pneumatic
- Sewage Disposal
- Sight Glasses
- Silencers
- Skirting Board Heating
- Soot Blowers
- Steam Traps
- Stokers
- Strainers
- Tanks and Cylinders
- Taps, Mixers and Shower Units
- Telemetering
- Thermometers, Temperature Indicators, etc.
- Thermostatic Controls
- Time Switches
- Toilet Seats
- Tools
- Traps, Radiator
- Turbines, Steam
- Unions
- Unit Heaters
- Valves
- Valves, Reducing
- Ventilating Panels
- Ventilators
- Warm Air Curtains
- Waste Disposal Units
- Water Treatment Equipment and Processes
- W.C.'s and Urinals
- Welding Plant and Equipment
- Wood Refuse Collecting Plant

Please Note!
CLOSING DATE
Saturday
3rd May, 1969



● From page twenty-six

The Hi-Jack can be erected and operational to accommodate any job condition or ceiling height in a matter of minutes, and when dismantled packs down small for transport. Its heaviest part weighs only 40 lbs. The average lift speed with a 500 lb. load is 3 feet per minute.

The Hi-Jack can be fitted with castors, so that it can be used to unload direct from transport, move the material to site, and then lift into position for connection.

The Hi-Jack base is 30" x 30" and the platform 18" x 24". Extensions are available that add 24" to the height of the platform so that even flat plates can be mounted directly to the ceiling.

The 512 and 520 models are designed for similar use at the Hi-Jack, but offer greater mechanical advantage in the leverage, and under certain conditions can operate to greater heights.

The 512 will elevate 500 lbs. to 12 feet, and the 520 takes 500 lbs. to 20 feet in two minutes or less.

APPOINTED STOCKISTS

A S part of their programme of establishing an extensive distribution network for the range of Pee Wee compressors, Danfoss (London) Ltd., announce that J. J. Sampson & Son Ltd., 12a, Wexford Street, Dublin 2, have been appointed stockists for these units here.

HEVAC 70

HEVAC 70 — the sixth International Heating, Ventilating and Air Conditioning Equipment Exhibition, is to be held in Olympia from April 20 to 25 next year and seems certain to be the biggest in the series since it was first organised eight years ago.

**Please Check
This List
Of Categories**

— LIST NO. 2 —

● From previous page

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- Pyrometers
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- Refractory Linings
- Refrigeration Plant
- Regulators
- Resurfacing Processes



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- Incinerators
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Please Note !
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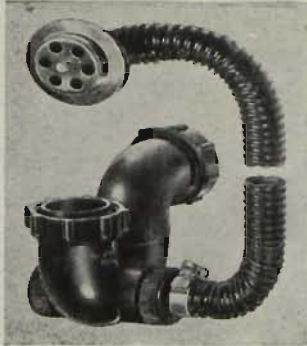
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