The Irish Plumber and Heating Contractor, March 1962 (complete issue)

THE IRISH PLUMBER & HEATING CONTRACTOR

VOL. 1. No. 12. MARCH, 1962

REVIEW: Roof drains, waterheads, gutters & outlets

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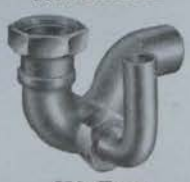

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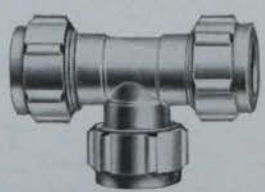

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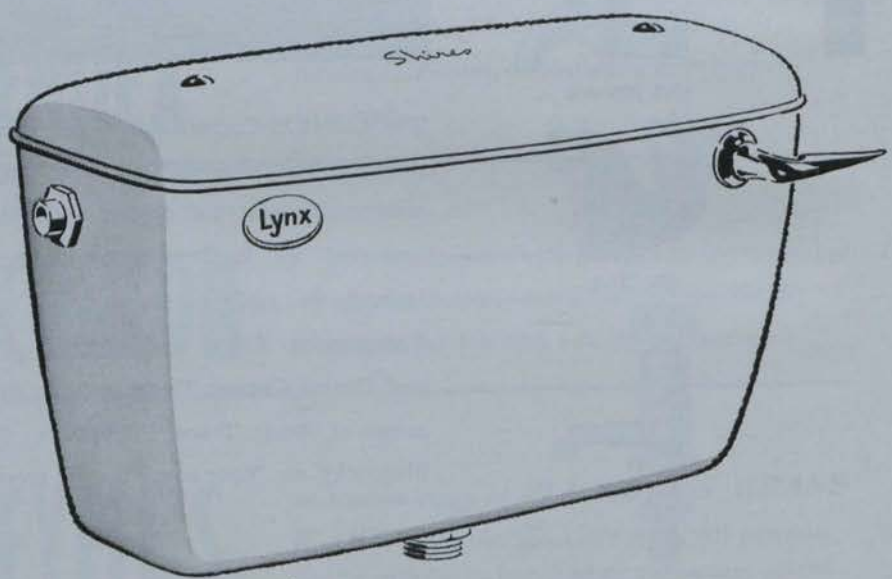

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THE IRISH PLUMBER & HEATING CONTRACTOR

Vol. 1. No. 12.

The only publication in Ireland for the craftsman plumber and contractor, the heating, ventilation and insulation engineer and contractor, the electrical contractor, supplier, manufacturer and wholesaler of fittings and equipment for the trades.

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MARCH, 1962.

IN THIS ISSUE

Due to lack of space this month our regular feature, "Questions Answered", has been unavoidably held over.—Ed.

INDEX TO ADVERTISERS

A. L. TOWNSEND
M.R.P., M.R.S.H.

The author, a lecturer at Oxford College of Technology, continues the first part of a four stage course on plumbing.

COPPER ROOFWORK

IN the past, copper roofwork was regarded as being a bit tricky, and perhaps rather beyond the plumber's ability. Most of the older sheet copper roofwork was therefore done by so-called specialists who did nothing else. To-day, things are very much changed. Recent developments in the working of sheet copper have led to simple, yet efficient and craftsmanlike ways of using this material for roof flashings and weatherings.

The modern plumber regards copper as a plumber's material. He is quick to learn and adapt these new and interesting skills, and now he can challenge the specialists with "anything you can do, I can do better." Copper is long lasting, relatively light, easy to manipulate and fix, fire resistant, creep resistant, and pleasing in appearance.

Commercial Sizes.—Copper is obtainable either in standard sized sheets of 6' 0" x 3' 0" and 4' 0" x 2' 0", or in strip form, in widths from 6" to 3' 6".

Copper strip is available in any length and is supplied in rolls. It is convenient to handle, and if ordered in widths to suit the work in hand it will be found more economical in cutting and use, and generally less costly than sheet copper.

Thickness or Gauge is shown by an Imperial Standard Wire Gauge Number, S.W.G. for short. The bigger the S.W.G. number, the thinner the copper sheet or strip. For example, 24 S.W.G. is thinner than 22 S.W.G.

One square foot of 24 S.W.G. copper weighs approximately one pound, and 22 S.W.G. copper weighs a little less than one and one-third pounds per square foot.

Gauges commonly used by plumbers for traditional roofwork, that is all roofwork other than patented roofing systems which you need not consider at the moment, are 26 S.W.G., 24 S.W.G., and 22 S.W.G. It is recommended that 24 S.W.G. should be used for all normal work in flat or pitched roof coverings, flashings, gutters, etc. 26 S.W.G. should only be used for short lengths of fully secured cover flashings.

22 S.W.G. is recommended for gutters, since it is rather thicker and can be used in longer lengths. Less "drip" joints are therefore needed. It is also recommended for roofs which may be severely exposed to strong winds, since its additional solidity will help to keep the roof secure.

Temper denotes the degree of hardness of copper sheet or strip, and for roofwork it is important that only "dead soft temper," or fully annealed copper, should be used.

The specification or description of the material given when it is ordered, should always include the gauge required, and the words "dead soft temper copper sheet or strip, for roof-To B.S. 1569." It should also give the sizes of material required.

Substructure preparation and underlays of felt for sheet copper roofwork will be all as described earlier.

Practical tips

AS you know, copper is malleable to a certain extent, but it work hardens with cold working. Work hardened copper can be restored to a soft state by heating it to a dull red heat and then quenching it in water or allowing it to cool in air. Nevertheless, it is better always to try to form the copper with as few blows as possible. One good blow delivered at the right place is better than several "taps" which only tend to work harden the material.

1—Accuracy in setting out is very necessary.

2—Use sharp snips. Any accidental "snags" along a snip cut edge which will have to be seamed or worked in any way, should be filed out at once. Otherwise a tear might start at the snags as working proceeds.

3—Fixings must be adequate and secure, for although its light weight is one of copper's many advantages, this does not help to keep it in place against the action of a strong wind.

4—Clips of the material being laid must be placed at 18" centres along all joints in sheet copper. The clips vary from ¾" in width for batten rolls, to 1" for standing seams, and 2" for drip edges.

5—Lining plates or continuous fixing strips are used in suitable width to secure the bottom edges of roof sheets.

6—Nails used to secure the clips must be large-headed, cut copper nails, at least 1" long. Iron or galvanised iron nails must not be used. If screws are used they must be of good quality brass. In all cases care must be taken to ensure that no fixing device punctures the copper sheeting.

continued overleaf

from previous page

COPPER ROOFWORK

7—Stiffening beads should be provided at all free or unfixed edges, for example, at the bottom edge of cover flashings. These are quite simply formed by allowing an extra ½" at such edges and turning this smartly through 90 degrees on the inside or underside. It is then dressed flat over an ⅛" thick metal straight edge to make a kind of channel section which stiffens the edge and makes it less likely to lift in a strong wind.

ABUTMENT FLASHINGS IN SHEET COPPER

The setting out, preparation and fixing of soakers, cover, and step and cover flashings has been described earlier in this series. The only differences with copper are that the cover flashings will have stiffening beads at their free edges, and the fixings into the brick joints will be secured by rolls of narrow strips of copper called "tags" which will be used as wedges.

CHIMNEY BACK GUTTERS IN SHEET COPPER

These are quickly and easily made on the bench after the necessary measurements have been carefully taken from the chimney. The setting out and cutting of the three pieces of copper which form a chimney back gutter are illustrated here.

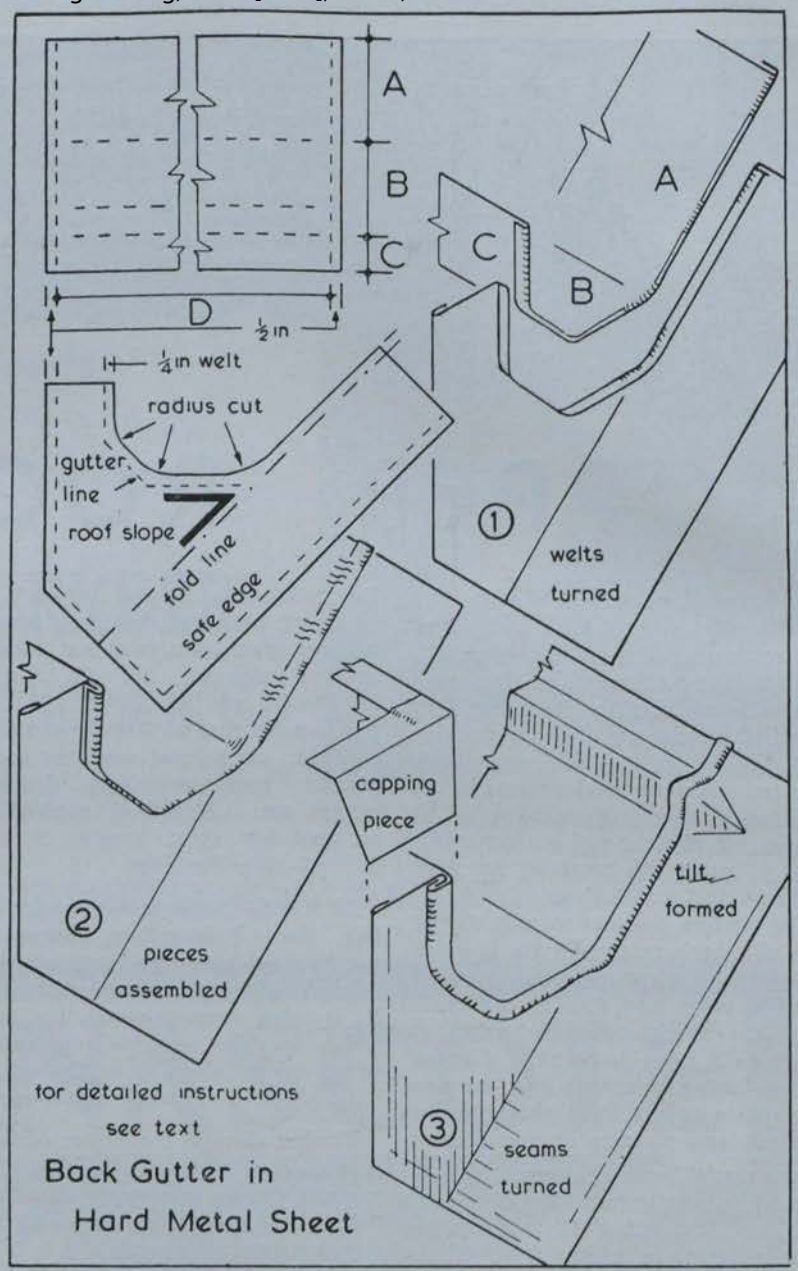
The procedure is as follows:—

Gutter Sole Piece.—Mark out the length "D," which is equal to the width of the stack plus an allowance of ½" at each end. These allowances will later form the overcloak to the jointing seams, or welts.

The width of the piece is equal to the under slate allowance A, which is about 9", plus the allowance B, as necessary, for the gutter sole and fillet, plus the upstand to wall allowance C, which is about 3".

For the 18" wide stack described earlier, the sole piece would be 19" long x about 18" wide.

The side pieces are each cut out of a piece of material about 18" x 15", or according to the size of the chimney. They should be set out as illustrated. Take care to mark out the seam allowances and fold the lines on opposite faces, since the two opposite handed side pieces must be one for the right and one for the left hand side of the stack.



Note that the dotted line shows the actual gutter shape, size and angle to the roof. Outside this line ¼" is allowed to form the undercloak of the of the welted seam joint.

The 2" x 2" triangular fillet is used in the angle of the gutter and stack wall upstand so that two 45° angles are formed instead of one 90° angle, since this arrangement is easier to work.

The seam allowance is cut neatly and sharply with radiused angles—a penny serves very well to mark these curves.

To prepare the side pieces:

(1) Turn stiffening beads at "X", "Y" and "Z."

(2) Over a piece of 2" x 2" angle iron, turn the ¼" seam allowance until it is at right angles to the sheet face.

(3) Lay a straight steel edge along the fold line, turn the side cheek up 90°, and dress the ¼" seam allowance on the under slate bit down on to the straight edge.

(4) Repeat this for the opposite

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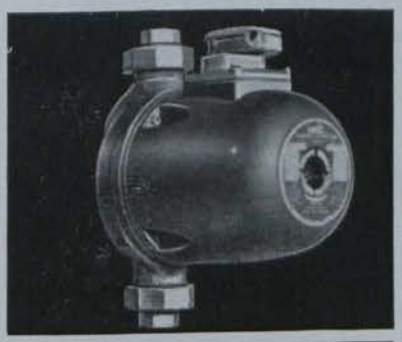
Harford units

for efficient Domestic Heating Systems . . .



THE OPIO—THE STRONG AND SILENT CIRCULATING PUMP

An Opio pump gives a higher performance at a much lower cost than any other pump for domestic heating installations. It ensures maximum flow of hot water to the furthermost radiator.
It is silent in operation, self-cleaning and needs no maintenance.
Plug-and-socket ensures ease of installation even in difficult positions.
Each Opio pump is rigorously tested at the factory, supplied with its individual performance test certificate and is fully guaranteed.

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The Harford Aquamix permits *two* supplies of hot water at different temperatures — from the same boiler . . . one, at maximum temperature, for household use and the other at a predetermined temperature for the radiators. The Aquamix mixes the hot water with sufficient cold water to maintain the radiators at the temperature pre-set on the control dial. That temperature is indicated by the built-in thermometer. Wasteful heating can be detected and fuel saved.

THE TWIN-ACTION RADIATOR VALVE—
FOR ACCURATE CENTRAL HEATING REGULATION

The Harford T.A. Valve — the only valve which adjusts the heat output of the radiator in direct relation to the setting of the knob — gives more accurate control of central heating systems. A quarter-turn of the knob — and the heat output of the radiator is adjusted by a quarter, too. No separate balancing valve is needed. It gives complete shut-off, and the special O-ring gland can even be changed without removal or draining down the system.

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The Mixford can be used as a mixing or distribution valve, with low flow resistance. The Mixford is of cast iron, with red bronze regulating plate, working shaft and gland. Screwed connections are available on the standard range, which is from 3/4 in. to 2 in. Larger valves, with flanged coupling, supplied to order. The valve is pressure-tested at 150 p.s.i. cold water pressure before delivery.

It pays—in so many ways—to install HARFORD units!

OUR IRISH REPRESENTATIVE: Mr. G. A. Reid, 16, Fade Street, Dublin, 2. Telephone 76009.

