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Gas Subsidy Cuts

Last month the Government announced that they were reducing by £1.35 million the subsidy of town gas with effect from 31 January. A subsidy of £1.8 million was first created in 1975 by the former Government to counteract the soaring energy costs at that time. This was increased by a further £3 million in 1977 to balance out further increases of 16.5p. per therm sanctioned by the National Prices Commission. The Dublin Gas Company, the country's largest gas suppliers - issued the following statement -

"The effect of the 31 January the Government subsidy for gas was reduced by 4.5p. per therm. As a consequence, Dublin Gas has no option but to increase the cost of gas to all categories by 4.5p. per therm with effect from February 1, 1978. A spokesman for Dublin Gas expressed his company's disappointment at the price increase and told IHVN that they had been making strong efforts to improve industrial relations and thereby increase efficiencies which, together with lower feedstock prices, should be sufficient to counteract other cost increases.

It is expected that the increased price will add £3.60 to the cost of a family's gas cooking bill. Those cooking and heating in one or two gas fires, will have to pay about £15 more while a family with central heating and cooking will have to pay on average an extra £22.50.

IHVN regrets that material recently sent in for publication could not be included as a result of the postal dispute in Blackrock. We also wish to apologise for non-acknowledgement of any invitations sent to us.

News Briefs

Hvac Ltd, announce their appointment as distributors for the range of commercial and industrial chimneys as manufactured by Selkirk Metalbestos, one of the largest manufacturers of chimney systems in the UK. The system incorporates two complete ranges of pre-fabricated flues from 8" upwards and chimneys in insulated stainless steel construction for gas and oil gas temperatures up to 540 degrees C.

The Minister for Industry, Commerce and Energy, Mr O'Malley announced price increases in bottled gas ranging from 2p to 5.5p per cylinder.

He has made an order fixing new maximum retail prices for bottled gas at £2.68 per cylinder (butane 11.343 kilograms manufactured by Calor Kosangas); and at £2.62 (propane 24 lbs. and butane 26 lbs., manufactured by Ergas).

5% INCREASE EQUAL TO 5,600 NEW JOBS?

If the engineering industry increased its purchases by a mere 5% from the home market, it would create 5,600 new jobs, claimed Noel Price, President of the Engineering Industry Association, at the official opening of the ENQUIP '78 recently.

Mr Price said that it had long been an item of concern to his colleagues in the EIA that the products and services of the engineering industry in Ireland seemed to encounter difficulty in gaining acceptance in our own country at the expense of foreign markets.

Putting the problem into perspective, he stated that in 1977 the industry in the Republic employed over 46,000 people in manufacturing and exported goods to the value of almost £560 million. Total output of the industry for the same year was valued between £1,600 million and £2,000 million. According to information Mr. Price had received from his colleagues in the North, their figures for 1977 were similar.

While Mr Price expressed his pleasure at this healthy state of affairs he was of the opinion that the figure of £1,126 million for imports into the Republic was far too high. He was prepared to admit that there were certain components that were not manufactured in Ireland but stressed that "it must also be recognised that much of what we import can be readily obtained from the engineering industry in this country, at the appropriate quality and price."

Mr Price asked "why is it that we have this problem of identity and acceptability in our own country?" He feels that the engineering industry has overlooked the need to apply the same principles of marketing and selling to the home market.

Here Mr Price made his telling point about the creation of new jobs. "In 1977" he said "the Republic of Ireland imported over £1,100 million worth of engineering products. To provide even 5% of this figure from our own engineering industry would amount to the not inconsiderable sum of £55 million. Bearing in mind that the current cost-per-job estimates, each £10,000 of that £55 million would provide one additional job in the industry - an extra 5,600 jobs at no extra cost to the economy. In fact, our import bill would be correspondingly reduced and the economy would benefit accordingly. All this for 5%!"

Mr Price stated that the significance of these figures should not be lost on anybody.

Cheaper Oil

Earlier this month Esso announced their second price reduction within a short space of time on home heating oils, petrol and diesel fuels.

Their first reduction, announced on the 20 January, was brought about by the strengthening of the pound and the decision of OPEC countries to freeze future price increases.

According to a company statement issued on 10 February, the second reduction emphasises Esso's intention of remaining competitive in the Irish market.

...as you will get out of a new Clyde/DeDietrich

High efficiency and low initial cost are the features of the new Clyde/DeDietrich range of pre-constructed boilers. Manufactured of special cast iron the DeDietrich comply with the most stringent European standards and are specified by leading consultants everywhere. They are available ex-stock in output of up to 1,100 kw Guaranteed fuel savings will quickly offset initial outlay. - write for further details.
Should the preparation of bills of quantities for mechanical and electrical services be the responsibility of the services engineer or of the quantity surveyor? In the following paper, delivered on 17 November to the RICS Irish Branch's professional development course "Bills of Quantities for Mechanical and Electrical Services", James Nisbet FRICS, senior partner in the London practice of James Nisbet & Partners and author of "Cost Planning", argues that it is the role of the quantity surveyor to prepare such bills. For many years there has been considerable opposition by engineering consultants and sub-contractors to the use of bills of quantities for mechanical and electrical services. While there are few recorded statements by the bodies concerned, the Heating and Ventilating Contractors Association was reported in about 1970 as saying that it did not favour pricing bills of quantities because tendering time was wasted and that they were not possible for engineering services on the then current cost information.