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OXY - ACETYLENE WELDING TECHNIQUES

the author

John G. Bolton

Lecturer in Plumbing and Heating at the College of Technology, Bolton Street, Dublin.

LAST month the system of oxy-acetylene welding generally used in the plumbing and heating industry was discussed. It is now proposed to deal with the operation of the plant, the adjustment of the flame and so on.

The inflammable element in the flame is the acetylene gas, and this is known in chemical circles as C_2, H_2, which simply means that it is composed of 2 atoms of carbon and 2 atoms of hydrogen, which when combined make one molecule of acetylene.

To produce the heat necessary for welding, we mix the acetylene with oxygen in approximately equal proportions, so that a very hot blue flame is produced, with a temperature in the region of 5,600°F. to 6,300°F. This is, by far, the hottest flame used for gas welding.

In the centre of the flame there is a brilliant bluish-white cone, and it is here that the primary combustion of the gas takes place. It is interesting to note that this cone, which, to the eye, is solid, is, on the contrary, a hollow cup, the centre of which is formed of unburnt gases flowing from the blowpipe.

The outside of the cone, however, consists of burning gas in which the acetylene molecules are reduced into carbon monoxide and hydrogen in the process of which intense heat is generated. These gases then pass into what is known as the secondary combustion zone of the flame and are burnt into carbon dioxide and water vapour respectively.

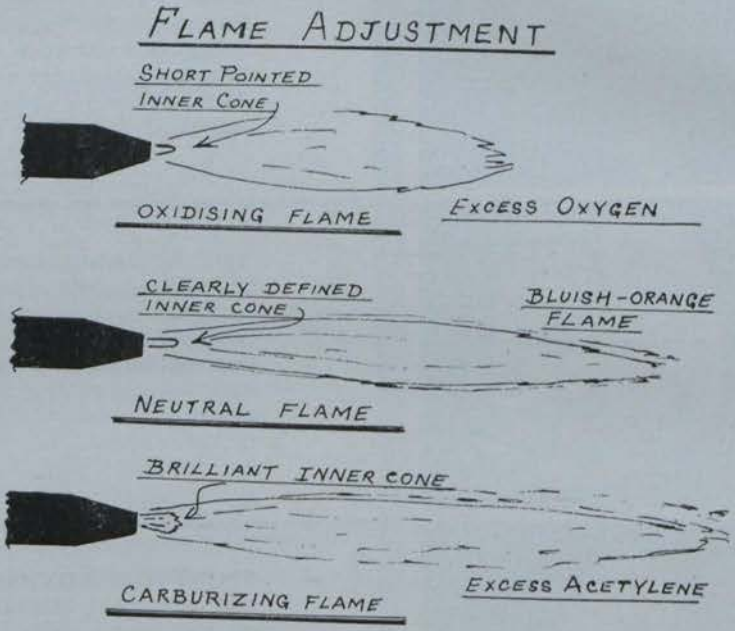
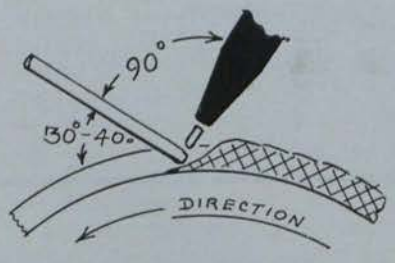
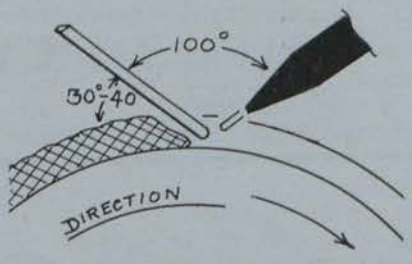


FIG I.



LEFTWARD WELDING

FIG 2.



RIGHTWARD WELDING

FIG 3

It must be remembered that as long as the acetylene and oxygen are mixed in correct proportions, the flame temperature will be the same, irrespective of its size—in other words, the small flame produced by a lead-burning (lead welding) blowpipe is equally as hot as that produced by a large heavy duty welding blowpipe.

The size of the flame, however, and the volume of heat produced by it is governed by the blowpipe tip opening. This tip size is usually selected by the welder on the basis of his knowledge of the melting point, thickness, heat production properties, etc., of the metal to be welded.

Correct flame

ALTHOUGH any novice can produce a flame of sorts by lighting an oxy-acetylene blowpipe, it is of

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TRADE TOPICS

LABORATORY TESTS FOR OIL BURNERS

A LABORATORY at the Institute for Industrial Research and Standards (Dublin) is being fitted out with special test equipment to check standards of heating appliances burning oil under the Oil Burners (Standards) Act, 1960.

The laboratory will be used at the request of the Department of Industry and Commerce for the testing of kerosene burning appliances operated as space heaters without being connected to a flue.

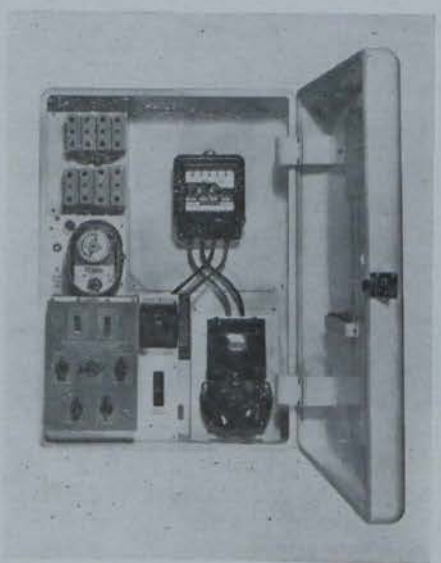
The North Dublin Regional Water Supply Scheme is to cost £1,250,000. It is hoped to start the scheme in June.

CENTRAL CONTROL PANELS FROM VENNERS

IN ADDITION to providing substantial economies in the running costs of electrical central heating, the new Venner Central Control Panels make available the most comprehensive automatic control system ever offered by this company (below).

The Standard model, which makes provision for the E.S.B. cut-out and meter—and encompasses the heating, lighting, cooking and immersion heater circuits—is intended primarily for new property.

The Minor version is designed for installation in existing premises.



THE second International Oil Combustion Show opened at Nurnberg on March 15 for four days.

HENDRONS PUBLISH SOUVENIR CATALOGUE

OUR congratulations to Hendron Brothers on the production of an impressive and extremely well-edited Souvenir Catalogue, which they have published to mark the fiftieth anniversary of the foundation of the House of Hendron.

In 144 pages the Souvenir Catalogue conveys, as it describes some of the activities of the Hendron Group of Companies, an impression of immensely varied interests, and great activities.

NEW "GREVAK" TRAP INTRODUCED

THE NEW "Grevak" Monitor patent Anti-Siphon Trap in Hostalen (Polyethylene) is an important addition to the extensive range of "Grevak" traps. Designed on the "Grevak" principle of operation, the "Grevak" Monitor gives a high efficiency resistance to both induced and self-siphonage providing a complete safeguard against unsealing. Size: 1¼" B.S.P. male outlet "P" trap. Adaptor available for conversion to "S" trap outlets. Outlet Connections: Outlets suitable for connecting these traps to copper, steel, lead and plastic piping are available. Irish Agents: McGrath & Kenny, 48 Townend St., Dublin.

O.B.C. LTD. have recently been appointed as the sole distributors of the Pulsometer Perfecta range of accelerators for Ireland. The address of the local O.B.C. branch office and stores is 5 Upper Fitzwilliam St., Dublin.

DUAL SCALED DIAL

THE COMPLETE range of industrial thermometers produced by the British Rototherm Co. Ltd. (London) can now be supplied with a dual dial scaled in both Fahrenheit and Centigrade. Irish Agents: Rototherm Precision and Instrument Co. Ltd., 17 Merchants Quay, Dublin.

● **Pictured here is engineer and contractor Mr. Edmond D. Ryder, of 46 Lr. Drumcondra Rd., Dublin, who has been successful in obtaining a full British Patent on his "Augustine" electric boiler. See next month's Contractor for a full report on this new boiler.**

SEEK QUALIFIED ENGINEERS

G. N. HADEN & SONS LTD., 7/12 Tavistock Square, London, W.C.1, are seeking qualified Heating Engineers for their design offices in Northern Ireland and Scotland.

Messrs. Haden & Sons recently secured the major contract for the plumbing, heating and ventilation installations at the new 315-room Irish and Inter-continental hotel which is being built at Ballsbridge, Dublin.

NEW CO. DUBLIN HEATING INSTALLERS

CENHEATRAL (Ireland) Ltd. is the name of a new firm of heating installers which has recently been formed. The Directors of the Company are Messrs. T. Masterson and H. L. Donnelly, and Mr. G. Collins has been appointed Manager.

The firm, who are approved Irish Shell and B.P. Agents, are presently engaged in the installation of a complete central heating system in the Khyber Pass Hotel, Dalkey. The address of Cenheatral Ltd. is St. Brigid's, Knocknacree Road, Dalkey, Co. Dublin.

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DIRECTORY OF MANUFACTURERS, AGENTS REPRESENTATIVES AND DISTRIBUTORS

THE June, 1962, issue of this Journal will contain the first complete register of Manufacturers, Agents, Representatives and Distributors of Plumbing, Heating, Ventilation and Insulation appliances, fittings and materials available in the Republic of Ireland and Northern Ireland. This will include the names and addresses of Irish agents and their principals in Ireland or abroad. If you come under the heading of any of the categories listed earlier (see February issue for full details) we would ask you to submit complete details without delay.

* * *

● **Please note that the CLOSING DATE for receipt of details for inclusion in our JUNE ISSUE is SATURDAY, 28th APRIL, 1962.**

Building Services Engineering, Vol. 1 [1961], Iss. 12, Art. 1

TRADE TOPICS

FROM THE NORTH OF IRELAND BY OUR CORRESPONDENT WILLIAM A. McMASTER

NIMPA: ALDERMAN LAWTHER ELECTED HONORARY LIFE MEMBER

THE congratulations of the entire plumbing industry in the North will be extended to Alderman W. J. Lawther, J.P., who has just been elected an Honorary Life Member of the Northern Ireland Master Plumbers' Association. This is the first time that such an honour has been conferred by this old-established Association.

Alderman Lawther retired from active business a few months ago, but continued to serve NIMPA as their honorary treasurer. His interest in the industry extends back for very many years and during his term of office as custodian of the funds of NIMPA he has displayed great zeal.

Despite the fact that he had retired from business, his NIMPA colleagues would hear no word of his relinquishing the treasurership. The proposal that he be elected to honorary membership came from Mr. Jack Willis, speaking at the Annual Meeting in Belfast on February 28. Mr. Willis spoke of the Alderman's long service to the Association and of the value to that Association of his continued advice on financial matters.

This was strongly supported by Mr. Gerald Kennedy, who spoke with some appreciation of the Alderman, who had introduced him (Mr. Kennedy) to the plumbing trade many years before.

No opposition

It was a proposal that met with no opposition. Indeed, it was warmly applauded by the meeting and the name of Alderman Lawther was thereupon entered as the first honorary member.

An honour was also extended to Mr. Gerald Kennedy, who was elected President of NIMPA for 1962. His nomination was proposed by Mr. Norman Allen, retiring President, who told the meeting of the valued services Mr. Kennedy had given on the committee and, more latterly, as vice-president.

Mr. W. Reid and Mr. Jack Willis were elected vice-presidents. The other committee members elected were: Mr. D. Stevenson, Mr. W. N. Allen, Mr. R. J. Brennan, Mr. W. Jefferson, Mr. J. Cumming and Mr. R. Corry.

Delegates to the Joint Industrial Council for 1962 are: Mr. Allen, Mr. Willis, Mr. Magilton, Mr. Cumming and Mr. Brennan.

The opportunity was taken to consider the attitude of the Employers to the request by the Plumbing Trades Union for an adoption of a five-day working week.

Major obstacle to this seems to be the fact that, during the short winter days, the light available on building sites precludes the required number of working hours being achieved. The meeting was sympathetic to the request and, indeed, accepted the fact that a five-day week was bound to come. It was felt, however, that until it was adopted generally by the building industry it could not be adopted by the plumbing employers. At the same time, the meeting took the view that there would be no objection to recommending their members to adopt a five-day week where possible.

Dinner followed the meeting, at the end of which Mr. John Cumming expressed the sentiments of those present that the new President would have an enjoyable year of office.

Good news was received recently by the Belfast firm of William Willis & Co., Dublin Road, who were informed by the Coal Utilisation Council and the National Coal Board that their well-known Willis back-boiler had received official approval under the NCB "House Warming" scheme.

The Willis boiler was designed more than 30 years ago by the late F. A. Willis, father of Mr. D. Erskine Willis, present managing-director of the company. The boiler encircles the whole back of the fire, replacing

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the traditional side firebrick by additional boiler capacity.

Many householders in Northern Ireland have, for some years past, been obtaining satisfactory service from this boiler, both for domestic hot water supplies and for the heating radiators. Since it was originally designed, a number of improvements have been effected.

The McNeill Group of companies brought together a large number of Northern Ireland architects and structural engineers at the Grand Central Hotel on March 1 for a symposium on Thermal Insulation. The meeting was presided over by Mr. R. N. Crawford, in the unavoidable absence of Mr. Shaun McNeill.

Unfortunately, some film which should have been used to illustrate the value of fibreglass as an insulating medium was delayed in transit, so that Mr. John D. Menton, of the Owen Corning Fiberglass Corporation, New York, had to speak on the virtues of fibreglass without the visual aid.

A description of the Grecon system of attaching insulating panels and tiles was described by Mr. W. G. Conn.

TENDERS

(See also page forty)

SEWAGE SCHEME

DUNDALK Urban District Council — Sewage Pumping Machinery Required: The Dundalk Urban District Council hereby invite Tenders for the supply and installation of certain sewage Pumping Machinery, electric motors, float gear, switches, accessories and ancillary equipment in a pumphouse to be erected at Newry Road, Dundalk, in accordance with General Conditions of Contract and outline specification prepared by Thomas G. Kenny, B.E., M.I.C.E. (I.), Town Surveyor, copies of which may be obtained from the undersigned on payment of a deposit of £5 5s.

Tenderers are required to state the time of delivery of machinery and the installation thereof.

The latest time for receipt of tenders is April 14, '62. They should be sent to: J. A. Smyth, Town Clerk, Town Hall, Dundalk.

★ ★

LIMERICK County Council — Adare Water Supply Extensions: The Limerick County Council invites tenders for the provision and laying of 2,130 lin. yards of 3'' dia. Class B watermains as extensions to the water supply system at Adare, Co. Limerick, in accordance with the drawings, specification and Bills of Quantities prepared by Chevalier Patrick J. Sheahan, K.S.S., F.R.I.A.I., M.I.C.E.I., Consulting Engineer, 47 O'Connell Street, Limerick, from whom contract documents may be obtained on payment of a deposit of £5 5 0.

Unskilled labour for the scheme shall, as far as is practicable, be recruited through the local office of the Department of Social Welfare.

The Contractor whose tender is accepted will be required to complete a Contract Agreement to be prepared by the County Solicitor at the Contractor's expense, and he will also be required to provide a Contract Guarantee Bond with an approved Irish Assurance Company for the full amount of the contract sum and the cost of Bond is to be included in the tender.

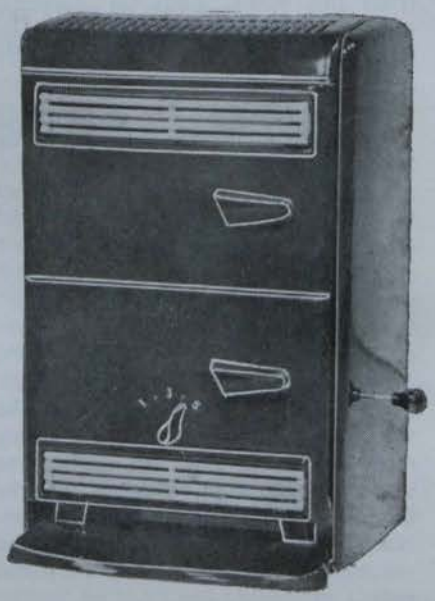
Sealed tenders on the form provided, endorsed "Tender for Adare Water Supply Extensions," and accompanied by the Bill of Quantities priced and extended in ink and marked on the envelope, "Bill of Quantities for Adare Water Supply Extensions," should be delivered to the Secretary, Limerick County Council, 82/83 O'Connell Street, Limerick, not later than 4 p.m., March 23, '62. Each envelope should bear on the outside the name and address of the Contractor.

THE soaring popularity of BNM peat briquettes is reflected in the success of the MONA—the modern convector heater that was specially developed by the Waterford Foundry in conjunction with Bord na Mona to burn BNM peat briquettes.

Ireland's first fully-enclosed

MONA

peat briquette room heater



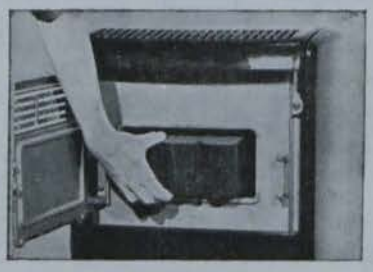
BNM peat briquettes are fuel in most convenient and concentrated form; clean and economical to use. And, with three BNM factories producing 5,000 tons every week, they are always readily available from fuel merchants. The ideal fuel for Irish homes—the perfect fuel for the MONA.

MONA warmth is healthy warmth . . . no stuffiness, no chilly draughts. It heats the air by convection and gently circulates warmth to every corner of the room. It gives wall-to-wall heating at only a fraction of the cost of open fire heating because almost every scrap of fuel is used to heat the room and is not wasted up the chimney.

It responds very rapidly to any adjustment of the air control—even after a long period of idling the fire will quickly revive and surge warmth all over the room. It need never go out from November to May.

The MONA makes itself at home wherever a flue outlet is available; it can be fitted in almost all open fireplaces, even those with very low lintels. Its unique 'heat-exchanger' provides extra warmth—up to 2,200 cu. ft. without any increase in fuel consumption.

Heat is fully and easily variable by a 5-position control. The MONA responds rapidly to every adjustment of the control; even after a long period of idling the MONA'S fire will blaze into life at a touch—remember how quickly the old turf fire recovered from just a few embers?



See how simple it is to re-fuel! Two or four peat briquettes at a time are all the MONA needs to provide whole-room heating . . . hour after hour of wonderfully even, all-round *warmth. It will burn for 10 hours without re-fuelling if required.*

This special covered ash pan means that all the ash can be carried away without the risk of any escaping into the room. All you have to do is cover the pan and carry it away. Then you can pour the contents into your ash bin or put in on your garden. (it has a useful lime content).

THE MONA PEAT BRIQUETTE ROOM HEATER IS IRISH MADE THROUGHOUT BY THE WATERFORD FOUNDRY

Proprietors: Masser-Waterford Ironfounders, Ltd.

https://arrow.tudublin.ie/bsn/vol1/iss12/1
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In this, the second article in a two-part series, we deal with

TURF FUELLED DOMESTIC HEATING INSTALLATIONS

the author . . . **H. M. S. MILLER, B.Sc.Eng., M.I.Mech.E. (London), M.Inst.F., M.I.C.E. (I.), Technical Development Supervisor of Bord na Mona.**

IN dealing with domestic heating, a number of basic considerations must be made. Three factors are to control the heat requirements necessary to produce human comfort, and these are:—

- Climatic conditions.
- Building construction.
- Amount and type of heat demanded by individuals.

All three factors vary widely. Thus, ideally, heating units should be so designed as to provide comfort within a wide range of conditions. To this end they should be easily and quickly controllable and also be able to provide the sort of room climate most conducive to comfort. It is now proposed to examine these factors in some detail in an attempt to draw up a specification for the ideal room heater.

Climatic Conditions.—Our heating season usually runs from September to May. We are all familiar with those days at the beginning and end of winter when it is pleasantly mild by day and unpleasantly cold by evening. We know too that such variable spells can occur both in winter and summer. We do not have a fixed cold winter and a hot summer. Even with more and more reliable weather forecasting we cannot plan our heating requirements ahead with any certainty. This is one reason why the ingenious electric storage heaters have not, on the whole, gained wide popularity.

Damp winters

While we do not have really cold winters by Continental standards, we do have damp winters and it is common experience that the dampness induces a "cold" feeling even though the thermometer may be over 45°F. On the other hand, excessive "drying" of the room air is equally unpleasant.

To cope with these conditions we need "slumbering" heaters which do not use much fuel but which can be adjusted to heat a room to a sufficiently comfortable degree within the shortest possible time. Therefore the factor of our climatic conditions calls for the inclusion of the following features in our ideal specification:—

1.—Capacity for rapid pick up of room heat;
2.—Wide range of output to cope with variations from mild to cold conditions;
3.—Long "slumbering" or "banking" qualities;
4.—Ability to reduce high humidity without overdrying the room air.

Building Construction.—It is fortunate for the people of Ireland that the climate is fairly mild. So many houses are built of solid and cavity concrete block and roof insulation is so rare that typical heating costs are unnecessarily high. Even doors which do not warp and twist with the weather are rare in the average Irish home. On the Continent, apart from insulated walls and roofs, basement space is often provided, windows and doors are often double and all of them fit the openings they cover! Doors are usually made to fit over the edges of the frame and are not merely designed for "push-to" closing.

To the average Irishman the Continental designs are the height of luxury; yet they would directly reduce his fuel costs in a startling way.

Existing houses cannot be rebuilt to overcome the defects described above but at least they can be improved considerably by fitting on ceilings and on walls standard insulating material which is available from all builders' suppliers.

The cumulative effect of bad building construction is high fuel costs arising from excessive heat losses in one or more of the following ways:—

(a) through roof; (b) through walls and floor; (c) through windows; (d) by draughts through doors, under wainscotting and past window joints.

Another feature of building construction affecting heat requirements is the positioning of chimney flues in relation to outside walls. There are good maintenance reasons why chimney flues should be well insulated and therefore not built on outside walls if possible; in addition centrally placed flues retain some heat which would otherwise be lost to the atmosphere. Thus the amount of fuel required for a given heat level is less when chimney breasts are on inside walls.

Draughts in badly constructed buildings can cause uneven heat distribution and may be difficult to prevent, but a major factor in developing draughts is often the heat appliance itself.

Efficiency

It is clear that improved building standards would lead to increased heating efficiency irrespective of the type of heating used. Nevertheless, whatever these standards, it is desirable that the following additional specifications should be incorporated in the ideal heater:—

5.—Produces no unnecessary draughts in the room;
6.—Provides overall room heat rather than excessive local heat variations;
7.—Has a minimum heat loss up the chimney flue.

continued overleaf

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AMOUNT, TYPE OF HEAT DEMANDED BY PERSONS

One person may be comfortable sitting in a room at 68°F whereas another will be satisfied with not less than 74°F. Usually these variations in individual heat requirements can only be solved by compromise on one side or the other; however, all will agree that cold backs, cold feet and hot faces are definitely uncomfortable.

Within certain limits human comfort is best achieved when the overall temperature of the room is raised to the desired level.

The temperature of a room heated by radiation only will rise slowly and unevenly. If there is a gaping open chimney sucking up hot gas and air from draughts, the room will take a very long time to reach a comfortable heat level and at the cost of an inordinate amount of fuel. Under these conditions cold backs and hot faces (and one might add empty pockets) will still be the order of the day. The open fire, which is our most common form of spaceheating, has all the undesirable features just described. Since it heats by radiation only, those in its immediate vicinity get the benefit of all the heat emitted while those cut off from a direct line to the fire get little if any heat at all.

Convection

On the other hand, the temperature of a room heated entirely by convection, i.e., by hot air circulating, can be raised quickly and economically. Furthermore, the heat generated will be distributed equally throughout the area of the room and will not be confined to the immediate vicinity of the source of heat. This type of heating suffers, however, from the disadvantage that all the room occupants have to tolerate the same level of heat.

The provision of some radiant heat is, therefore, a desirable object inasmuch as a particular room occupant can have access to more heat if required. Another drawback of most convector heaters is that they give rise to noticeable differences in temperature between ceiling and floor levels so that an impression of "cold feet" may be caused even with a floor level temperature of over 60°F.

If there is no flue outlet or ventilation in a room the atmosphere will become more rapidly unpleasant due to lack of air changes. If heaters are used which consume the room air with no air changes (i.e., no flue) a serious loss of room oxygen can occur also. The following additional features must, therefore, be built into the ideal heater specification to cater for our variable human demands:—

8.—Allows some limited air change;

9.—Provides some radiant and much convection heat;

10.—Reduces the temperature gradient between floor and ceiling levels to a minimum;

11.—Does not consume room oxygen without drawing in fresh air under the influence of a chimney outlet or ventilator.

The ideal room heater specification can now be summarized under eleven headings:—

1.—Capacity for rapid pick up of room heat.

2.—Wide range of output to cope with variations from mild to cold conditions.

3.—Long "slumbering" or "banking" qualities.

4.—Ability to reduce high humidity without overdrying the room air.

5.—Produces no unnecessary draughts.

6.—Provides overall room heat.

7.—Has a minimum of chimney losses.

8.—Allows some limited room air changes.

9.—Provides some radiant and much convection heat.

10.—Reduces the temperature gradient between floor and ceiling levels to a minimum.

11.—Does not consume room oxygen without drawing in fresh air under the influence of a chimney outlet or ventilator.

We can safely say, at the outset, that as yet there is no heating appliance which fulfils all these requirements adequately but it is worth while examining the characteristics of the more common forms of heating to see how closely they conform to specification. The results of this examination is set out in the following table.

"YES" signifies the appliance passes the specification.

"NO" signifies that it does not.

TYPE OF HEATER	1	2	3	4	5	6	7	8	9	10	11
1 Radiant Electric Fire ..	No	No	Yes	No*	Yes	No	Yes	No	No	No	No
2 Radiant Gas Fire	Yes	Yes	Yes	No*	Yes	Yes	Yes	No	No	No	No
3 Convector Electric Heater ..	Yes	No	Yes	No*	Yes	Yes	Yes	No	No	No	Yes
4 Convector Gas Heater	Yes	Yes	Yes	No*	Yes	Yes	Yes	No	No	No	No
5 Open Fire ..	No	Yes	No	No†	No	No	No	No	No	No	Yes
6 Oil Heater ..	Yes	Yes	Yes	No*	Yes	Yes	Yes	No	No	No	No
7 Central Heating	No	Yes	Yes	No*	Yes	Yes	Yes	No	No	No	Yes
8 Closed Radiant (stove) Heater	No	Yes	Yes	No†	Yes	Yes	Yes	Yes	No	No	Yes
9 Closed Convector (stove) Heater on hard fuel	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes
10 Closed Convector (stove) Heater on peat briquettes ..	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes

* Tends to over-dry the air. † Does not "dry" enough.

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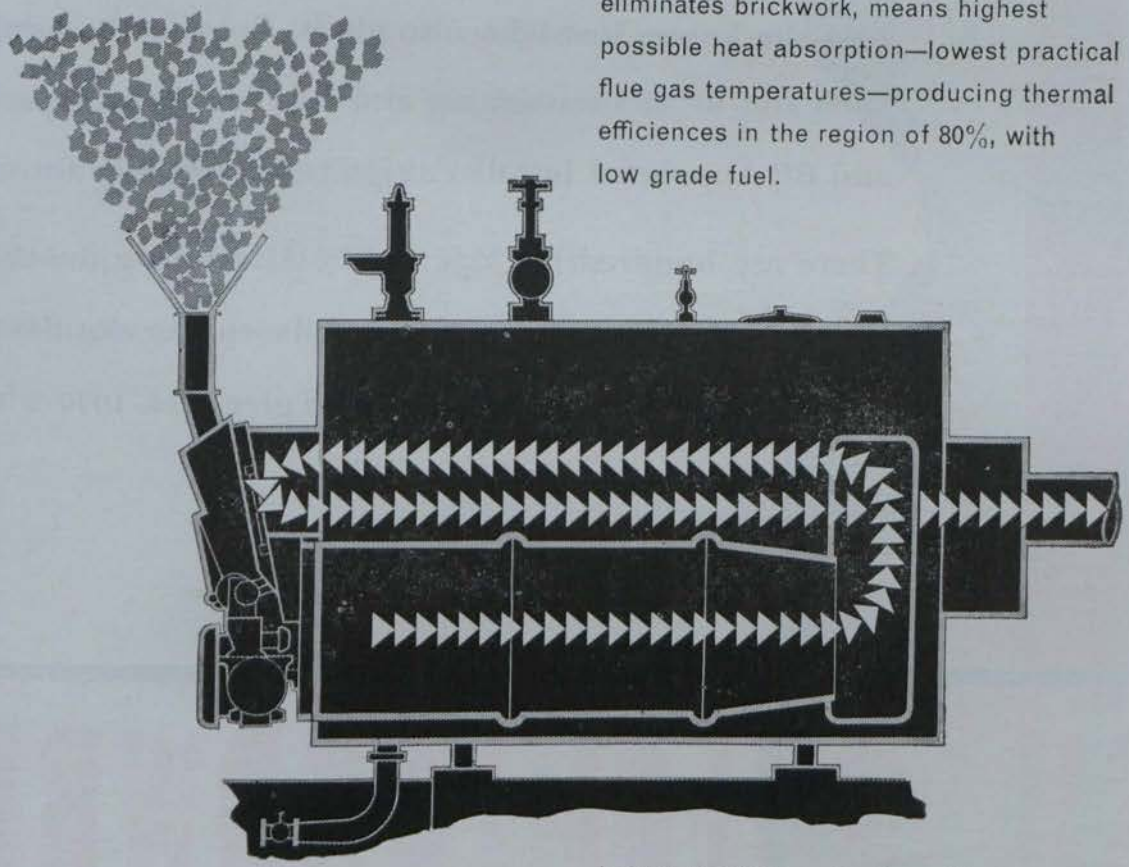
LOW COST STEAM FROM IRISH TURF

That's what you get from a hopper-fed, turf-fired RUSTON HORIZONTAL 'THERMAX' boiler—long accepted by most Irish consulting engineers as the first choice in low cost steam raising. A 'THERMAX' turf-burning boiler *cannot* waste fuel because its combustion chamber is totally submersed within the boiler shell. Its treble-pass, wet back design, which eliminates brickwork, means highest possible heat absorption—lowest practical flue gas temperatures—producing thermal efficiences in the region of 80%, with low grade fuel.



In Irish hospitals, and in the public service and industry generally, 'THERMAX' boilers are cutting the cost of steam raising—in operation *and* maintenance. When the time comes to replace that out-of-date, wasteful boiler . . . if it hasn't come already—remember 'THERMAX'.

RUSTON HORIZONTAL **'THERMAX' BOILERS**

Also available to burn coal, coke, oil and other fuels, with evaporations up to 20,000 lb. per hour.

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AT SHE WANTS!

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Some explanatory notes in support of the above classification are given in the Appendix.

It will be seen that whereas no ideal room heater is at present available, one, the open fire, is particularly far removed from the ideal, and another, the convector heater, is quite close to it.

Highly efficient and attractively modelled convector room heaters are now on the market here. New designs aimed at reducing the temperature gradiant from floor to ceiling, which is their chief drawback, are being investigated. Recent developments in European countries and also in Australia have shown that a clearly visible fire is possible in such heaters without taking away from the other advantages of the closed stove.

WHAT IS THE CONVECTOR STOVE?

The convector stove, in essence, consists of a fire-box with a shroud. The shroud is finished so as to give a pleasing effect, but this is not its main function. Between the firebox and the outer casing is an air space, open at the top and bottom, which is called a convection duct. This duct becomes heated and acts exactly like a chim-

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DOMESTIC HEATING INSTALLATIONS

ney drawing in air at the bottom and discharging it at the top. The warm air rises to the ceiling where it loses some heat, descends to the floor again and is recirculated through the convection duct. With a properly sized convector stove there is very little difference in temperature between different ends of the room, though there is a difference between floor and ceiling.

The convector stove uses relatively little combustion air because it is so efficient in exchanging its heat with the room air. An open fire may use from three to six times the amount of air required for normal ventilation and hence it creates uncomfortable draughts. The burning of a few lbs. of fuel in a convector stove will effect a rise of temperature in a cool room by several degrees. The same amount of fuel burnt in an open fire will produce hardly any noticeable effect under the same conditions. Over an average winter's day, a convector heater in a cavity block room of about 1,400 cubic ft. capacity will use in the region of 20 lbs. of peat briquettes.

This assumes it is kept alight 24 hours with long banking overnight and through most of the day, and with the room temperature raised to about 70°F. from 5 p.m. to about 11 p.m.

CHOICE OF FUEL FOR CONVECTOR HEATERS

A closed heater does not operate efficiently if the fuel used has to be poked or sliced up during burning. It also fails in its function if it will not lie quiescent for long periods, with a rapid pick up of heat at the end of that time.

Thus any free burning, non-caking fuel with high ash insulating properties will suit these heaters. Turf is particularly strong in these characteristics and turf briquettes have the added advantage of low bulk and

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uniform physical qualities.

Convector heaters are most economic because:—

(1) They extract the greatest amount of useful heat from a fuel; (2) they distribute this heat uniformly in a room; and (3) they operate most satisfactorily on peat briquettes.

Stuffiness

There is no doubt that the atmosphere of a room heated by a convector stove will, on first acquaintance, appear stuffy. This is due to the difference between radiant heat, say, from an open fire, and convected heat to which we are unaccustomed. The former will heat a person in the room without warming the air. The latter must, by virtue of its operation, warm the air in order to heat the occupants. The sensation of breathing warm air will give a sensation of stuffiness at first but it is one to which people quickly become acclimatised. The air in the room is fresh, but warm.

SUMMARY COMPARISON OF OPEN FIRE AND CLOSED STOVE

Open Fire.—Capital cost much less than closed stove, but see below.

Closed Stove.—In new houses, where closed stoves are installed, the conventional tiled surround may be omitted, and the cost of the stove will then be comparable with the cost of fireplace and surround.

Open Fire.—Running cost high.

Closed Stove.—Running cost ¼ to ⅓rd of open fire for same heat output.

Open Fire.—Practically all radiant heat, so that occupants who do not actually see the fire are not properly heated.

Closed Stove.—Practically all convected heat. The air throughout the room is warmed and nobody occupying the room can be cut off from the heat supply.

Open Fire.—The open chimney draws large quantities of air, through badly fitting doors and windows, thus causing unpleasant draughts.

Closed Stove.—The only air drawn into a room by the closed stove is through the small primary air opening and draughts cannot be created.

Open Fire.—Banking of open fires is extremely uncertain and daily relighting is often necessary.

Closed Stove.—Banking of the closed stove is virtually foolproof and the fire need only be lit once during the heating season.

CENTRAL HEATING IN THE HOME

On the basis of our ideal specification, central heating is inferior to convector stoves as a method of home heating. The following comparison framed from the viewpoint of capital cost and heating efficiency confirms this conclusion.

Central Heating.—Capital cost, £300 to £500 for normal house.

Room Heaters.—Capital cost, £25 to £30 per room to be heated.

Central Heating.—Heat losses: (1) from chimney; (2) from boiler surface; (3) from distribution piping.

Room Heaters.—Heat losses from chimney only.

ROOMS MAY APPEAR TO BE STUFFY

Central Heating. — Heat wastage from radiators left turned on in unoccupied rooms.

Room Heaters. — Negligible heat wastage in unoccupied rooms, since fire will not be refuelled.

Central Heating.—Boosting heat in any particular room involves adjusting radiator valves in all other rooms unless individual motorised valves are installed.

Room Heaters.—Heat easily controlled at point of utilisation; one heater can heat two rooms if required; and one heater in a central position, e.g., a hall, can give background heat to the whole house.

Arguments may be advanced against solid fuel on the grounds of inconvenience of ash removal and refuelling. Ash removal is not arduous with convector heaters as they have ash pans fitted and no brushing or disturbance of ash is required. Also refuelling is so relatively infrequent with convector heaters that it should give rise to no serious difficulty even in households with high labour saving standards.

CAPACITY OF CONVECTOR HEATERS

A lot of misleading statements are made about the capacity of stoves to heat rooms. In general, manufacturers tend to claim high volume figures and customers may be disappointed if they take these claims literally. The fact is that two rooms of the same dimensions may require heaters of a different size, e.g., a room of 1,500 cu. ft. with three outside walls, made of concrete block, requires more heat than the same size room with three outside walls which are of true cavity construction. A room of the same size but on an exposed site and with a badly fitting door requires an even still larger heating unit. All this is a function of the natural heat losses.

Heaters of this type have a wide range of capacity but this means simply that more frequent refuelling, with the air control fully open, will produce more heat. There is, of course, a limit to refuelling rates so that when deciding on the size of heater to be installed it is better to err on the side of generosity. In cases of doubt the manufacturer's advice should be sought.

Under average conditions heaters such as the "Mona" and the "Rayburn" will suffice up to about 2,200 cu. ft. capacity in reasonably well built rooms. They will, of course, operate equally well in smaller rooms. Larger heaters such as the "Ahlmann" are available from continental manufacturers through their Irish agents.

NOTES ON HEATER CLASSIFICATION TABLE

1.—**Capable of rapid pick-up of room heat.**—All the convector fires will give rapid pick up because they draw the air to them by convection and hence cause rapid air warming. Since they burn air, the radiant gas fire and oil heater with no flue outlet will also cause some convection and hence be superior in this regard to purely radiant heaters such as the electric fire. The closed radiant (stove) heater does use air but passes it up the chimney and thus the air currents it induces consist of cold air drawn from outside the room in contrast with the rapid internal hot air movements caused by convector heaters.

The open fire induces air currents but almost all of these pass up the flue and are not recirculated within the room.

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DOMESTIC HEATING INSTALLATIONS

2.—**Wide output from mild to cold conditions.**—In this specification any heater is satisfactory which can be adjusted over a wide range of outputs either by air control, the turn of a gas tap, the adjustment of an oil valve or by increasing the volume of fuel on the grate (e.g., open fire).

3.—**Long slumbering or banking qualities.**—Any appliance which can be turned "on" or "off" at will can be classified as "long slumbering." No banked heater gives off any really useful heat during its banked period. Thus a "switch off" is just as useful as a very slow burning. The purpose of banking is to avoid the necessity for relighting. Open fires in which turf is used can be kept alight but not easily and not without causing a "stewing" effect on pick-up unless special kindling is used which would, of course, defeat the banking quality.

4.—**Tendency to reduce high humidity but not overdry the air.**—Strong radiant heat without air movement [illegible] skin, as will convector heaters without room air changes. An open fire does not have time to heat or dry the air before it exhausts through the chimney. Anyone who has tried to dry out a damp room using heaters with only radiant heat, or with limited air changes, knows how very long this takes. A convector (stove) heater will effect such drying very quickly; yet by drawing in some fresh air for combustion and passing it up the flue, the room air is kept reasonably fresh and at the same time warm and not overdry.

5.—**Produce no unnecessary draughts.**—The open fire is the main culprit here and it is, of course, aggravated by poor building construction. The other appliances are not in themselves draught promoters.

6.—**Provide overall room heat.**—Given sufficient time and assuming they have sufficient capacity, all appliances, if kept going at full output, will heat a room fairly completely. Even an open fire, if stoked constantly, can achieve comfort for all those except the stoker. This specification is more of a merit rating than a rigid qualification. The radiant electric fire heats the person who is fully exposed to the radiation and who is sufficiently close to it. Another person cut off from direct contact with the fire will not feel this heat until the air in the room has, very slowly, heated up. Where some little convection is caused by combustion, as explained in point 1, the appliance has been given a merit rating of "yes" instead of "no."

7 and 8.—**Have minimum chimney losses.**—The classification used in the table for these points should not be in doubt. It is assumed that no flues are used with the gas heaters.

9.—**Provide some radiant and much convection heat.**—It would be ideal if a heater warmed the room rapidly and evenly and at the same time allowed a person to obtain appreciable extra heat in the form of radiation by coming close to the heater.

10 and 11.—These points should require no special comment.

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AN IRISH PLUMBER & HEATING CONTRACTOR SPECIAL SURVEY

ROOF DRAINS, WATER HEADS GUTTERS AND OUTLETS

NEW MATERIALS AND INSTALLATION TRENDS

A **DRY** building is essential to the health and comfort of the occupants and to the durability of the structure. The informed design of surface water drainage in gutters, downpipes, and underground drains is therefore an important aspect of building design which directly affects the plumbing designer and the operative plumber. The designer is concerned with rainfall intensities, carrying capacities of gutters and pipes, and the relative water shed areas which these will be called upon to effectively drain.

The plumber will be concerned with the competent fixing of the drainage equipment in intelligent anticipation of the design requirements. Both will have some concern for the present availability of materials for this work and will seek to select that which will give good service consistent with durability, reasonable capital cost, low maintenance cost, and yet still with an eye to aesthetic appearance as regards suitability of material to blend with the rest of the building structure or that of buildings in the vicinity.

As absorbing as the design aspect of surface water drainage is, this survery must be constrained to an outline of the newer materials and installation trends.

These, it would appear, are aimed to achieve:—

Freedom from corrosion: This to obtain lasting good appearance without periodic corrosion resistant applications.

Freedom from encrustation: This to obtain lastingly greater fluid flows in gutters or drains.

Facility of handling (on site and in fixing operations): This to reduce cost of installation and improve productivity in building.

Greater economy—arising out of a combination of these aims.

Notable trends are the application of more corrosion resistant materials than hitherto, and the development and use of much simplified and speedier jointing methods.

Flexibility, either at purpose designed joint or through inherent material flexibility, also shows a clear trend no doubt aimed to overcome problems associated with unstable soil conditions, areas where ground settlement may be expected, such as in made up grounds, mining subsisdence, or even, to-day, the settlement due to increasing superimposed weight as tall buildings rise in construction. One sixteen storey building was designed to settle into the ground as much as 6ins. on completion—and it did! One can imagine the effect of this on the underground drainage work had rigid materials or joints been used.

Dealing with underground drains, and above ground gutters, downpipes and fittings in that order:—

Drains

SPUN CAST IRON PIPES to B.S. 1211 have long been a wise and popular choice where robustness and inherent strength of material was of prime consideration. For foul or surface water drainage under buildings, or in suspended installation through basements, lateral ducts, etc., this material will continue to find continuing use, especially with the introduction of newer, improved jointing methods. Some of these offer speedier jointing techniques, some offer useful flexibility at the joint and thus render an otherwise rigid pipeline flexible, many offer both these advantages.

Corded Cold Caulking Compounds offer sound joints made in less time and effort than required by the older caulked yarn and hot run lead spigot —socket joints. Although not primarily intended as flexible jointing media, joints of this material have withstood test deflections of 2ins. at 13ft. at 400 lbs./sq. in. without

continued overleaf

This special survey—the eighth in a series on important aspects of the plumbing and heating trades—has been compiled by technical expert, A. L. Townsend, M.R.S.H., M.I.P.

leakage. P.C.4, by "Expendite" Ltd. of Chase Road, London, N.W.10, and distributed in Ireland by Expandite (Ireland) Ltd., Greenhills Rd., Walkinstown, Co. Dublin, is a typical example of this well tried joint material. It comprises a lengthy cord of asbestos impregnated with a cementitious substance. It is conveniently wound on a bobbin or reel for ease of application to the joint. The free end of the cord is introduced into the annular space between spigot and socket. One complete turn of the pipe is then made by the reel of cord and that turn caulked hard home with a caulking tool which is frequently dipped into a nicely placed can of water.

The water thus introduced to the A.C. cord sets up a chemical reaction during which the material sets out to form a hard, impervious asbestos cement filling. The setting period extends over several hours and pressure resistant strength increases with time to develop a maximum at about 24 hours after finishing the joint. Successive turns of cord are taken round the pipe and individually caulked as previously described until the entire socket depth is filled.

Best answer

Lead fibre or lead wool, as it is more commonly known to the trade, still forms the best answer to C.I. spigot—socket jointing under wet situations where molten lead blow-outs would be dangerous if hot run lead was used, and where excessive water absorption might impair the effectiveness of cementitious materials.

It is well known that this "corded" material is caulked in individual turns until the full socket depth is filled. It also has the advantage of immediate full pressure resistance on completion though in many instances in drainage work this is not all that useful.

The Victualic Joint and others of the bolted, rubber compression ring type also offer quick and trouble-free joints for C.I. unsocketed pipes in any situation, wet or dry. They are particularly valuable where some degree of flexibility must be introduced into a pipeline which for other reasons has been specified in cast iron. For example, C.I. pipe might be recommended where a drain unavoidably passes under a building. The tall building referred to earlier had Victaulic joints in the drain to compensate for expected foundation settlement.

from previous page

More corrosion resistant materials than before

The Stanton "Tyton" Joint for spigot and socketed C.I. pipes is a recent ingenious development. The simplicity of its design and application permits speedy drain laying under all site and climatic conditions.

It comprises a specially interior shaped socket with a groove to accept a preformed rubber ring. When fitted into the socket this ring protrudes to a lesser diameter than the outside diameter of the plain spigot pipe end. Using a forked "tool" to provide a lever using the back of the socket as a fulcrum, the spigot end is drawn into the socket, past the sealing ring, by a wire or rope sling attached to the "tool" and to the inserted pipe.

Salt Glazed Ware drain pipes, the other tried and trusted traditional drainage material for all normal conditions, are not being neglected in this drive to improve performance with economic installation.

Corrosion Resistance is a material property now being increasingly developed to good advantage. It reduces subsequent maintenance costs and it assures constant carrying capacities through elimination of bore restricting encrustations from corrosion products.

Although C.I. pipe can be obtained as factory "protected" against external corrosion, and can be sement lined to reduce encrustation troubles, this latter treatment is reserved for larger diameter water mains, and in any case other, newer, more corrosion resistant materials better able to withstand the ravages of sulphated soils, peat bogs, salt marshlands and the like, are rapidly coming to the fore.

Pressures

Asbestos Cement Pressure Pipes to B.S.486 in Class A for working pressures up to 43.3 lbs./sq. in and in classes B.C. & D. for higher heads and pressures, are successfully used for drain and sewage lifting pipe lines.

The relatively light, corrosion resistant, A.C. pipe is joined either by a detachable rubber ring compression joint of the "Victaulic" type, or by a specially devised screwed gland technique similar in principle to that described for cast iron above.

Fittings for A.C. pipe include A.C. bends and C.I. bends, flange adaptors (for valve insertion to pipeline), branches and hydrant tees. All these are joinable to the pipe by one or other of the joints as just described for A.C. pressure pipes.

Plastics—notably P.V.C. pipelines are increasingly being used for water, sewage, and surface water conveyance. Highly resistant to common corrosion causes, very light to handle, with excellent fluid flow characteristics, and quickly and easily laid, this material is fast gaining favour on all sides. As its simple but somewhat special techniques of usage and jointing become more widely known the trade can expect to see a great deal of this material in water, drainage and rain-water goods applications.

The jointing of non-plasticised P.V.C. in drains, etc., may be by solvent techniques to performed, slip fit spigot-socket pipe ends.

An alternative joint form, one favoured where some degree of lateral thermal movement must be accommodated, employs a shrinkage of socket technique to retain and compress a rubber ring against the outside of the spigot pipe end.

Pitch Fibre, a comparatively new material for drains and R.W. pipes, has successfully passed the test of time, soil, and inclement weather conditions. For the past 50 years it has been much used as underground cable conduits in North America.

Light, easy to handle, in quickly laid and jointed lengths of 8 to 10 ft., with the simplest possible form of taper to taper drive fit joint, this corrosion resistant material bids fair to challenge many of the traditional and newer pipes for drainage work. It has good compressive strength, good flow characteristics, and can be laid in any weather, under any site condition.

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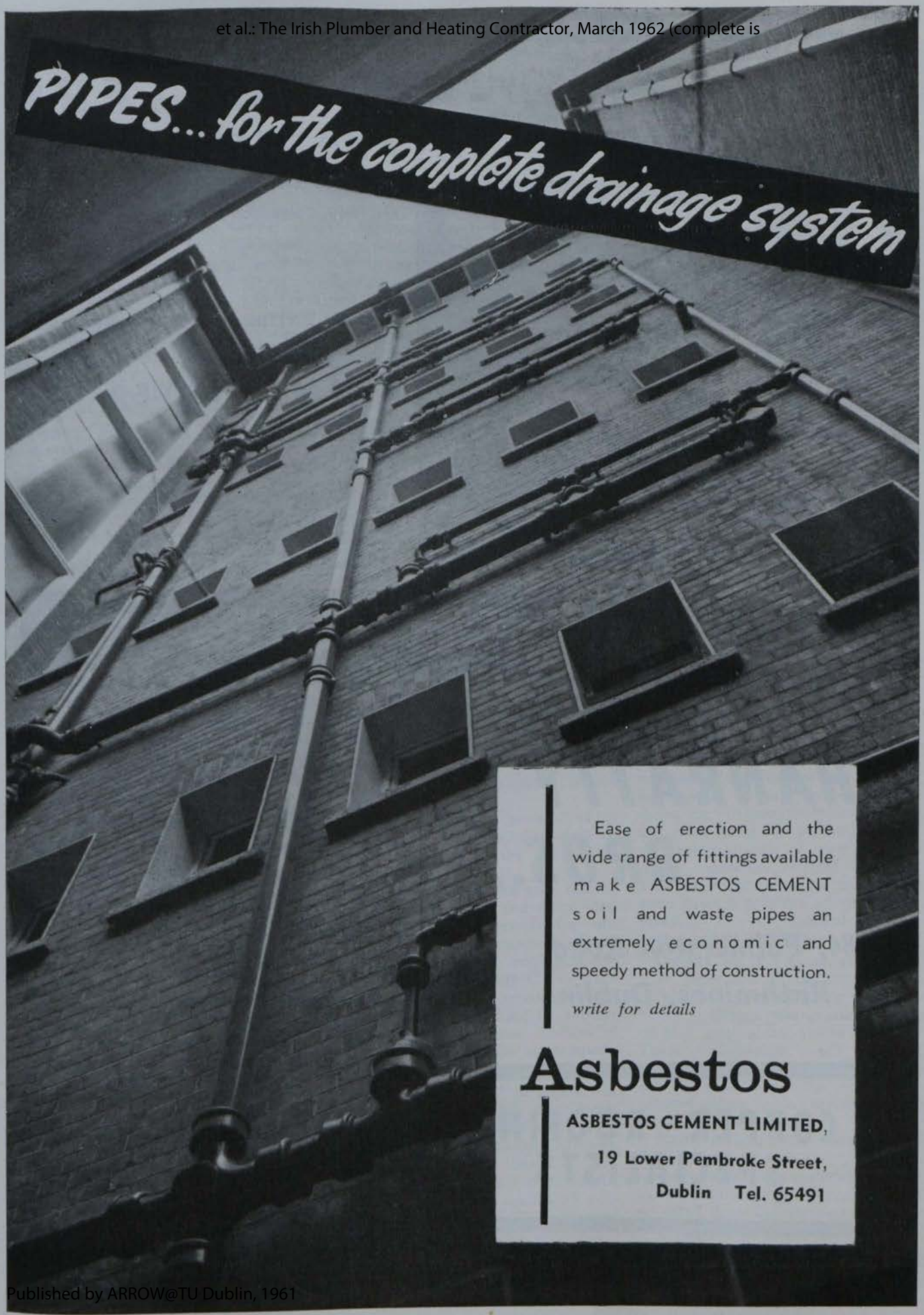

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Pitch Fibre is making rapid inroads into the drainage field on account of its sound inherent physical properties and because of the considerable economic advantages arising from the ease and speed with which it may be laid.

Pitch Fibre for R.W. pipes, particularly in ducted services to larger buildings, is another trend. It has been successfully used in buildings of up to 8 storeys. More recently its use was considered for a just completed twenty-seven storey building and would have shown a saving of over £1,000 in comparison with C.I., which was eventually used in case stubborn blockage at ground level should impose undue pressure on the vertical stack.

Pitch Fibre in soil stack work is perhaps becoming more widely known. For further information on the useful properties of this material, its installation methods, applications, etc., readers could write for free information data from the Pitch Fibre Association of Great Britain, at 27 Chancery Lane, London, W.C.2.

Eaves, gutters R.W. pipes, fittings

FORMERLY almost invariably in cast iron, domestic roof drainage can now be installed, with advantage, in more durable materials.

Where regular painting maintenance is undertaken by conscientious craftsmen, and where fixing methods facilitate complete drying and cleaning of all surfaces prior to painting, cast iron R.W. goods will continue to serve faithfully and well. But periodic painting can be a costly item these days. To evade this cost through choice or neglect is to court an even greater bill for complete re-instatement of corroded and leaky components.

Protected Ferrous R.W. Goods such as galvanised mild steel gutters, pipes and fittings, offers lighter, more easily fixed eaves drainage with less serious consequence of delayed painting maintenance (if it is painted at all).

Vitreous enamelled R.W. goods offer greater durability provided that the protective enamel coating remains undamaged. These materials are obtainable in pleasing shapes and in a wide colour range. No painting maintenance is needed.

Non-Ferrous R.W. goods offer some freedom from costly painting maintenance. Zinc gutters and R.W. pipes might be used to drain a zinc covered roof. Copper eaves, gutters and downpipes would be an obvious metal gutter choice for a copper covered roof. Either could be used to drain a slated or tiled roof if need be.

Plastic Eaves, Gutters, R.W. pipes and fittings. These, commonly of extruded P.V.C. and used in conjunction with insertion moulded fittings such as outlets, angles, etc., now make considerable impact upon this hitherto unrewarding, often uninteresting, yet large part of the plumber's work.

Non-corrodable, flexible (though rigid enough for intended function and normal usage), self coloured throughout, light and easily fixed, obtainable in lengths up to 18ft., gutters of P.V.C. offer considerable advances in

from page twenty-four

Much simplified, speedier joining methods

technique and aesthetic appeal.

Made in true half round section, as they are, P.V.C. gutters have a carrying capacity greater than the segmental sectioned C.I. ones. For example, a 4in. P.V.C. gutter will carry as much as a 4½in. C.I. gutter under similar conditions of fall.

Joints for plastic gutters vary according to manufacturer but the general trend seems to be to adopt some variation of a simple snap closure fit with the plain ended gutter seating on some plastic or neoprene seating pad affixed to the socket of the mating fitting.

Another style uses a "push fit" of the gutter end into the annular space or "socket" formed in the end of the gutter fittings.

Very few, if any at all now, use the traditional gutter bolt and masic joint connection. One reason for this might well be the awareness of the high coefficient of expansion of P.V.C. as compared with C.I. or steel. The more common arrangement of "slip" joint of one kind or another allows for the requisite amount of thermal movement with air temperature variations.

Gutter Fixings tend to follow the traditional. Aluminium alloy fascia brackets coated with P.V.C. seem popular. They are certainly effective. Brackets should be fixed at 3ft. centres. At this the gutter will be adequately supported against all normal possible ladder contact in roof repair work.

R.W. pipes in P.V.C. are made by extrusion process just as other P.V.C. tubes are. They are obtainable in diameters of 2½in. and 3in. and in lengths of 6ft. to 20ft. according to source of supply. These long lengths offer considerable fixing economies and the improved appearance of down pipes with fewer joints is welcome. Thermal movement is accommodated by provision of expansion space in socket depth.

Sockets may be had as preformed on pipe lengths or as separate spigot-socket fittings. These are useful not only for joints between lengths but also for terminating the downpipe at its base in cases where R.W. shoes are not required. They are also useful for adapting odd off-cuts of R.W. pipe, thus eliminating waste.

R.W. pipe fixings are either by eared connectors or sockets, or by the use of purpose made eared pipe clips designed to embrace the pipe barrel.

Fixings are recommended to secure midway between lengths greater than 8ft. but intermediate fixings are not normally necessary for lengths less than 6ft.

R.W. Outlets and Fittings are obtainable in wide ranges of preformed swan-necks, bends, junctions, outlet shoes, etc. Alternatively, swan-necks and other items can be fabricated on site, using off-cuts of pipe and the socket connectors referred to above. This offers further economy and in some cases it provides solution to the problem of non-standard or extended off-set provision.

Colours for P.V.C. eaves, gutters, R.W. pipes and fittings are restricted to black or grey by some manufacturers. Others offer a colour range of blue, grey, green, yellow or black. These "all-through" self coloured materials are decorative and permanent. In cases where the available or selected colour needs altering then the materials can be painted.

Plastic materials for domestic roof drainage are here to stay. The advantages which this material offers in this application merit closer attention to detail than this survey can afford.

Survey continued overleaf

● *In conjunction with this special survey on roof drains, water heads, gutters and outlets, we review products from the leading manufacturers' ranges.*

Govt. approval for terrain system

UNIDARE Limited (Finglas) have just received full governmental approval for the Terrain PVC rain water system.

In the Terrain soil and waste drainage system, the fittings used are of the "all socket" type. This permits the use of plain ended pipes, which may be cut and used in any length without waste. The sockets of the fittings are tapered and the pipe is made slightly "over-size" so that an interference fit is obtained.

An important innovation in the Terrain system is the Access Door, which can be fitted to the pipe or the straight portion of a branch. This door is easily removed for inspection of the interior of the pipe or fitting, or to clear an obstruction.

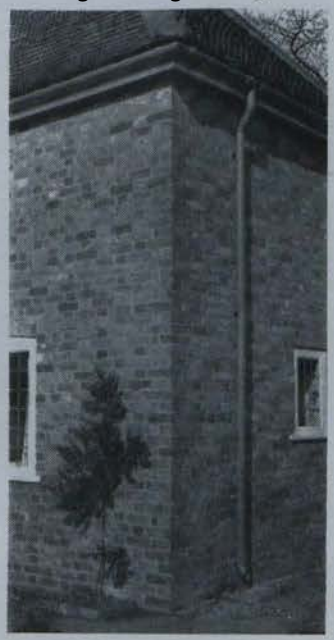
The Terrain system has also been designed to permit pre-fabrication of various sections of pipe work in hotels, flats, or multi-storey office blocks where lavatories, wash basins and anti-syphonage pipe work are exactly repeated on each floor.

Terrain P.V.C. roof drainage system represents the systematic approach. Of particular interest is the design of the components, which have been made, not as copies of conventional units but to take full advantage of the special properties of unplasticised P.V.C.

The Terrain warm air heating and ventilation system is the latest development in the fabrication and installation of ducting. Terrain ducting is made from hard P.V.C. sheets fabricated by using extrusions, cold welded with solvent, so as to form the required sections.

* * *

CARTHORN gutters are made to Irish standard specifications, and are hot dipped galvanised after manufacture. Easy to erect, details can be had from Carthorn Ltd., Commercial Buildings, Dame St., Dublin. . . . .



ILLUSTRATED here is part of the "Aspect P.V.C." rainwater system from Allied Structural Plastics Ltd., Tolpits, Watford, Herts. The Aspect P.V.C. compound (polyvinyl chloride) used, is an unplasticised—"rigid"—and unmodified plastic to the firm's specification.

The rainwater pipe and gutter are extruded from the P.V.C. compound. The wall thicknesses of both the pipe and the gutter have been chosen to give the necessary strength and robustness. The joints are a dry push-fit type. Neoprene strips are used to seal the gutters.

* * *

EASE of fixing, durability, and the real economy effected by them, are features of the "Everite" asbestos-cement soil pipes and connections. With the introduction of the 9' 9" effective pipe length, one or two joints can frequently be eliminated, resulting in a large saving of labour and joining material in a scheme of any size. The pipes can be easily cut with an ordinary saw.

"Everite" pipes and connections are supplied bitumen dipped unless otherwise ordered. Joints can be made quickly and efficiently by means of a gasket composed of tarred hemp, which should be caulked to a depth of approximately 1". The pipes are seamless.

From Turners Asbestos Cement Co. Ltd., Trafford Park, Manchester, and the Irish associate company, Cement Ltd., Drogheda.

* * *

FROM Baxendale & Co. Ltd. comes the ABM vinyl rainwater pipe and gutter. "Black Vinyl" is a lightweight, inert and extremely strong plastic material.

Corrosive elements present in coastal and industrial areas will not affect these rainwater goods and for this reason decoration is never necessary and costly maintenance eliminated.

* * *

THE RESILIENT and flexible nature of the Temple Tube Fibre pipe allows for a degree of movement when subjected to pressures from unequal earth settlement or subsidence when rigid material would crack.

The standard laid down for a 4" bore pipe is 1,100 lbs. per Lin. ft. During a standard test, a length of Temple Tube withstood a pressure of nearly 2,000 lbs. with a bore deflection of $\frac{1}{8}$", without cracking.

The manufacturers are Temple Tubes Ltd., Temple Mill, Passfield, Nr. Liphook, Hampshire. The Irish agents are the North Down Equipment, Dublin Road, Belfast.

* * *

SINCE its foundation in 1947, Kilkenny Products have been manufacturing cast aluminium alloy rainwater gutters, downpipes and fittings. These gutters have been approved from that date, by the Department of Local Government for grant type houses.

Aluminium gutters, one of the most suitable types of guttering sold to-day, are light, being one-third the weight of cast iron and other materials. Aluminium rainwater gutters and fittings are not brittle and cannot easily be broken. Aluminium rainwater pipes do not burst, even in the coldest weather, and cast aluminium gutters do not deteriorate under normal atmospheric conditions.

The material is rustless and non-corrosive, making painting unnecessary. But if other than the natural aluminium colour is desired, cast aluminium gutters can be painted.

Comparing prices of cast aluminium gutters to the other types manufactured, we find they are most competitive.

* * *

ASH & LACY Limited, Meriden St., Birmingham, have a wide variety of "A and L" band galvanised rainwater pipes. These are made by a new process providing additional strength and rigidity, as well as a perfect joint.

continued page thirty

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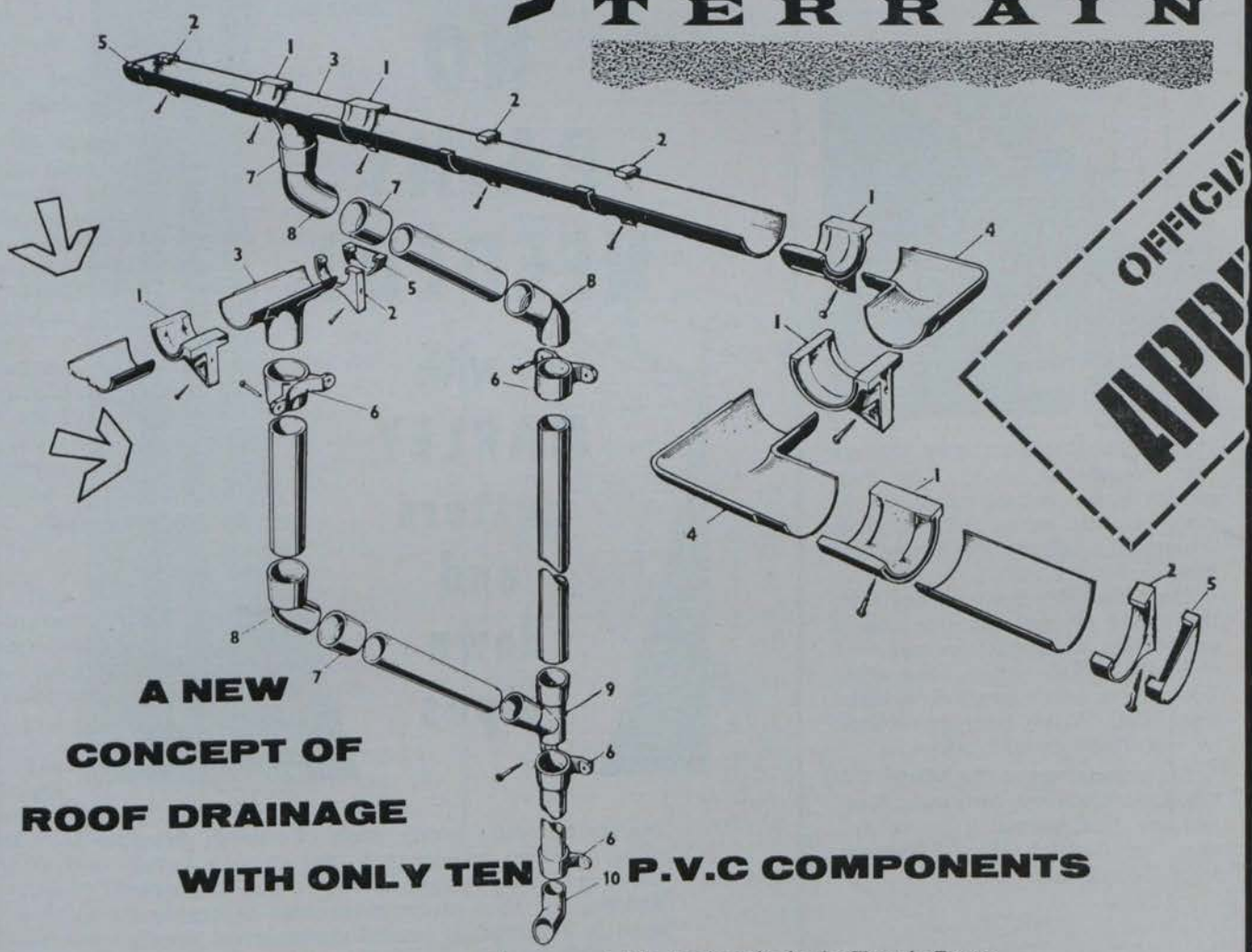
TERRAIN



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APP

A NEW CONCEPT OF ROOF DRAINAGE WITH ONLY TEN P.V.C COMPONENTS

Terrain roof drainage represents the systematic approach. Ten basic units in the Terrain Range have been designed to take the best advantage of the particular characteristics of P.V.C.—rather than to produce copies of standard units—and to combine maximum efficiency with ease of erection.

TERRAIN P.V.C. SOIL AND WASTE SYSTEM

TERRAIN P.V.C. VENTILATION SYSTEM

*** Please avail of our advisory service**

Terrain Systems are based on the use of unmodified, unplasticised P.V.C.

U UNIDARE LIMITED

FINGLAS, DUBLIN 11

'Phone 71801 (13 lines)

from page twenty-eight

MARLEY VINYL rainwater goods are produced in two ranges, standard and heavy. Both ranges incorporate a flexible-joint-system which will withstand the weight of a ladder with a man on it without fear of disturbing the joint.

Extremely simple to fix, the "built-in" neoprene gasket makes installation quicker and easier. Each joint allows ample room for expansion and contraction.

Tough and resilient, they will not rust, corrode or decay, and their smooth glossy surface minimises the risk of blocked gutters and downpipes through the adhesion of leaves and moss.

The Standard range is about 1/15th the weight of the cast iron and is comparable to asbestos in cost. A 6' length of 4" gutter costs about 7/3d., and a 6-foot length of rainwater pipe, 9/9d. A full array of accessories is available in both ranges.

The manufacturers: The Marley Tile Co., Ltd., Riverhead, Sevenoaks, Kent, and the Irish agents: Concrete Products of Ireland Ltd., Laraghcon, Lucan, Co. Dublin.

* * *

FINLOCK gutters provide the complete constructional answer to the edge of flat roofs. All profiles can be adapted so that they can be used with almost any type of flat roof construction. The unites provide uniform and attractive eaves.

They obviate the need for expensive formwork, as when the roof covers are put on work is complete. Made by Finlock Gutters Ltd., Finlock House, Tunbridge, Wells.

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side cheek, again making sure that the stiffening beads and seam turns are opposite to the ones just done.

To prepare the gutter sole piece:

(1) Turn the ¼" seam allowances and dress these, as for a bead, over and on to a ¼" thick straight edge.

(2) In each channel so formed, place two strips of copper 1" wide by about 18" long. These are intended to prevent the channel closing during the next operation.

(3) With the thumb guiding the radius of the fold, bend the sole piece to fit the out-turned seam allowances on the prepared side pieces.

To assemble the chimney back gutter:

(1) Engage one side piece with the sole piece, and pinch the seam or welt together with seaming pliers or ordinary engineer's pliers, using an off cut of copper to stop the jaws marking the copper work.

Finally, over a piece of angle iron screwed to the edge of the bench, work the welted seam down the sides, and dress it flat along the under slate portion of the back gutter.

(2) Repeat this process for the opposite side piece, and the copper chimney back gutter will be ready for fixing.

COPPER FRONT APRON FOR CHIMNEY STACK

This too is made on the bench to dimensions taken from the stack. Our illustration shows the setting out of the front and the two side pieces which make a complete front apron.

The procedure is as follows:—

The front piece.—Mark out the length "D" which is equal to the stack width, plus an allowance "G" of 5" at each end. The width of the piece will allow 6" to lay over the slates of the roof (E), plus 6" (F), which includes the upstand against the stack and a turn in to the brick joint of 1¼". For an 18" stack the front piece would be 28" x 12".

The angle formed between the front wall of the stack and the slates on the roof is found on an adjustable bevel (1). This is then placed on the sheet copper (2), so that a line may be drawn on the copper from where the line "G" crosses the central fold line to the outer side edge of the copper.

This is repeated for the other end of the front piece, and outside these lines an allowance of ¼" (3) is added to form the undercloak of a welted seam joint.

from page six

COPPER ROOFWORK

The side pieces are formed from 12" x 10" pieces of copper set out as shown.

Using the same roof bevel angle as at (4), draw a line from where line "G" cuts the centre line of the 12" dimension. This angled line is extended diagonally across the piece (4). A ¾" allowance is added to the diagonal line. Later this will be used

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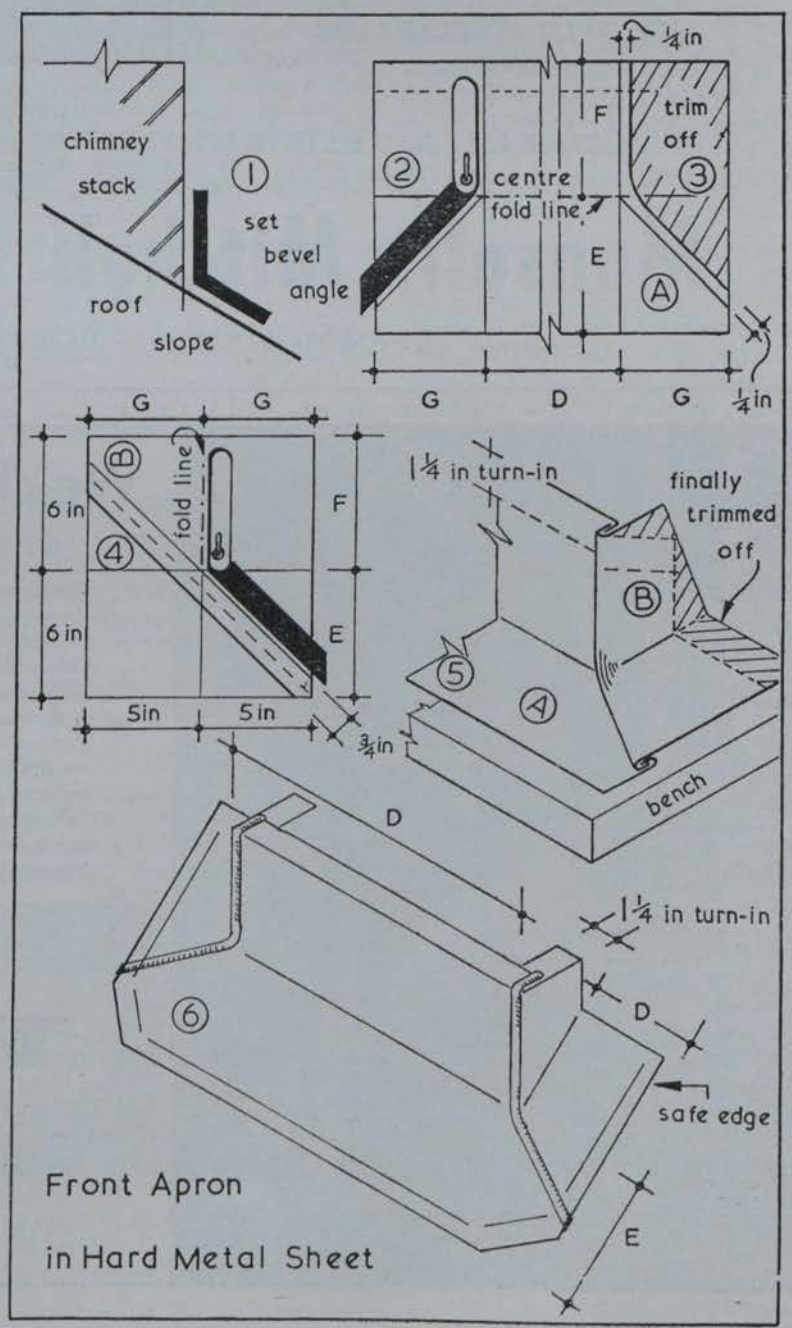

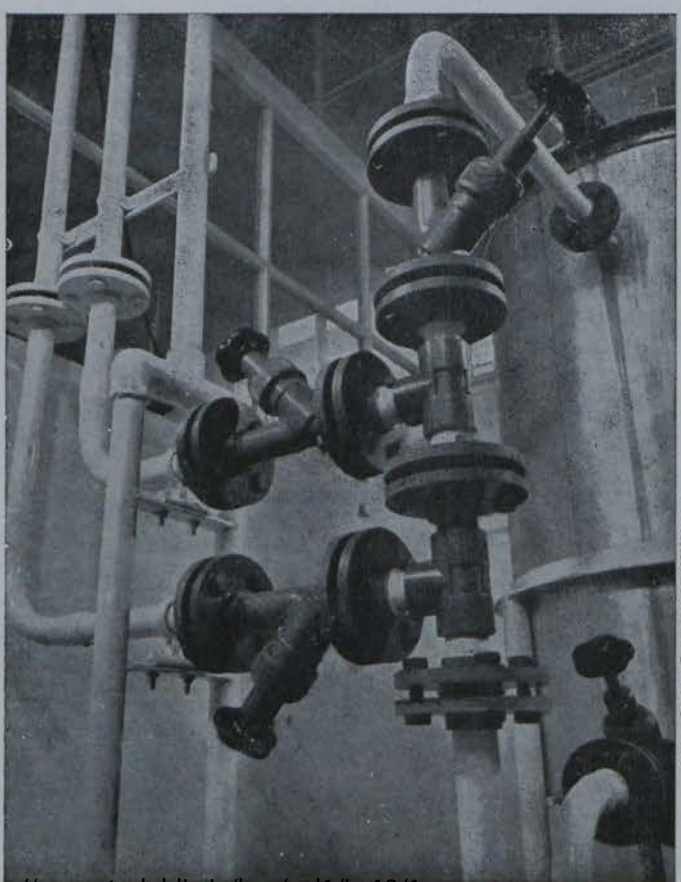

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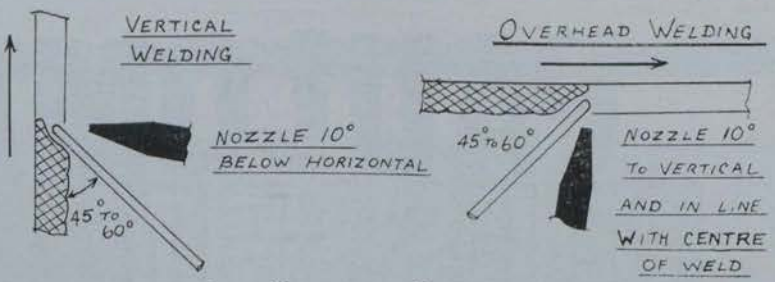
OXY-ACETYLENE WELDING TECHNIQUES



ALL-POSITION RIGHTWARD WELDING

FIG. 4

fundamental importance that the **correct** flame be set at the start and maintained accurately throughout the welding operation.

This correct flame is known as a "neutral" flame because it is a mixture of equal volumes of acetylene and oxygen. The shape and appearance of this flame should become familiar to the welder so that any variation during the welding process can be rectified at once. This is very important, as any change may lead to serious weld defects. It is essential to remember also that the flame quality may change gradually during welding because of alterations in cylinder pressure or in blowpipe tip temperature, and must be adjusted at once.

The neutral flame is that used for the welding of most metals, but flames with a small excess of oxygen (oxidising flame), or a small excess of acetylene (carburising or reducing flame) are sometimes used for certain alloys. However, we need not concern ourselves for the moment with this aspect. As will already have been noticed, the first step on the way to becoming an expert welder is to master the technique of blowpipe control and adjustment. We will now see how this can be achieved. As a help, we have in **Fig. 1** the shape and colour characteristics of the various flames.

When the blowpipe is turned on, the acetylene, being the combustible gas, is lighted and gives a rather yellow ragged flame with a sooty edge, which, if not altered quickly by the addition of oxygen, will tend to make the operator very unpopular with his fellow workers!

On the oxygen being turned on, the flame becomes gradually smaller in size, and a brilliant white inner cone appears at the tip of the blowpipe. As the flow of oxygen is increased, the rather irregular hazy edge of the cone begins to stabilise and a distinct sharply outlined bluish-white cone results.

Neutral flame

THIS is the neutral flame we need, and the inner cone will be surrounded by a bushy purplish-orange flame becoming almost colourless at the tip. The length of the inner cone usually varies between $\frac{1}{8}$" and $\frac{1}{2}$" in length.

If, however, the supply of oxygen is still increased, the whole flame, including the inner cone, gradually becomes smaller. There is a shrill noise noticeable at the tip and the cone becomes pointed at the end. This is a sure indication of an oxidising flame.

Prior to commencing to weld, the usual job method adopted to adjust the blowpipe is to start with a reducing flame (excess acetylene), and then gradually increase the oxygen or decrease the acetylene until the inner cone just loses its feathery edge and becomes nicely rounded.

Welding techniques

HAVING mastered the correct flame adjustment, we are now in a

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COPPER ROOFWORK

to form the overcloak of the seam joint (5).

Note: (a) The $\frac{1}{4}$" allowance is below the diagonal line.

(b) Opposite handed side pieces are required, and so the setting out will be opposite for each side piece.

To prepare the front piece:

(1) Turn the $\frac{1}{4}$" allowance out to an angle of 90 degrees.

(2) Using the thumb to adjust the radius, bend the piece along its central fold line until it is at the same angle as the bevel between stack and roof.

(3) Dress the welt allowance along the part which will lie on the roof over an $\frac{1}{8}$" thick straight edge.

To prepare the side pieces:

(1) Turn a $\frac{1}{4}$" bead from the $\frac{1}{4}$" welt allowance, and dress this flat over an $\frac{1}{8}$" thick straight edge.

(2) Place two strips of copper 1" wide and about 12" long in the channel formed by the bead.

(3) Use the thumb to adjust the radius of the fold, and bend along the line marked "fold line." Notice that this is not the same fold line as that on the front piece. See diagram (5).

To assemble the copper front apron:

(1) Mate one side piece to the correct end of the front piece, and tightly close the seam with the seaming pliers.

(2) Dress flat that portion of the welt which will lay on the roof, and then use a 2" x 2" angle iron to dress the upstand part of the welt through 90 degrees on to the upstand face.

(3) Repeat this with the other side piece.

(4) Turn stiffening beads on all edges of the apron which will lay on the roof.

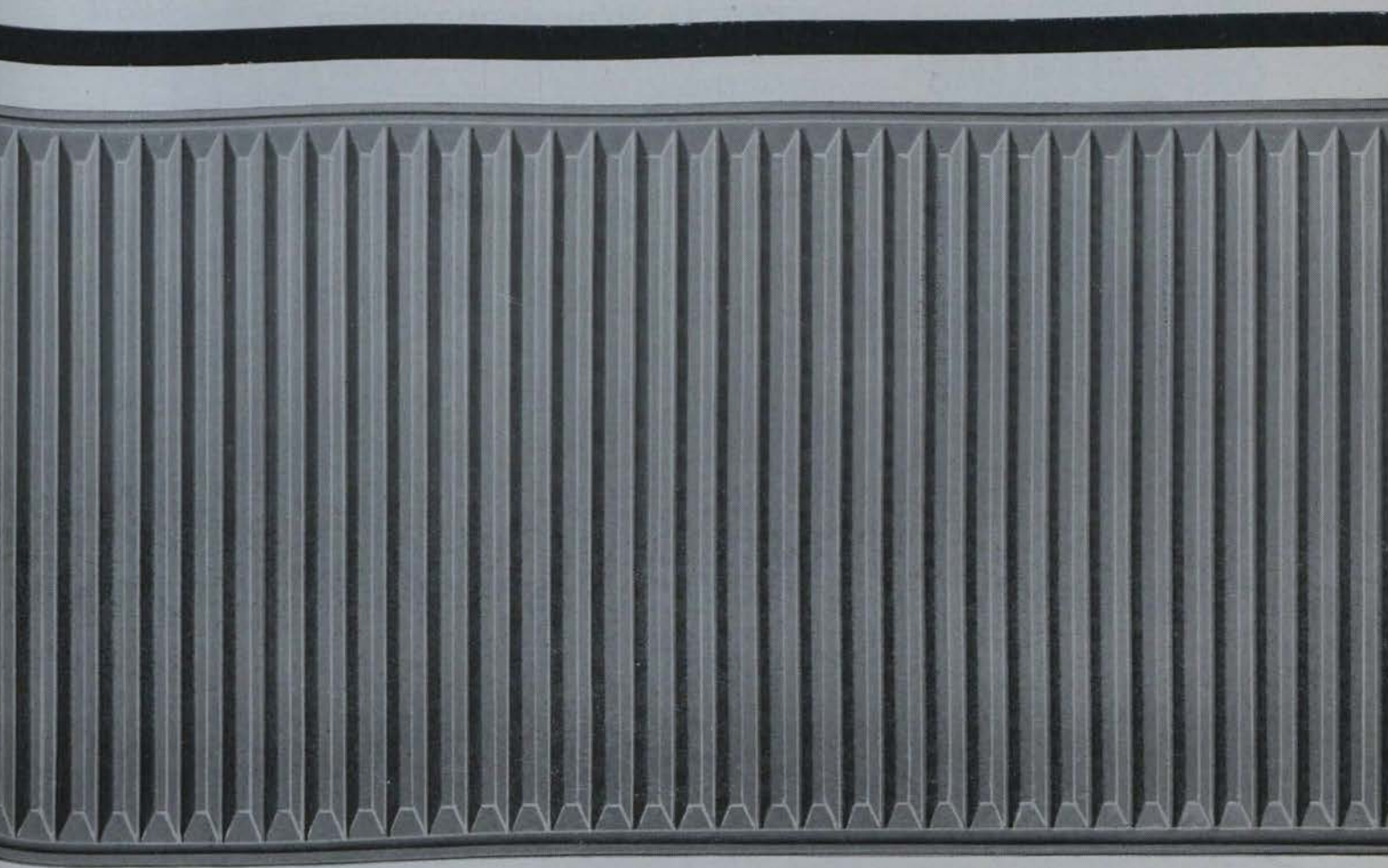
(5) Finally, make "dog-eared" or folded corners $1\frac{1}{4}$" down from the upstand top edge, or wherever the brick courses require. Finish off the "turn in" to the brick joint, and the apron is ready for fixing in place on the chimney.

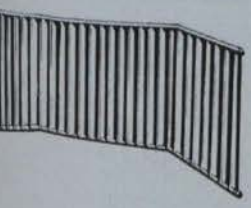
A simple, inexpensive yet effective way of learning this setting out, preparation and assembly routine is to do it on drawing paper or stiff brown paper.

PAULOMATIC PRESSED STEEL PANEL RADIATORS

are jig-welded to eliminate lateral distortion combine durability with elegant simplicity of design

Especially suitable for closed circuit systems of home heating, PAULOMATIC Radiators are pressed from high quality zinc-coated steel—to provide a rust-free surface and are jig-welded—for freedom from lateral distortion. Each PAULOMATIC Radiator is safety tested under water at an air pressure of 40 lbs. per sq. in., and before leaving our factory is given a coat of non-metallic primer for subsequent painting to suit individual colour schemes. To meet special requirements we can stove-enamel in various colours at an extra cost of 1/6 per sq. ft. PAULOMATIC Radiators are available in straight panels in standard heights of 15", 18", 24" and 30" and lengths from 15" to 92½". Longer sections can be supplied to order. To meet customers' specifications, PAULOMATIC Radiators can also be supplied to order, in curved, angled and double or triple banked sections. Radiator covers, prime coated or stove-enamelled (complete with sealing strip) are available—also adjustable brackets for top, side and bottom.





LOMATIC Radiators can
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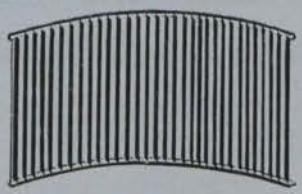
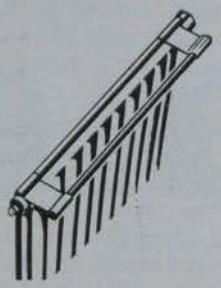


If your heating problem is a lighthouse or only a simple semi-circular bay window, the curved model is the answer.



The Paul towel-rail is simple to fit and is functional without being unsightly.

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from page thirty-three

OXY-ACETYLENE WELDING TECHNIQUES

position to decide on the actual welding process. The procedure to be adopted will depend to a great extent on the metal to be welded, but for the moment we will confine ourselves to the jointing of mild steel pipe lines such as are used in central heating systems.

Welding may be carried out on this class of tube by any of the following techniques:—

- The Leftward Method.
- The Rightward Method.
- The All-position Rightward Method.

The Leftward Technique is one in which the blowpipe flame is directed towards the unwelded part of the pipe joint, and is very suitable for use on tubes, having a wall thickness of not more than 3/16".

Although not recommended practice, it has also been used on tubes of up to $\frac{1}{8}$" wall thickness. The welding rod, held in the left hand (by a right-handed welder) and moving in a straight line, procedes the blowpipe, which is moved slightly from side to side so as to obtain even fusion on both sides of the weld. **(Fig. 2).**

The Rightward Technique is one in which the blowpipe flame is directed towards the weld metal during the time the joint is being welded.

The blowpipe is held in the right hand, and moves in a straight line, the filler rod following behind with a weaving circular motion. This method is quicker than the leftward and consumes less gas, and because the Vee angle is smaller, less welding rod is required. This technique should be used in pipes having a wall thickness greater than 3/16" .**(Fig. 3).**

The All-position Rightward Technique is a modification of the previous method. Here the flame precedes the rod along the weld and moves steadily forward with a little side motion. The rod is given a slight stirring and weaving motion. Considerable practice is required to become proficient with this technique.

This method is very suitable for overhead, vertical and sloping pipe joints, and has the advantage that the welder has a clear view of the weld pool and can work with complete freedom of movement. **(Fig. 4).**

It must be remembered that the terms "leftward" and "rightward" have no precise significance where the welder is left-handed. Their real importance lies in the relative position of the blowpipe and the filler rod with regard to the direction of welding and the deposited metal.

(See table at head of page)

When preparing the pipe ends for butt welding, it will be seen that for pipes up to and including $\frac{1}{8}$" wall thickness, the ends can be left square.

If the pipe ends have been flame cut, it may be necessary to true them up by filing. When pipes are over $\frac{1}{8}$" in wall thickness, it will be necessary to bevel or vee them. This can be done by machining, flame cutting, or filing, the bevel being tapered to a feathered edge.

In all cases, the cut edge should have scale, rust, etc., removed by the use of a wire brush or file and the edge checked for burrs. The pipes should then be correctly aligned, making sure the gap between them is correct. They can then be tack welded preparatory to final welding.

In our next issue we shall develop this aspect further with particular reference to branch joints, welding procedure, etc.

Pipe preparation

WELDING METHOD	THICKNESS OF PIPE WALL	END PREPARATION OF PIPE	ANGLE OF VEE	GAP BETWEEN PIPES
LEFTWARD	NOT MORE THAN $\frac{1}{8}$"	SQUARE EDGE	—	$\frac{1}{16}$
	FROM $\frac{1}{8}$" TO $\frac{3}{16}$"	BEVEL EDGE	80°	$\frac{1}{16}$
	$\frac{3}{16}$" TO $\frac{3}{8}$"	BEVEL EDGE	80°	$\frac{3}{32}$"
RIGHTWARD	$\frac{1}{8}$" TO $\frac{3}{16}$"	SQUARE EDGE	—	$\frac{3}{32}$" TO $\frac{1}{8}$"
	$\frac{3}{16}$" TO $\frac{3}{8}$"	BEVEL EDGE	60°	$\frac{1}{8}$" TO $\frac{5}{32}$" MAX
ALL-POSITION RIGHTWARD	UP TO $\frac{3}{16}$"	SQUARE EDGE	—	$\frac{1}{8}$"
	$\frac{3}{16}$" TO $\frac{3}{8}$"	BEVEL EDGE	50°	$\frac{1}{8}$" TO $\frac{5}{32}$"

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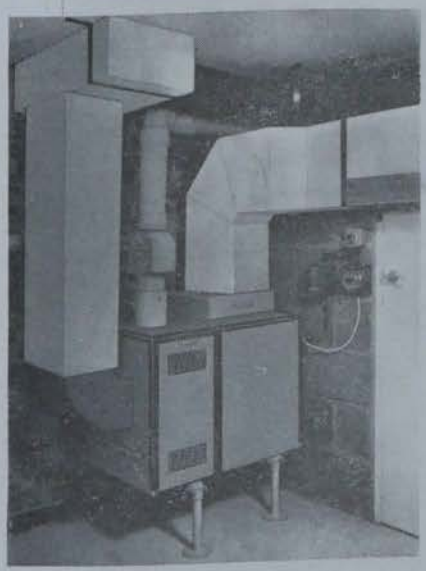
TRADE TOPICS



A "POTTERTON" 35 G.S. warm air circulator can be seen in simulated installations in the Berg House and the house of the Ministry of Housing at the Ideal Home Exhibition this month (above).

AGENTS FOR THE RECORD

IN OUR February issued we stated that Messrs. Quadrant Engineers, 6, Mount Street Crescent, Dublin, were representatives in Ireland for The Trane Company, manufacturers of the "Wall-Fin" Convector line of finned tube radiation. We have now been informed that this is incorrect and that all enquiries should be made direct to the Company at 14/18 Heddon Street, London, W.1.

Messrs. Quadrant Engineers are, of course, Irish Agents for F. H. Biddle, Ltd. (Sales Division of the British Trane Co. Ltd.), manufacturers of the well known "Uniflow," "Vectair," "Warmline," "Warmflo" systems, etc.

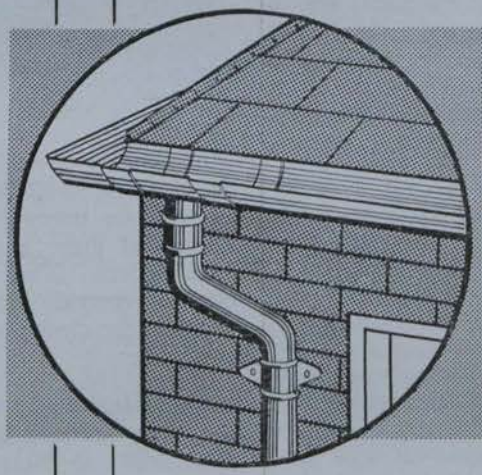
PROMOTIONAL

THE Registered Plumbers' Association in Britain have organised a promotional campaigns backed by posters and stickers which are available from the Association. Their slogan: "If you need a plumber be sure he is registered."

IDEAL-STANDARD LIMITED announce the introduction of a new version of their "paragon Elite" oil-fired boiler. This incorporates an electric control box with plug-in facilities for clock control and a room thermostat.

These boilers, known as the PEC series, are available in a range of four sizes from 35,000 to 65,000 B.T.U. per hour.

THE ADVANTAGES OF ALUMINIUM



KP

CAST ALUMINIUM

RAINWATER GUTTERS & FITTINGS

Cast Aluminium Gutters & Downpipes are rust-proof and non-corrosive

- Do not require painting or maintenance.
- Are lighter and easier to erect.
- Last longer than all other types of Gutters and Downpipes.
- Ex-stock from leading merchants.

SPECIFY K. P. BRAND

ALUMINIUM

GUTTERS & DOWNPIPES

Manufactured by

KILKENNY PRODUCTS LTD.

Engineering Works, Hebron Road, KILKENNY. Phone 217.

- **Also Manufacturers of**

Mechanical Handling Equipment, including Conveyors, Elevators, Extraction Plants, Sheet Metal and Structural Steelwork. Quotations and layout plans on request.

from page thirty

SURVEY OF ROOF DRAINS, WATERHEADS, GUTTERS AND OUTLETS.

OSMA gutters just clip together. The gutter is simply placed under the rear projecting nib of the bracket, pressed down on the sealing strip, and slipped under the front nib. They

● *Section of Osma rainwater system*

are unaffected by heat or cold because there is virtually no expansion or contraction.

Manufacturers here are G. H. Osborn Building Products Ltd., Grove House, London Road, Isleworth, Middlesex. Irish Agents are the North Down Equipment Co. Ltd., Dublin Rd., Belfast. They supply a non-ageing synthetic sealing strip on each gutter bracket. This is folded back to allow the bracket to be screw fixed to the fascia board in the two countersunk holes provided.

Special pipe connectors or sleeves for joining pipes and fittings absorb the nominal expansion and contraction of PVC pipes. Offsets, bends and shoes incorporate this connector in their running length. Extra large offsets can be fabricated on a site without heat or sealing compounds and full use can be made of the off-cuts.

* * *

SANBRA-CONEX FYFFE COUPLINGS TO MERGE?

As we go to press we learn that discussions have taken place between the Directors of Sanbra-Conex (Ireland) Ltd., and Fyffe Couplings (Ireland) Ltd., with a view to the amalgamation of their interests.

TENDERS

(Additional)

★ ★ ★

LIMERICK County Council — Castletroy Water Supply Extensions to Annacotty: The Limerick County Council invites tenders for the provision and laying of 2,297 lin. yds. of 4" dia. and 1,193 lin. yds. of 3" dia. Class B watermains as extensions to the water supply system at Castletroy, Co. Limerick, in accordance with the drawings, specification and Bills of Quantities prepared by Chevalier P. J. Sheahan, K.S.S., F.R.I.A.I., M.I.C.E.I., Consulting Engineer, 47 O'Connell Street, Limerick, from whom contract documents may be obtained on payment of a deposit of £5 5 0.

Unskilled labour for the scheme shall, as far as is practicable, be recruited through the local office of the Department of Social Welfare.

Sealed tenders on the form provided, endorsed "Tender for Castletroy Water Supply Extensions" and accompanied by the Bill of Quantities priced and extended in ink and marked on the envelope "Bill of Quantities for Castletroy Water Supply Extensions" should be delivered to the Secretary, Limerick County Council, 82/83 O'Connell Street, Limerick, not later than 4 p.m., March 23, 1962. Each envelope should bear on the outside the name and address of the Contractor.

★ ★ ★

MONAGHAN County Council — Emyvale Water Supply Scheme — Emyvale Sewerage Scheme: Tenders are invited for the construction of complete new Water Supply and Sewerage Schemes at Emyvale, County Monaghan, in accordance with the Drawings, Specifications, Bills of Quantities and General Conditions of Contracts, prepared by the Council's Consulting Engineer, Mr. Ed. Ralph Ryan, M.E., B.Sc., M.I.C.E.I., A.M.I.E.E., Assoc. A.I.E.E., 1 Montpelier Terrace, Galway, from whom Contract Documents may be obtained on payment of a deposit of 25 guineas for any one scheme, or 40 guineas for both schemes.

(1) EMYVALE WATER SUPPLY SCHEME:
The works include the laying of approximately:—
2,703 L. yds. 4" diameter pipe, Class B;
747 L. yds. 3" diameter pipe, Class B.
together with valves, hydrants, fountains and other fittings ancillary thereto. It also includes the construction of Intake Works, Pumphouse and a Reinforced Concrete Service Reservoir of 10,000 gallons capacity.

(2) EMYVALE SERERAGE SCHEME:
The works include the laying of approximately:—
380 L. yds. 12" diameter Concrete Pipe;
476 L .yds. 9" diameter Concrete Pipe;
364 L. yds. 6" diameter Concrete Pipe;
[illegible]

overflows, ventilating columns and other ancillary works. It also includes the construction of a Disposal Works.

The General Conditions of Contract include the provision of Memorandum No. L.3/52 issued by the Department of Local Government on February 5, 1953, and the recruitment of labour shall be in strict accordance therewith.

Tenders on the prescribed form, accompanied by Bills of Quantities and, if appropriate the Supplement to Form of Tender, all priced and extended in ink, shall be delivered under sealed and endorsed cover to: J. Kelleher, Acting Secretary, Monaghan Co. Council, The Hill, Monaghan, by noon on March 31, '62.

★ ★ ★

TRIM Urban District Council— Waterworks Improvement Scheme: Tenders are invited for carrying out the above scheme in accordance with Contract Documents prepared by Messrs. Nicholas O'Dwyer, Son and Partners, 6 Burlington Road, Dublin 4, from whom copies of the documents can be received on payment of a deposit of £10 10 0. The works include:—

(a) Scraping 2,360 Lin. yds. 5" C.I. Main (provisional);
(b) Provision of certain valves and pipework in the distribution system.

Sealed tenders marked "Waterworks" accompanied by the Bill of Quantities priced and extended in ink should reach Town Clerk, Town Hall, Trim, not later than 5 p.m. on March 28, '62.

https://arrow.tudublin.ie/bsn/vol1/iss12/1
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INVITATION . . .

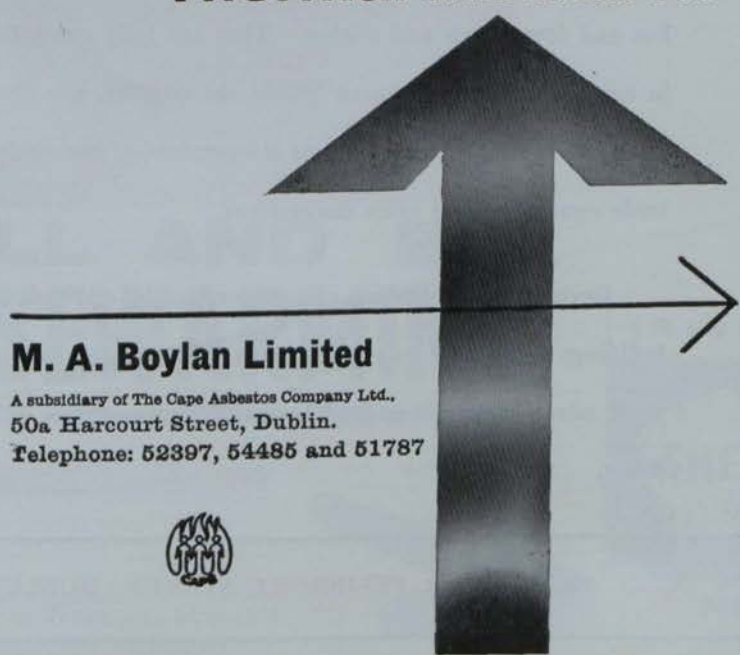
We extend a hearty invitation to our many friends in the plumbing trade and all those interested in modern kitchen and bathroom furniture and fittings to visit our extensive showrooms.

Compression Joint Fittings - Copper Piping - Pipe Wrap - Copper Cylinders - Open Top Tanks - Pressed Steel and Cast Iron Radiators - Oil Fired and Solid Fuel Boilers - Baths, Basins, Toilet Sets, Shower Fittings - Mixer Fittings - Stain less Steel, Enamel Steel, Fire Clay Sinks - Blow Lamps, Solder - Bathroom and Kitchen Furniture - Double Compartment Tanks. For a full comprehensive supply of plumbing materials:

DOCKRELLS of Georges St., Dublin

TRADE ENQUIRIES INVITED.

Thermal Insulation



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We are the foremost insulation specialists in the country with many important insulation contracts to our credit. The huge Oil Refinery at Whitegate and the Derrinlough Briquette factory are recent examples. If you have any heat-loss problem, discuss it with our highly experienced technical staff. Our recommendations are offered free and without obligation.

Sole agents and stockists for:

'Rocksil' rock wool
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Flexible Sections
Blankets
Mattresses (wire-mesh-backed)
Loose Wool
'Caposite' amosite asbestos moulded blocks and pipe sections

Also full range of plastic materials and hard-setting compositions.

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