Since then there has been a swing in favour of bills, particularly in respect of electrical services, with the publication in 1973 of a Model Bill of Quantities by the Electrical Contractors Association in consultation with the RICS. The

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IRISH H & V NEWS ZONE

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The quantity surveyor's fee for preparing bills of quantities is 2½% on the first £20,000 and 1½% thereafter, but what many might find surprising is that the fee for providing only the information required for their preparation is exactly the same.

M & E SERVICES – WHO PREPARES THE BILL?

In asking for bills of quantities instead of relying on drawings and specifications for obtaining tenders, a client is faced with the payment of extra fees. There is now sufficient evidence by way of improved control over services cost to justify extra fees that it is unnecessary to discuss this matter further and in any case extra fees apply whether the services consultant or the quantity surveyor is engaged.

In the UK, however, this is not an issue as the level of fees is identical. If the services consultant is selected his fee under both the 1963 and 1970 ACE Scale of Fees and Conditions of Engagement is 2½% up to £500,000 and 1½% thereafter. If the quantity surveyor is appointed his fee is 1½% up to £500,000 and 1½% thereafter to which has to be added a fee to the consultant for providing the information required for the preparation of bills of 1½% up to £500,000 and 1½% thereafter.

In the Republic of Ireland the position is somewhat different. In the 1974 edition of the Scale of Fees and Conditions of Engagement issued by the Institution of Engineers of Ireland the fee for preparing bills of quantities is 2½% on the first £20,000 and 1½% thereafter, but what many might find surprising is that the fee for providing only the information required for their preparation is exactly the same.

The quantity surveyor's fee for...
We're talking about heat losses in cold cash terms. We're also talking about the very substantial savings that can be achieved by insulating factory pipes effectively with Fibreglass Rigid Sections. For so little effort you could save a lot of energy and cold, hard cash. The example above makes the point. Take 100 metres of 60mm diameter pipe operating continuously at just 70°C. The boiler is fired by oil at 39p per gallon and operates at 65% efficiency. Bare, this pipe loses £881 annually in wasted heat. Insulate with 38mm thick Fibreglass Rigid Section FRS 950 and that waste is reduced to £81. That's £800 saved annually on just 100 metres of pipe. It must make you think about the bare pipes and poorly insulated pipes in your factory. Where insulation needs upgrading Fibreglass lamella Crown is ideal. It can be applied on top of existing insulation. Or over a group of pipes in one wrap. And don't forget that Government Grant Assistance is available as part of the Energy Conservation Programme. For further information contact Fibreglass Limited, 21 Merrion Square North, Dublin 2. Tel: Dublin 767060.

We got to the top by saving energy.
University College Cork have signed a contract with P.J. Hegarty & Sons Ltd of Cork for the construction of the new £4 million Central Library and Lecture Theatre complex. The buildings were designed by Murray & Murray Pettit & Partners and are part of the first phase of the 20-year old development plan for the college which was prepared by the practice in 1972.

The library will serve all faculties in the college, and will be constructed in the old quarry, forming the fourth side of the central quadrangle. A large proportion of the accommodation will be sited below the general ground level, the top floor facing the quadrangle has been set back to allow the height of the existing parapets to be maintained, and sloping glazing has been used to stimulate the existing roofs.

The silver grey Cork limestone used on existing buildings is no longer quarried. An investigation of alternative materials made to find one as close as possible to its colour and sparkle resulted in the use of white granite aggregate panels. The facades are modelled to give a strong sense of rhythm and scale. Windows are finished in dark bronze with brown glass to contrast with the light coloured panels and are deeply recessed.

The five-storey rectangular library with roof and basement plantrooms, will house 600,000 books and seat 1,900 readers. All the books will be in an open access shelving system available to all students and staff.

Four lecture theatres will be positioned to the west of the library, and will have a total seating accommodation of 1,200. The largest will seat 400 for concerts, films, etc. The roofs of the theatres are level with the adjoining ground and will be stepped, paved, grassed and landscaped to form a major new open space, linking the main quadrangle with the observatory quadrangle, and a new pedestrian entrance to the campus from College Road.

Project architect for the buildings is Des Heffernan, quantity surveyors are S. McD.Murphy & Partners, structural engineers DeLeuw Chadwick O'Keocha & Partners, and service engineers are MacArgle McSweeney & O'Malley. Completion is scheduled for the summer of 1980. Of the total £4m allocated for the entire project, £1.2m is for the services end.

Geological Survey Office is Given Go-Ahead

The new offices for the Geological Survey Office and the Labour Court at Beggars Bush, Haddington Road, Dublin, has finally been given the go-ahead. The Office of Public Works have awarded the contract to O'Connor & Bailey who should begin site work within the next few weeks, with completion scheduled for 2½ years time.

Designed by Tyndall Hogan Hurley (project architect, Joe Millar) the five-storey building over basement will provide some 11,000 square metres gross floor area and will comprise reinforced concrete with brickwork cladding.

Robert Jacob & Partners have been appointed Mechanical & Electrical Engineers, Structural Engineers are Joseph McCullough & Partners.
Hevac '78 will be Europe’s premier event for the whole industry. Indeed it will be the only specialist environmental engineering event of international importance to be held during the year covering all aspects of industrial and domestic heating, ventilation, air-conditioning and refrigeration.

Once again Hevac will be held at the National Exhibition Centre, Birmingham, Europe’s most modern exhibition complex. As well as providing an ideal setting for an exhibition of this size and status, the NEC is especially structured to welcome and service the foreign visitor.

It is immediately adjacent to Birmingham Airport and, for visitors who come via London, it has its own railway station with fast (80 minute) frequent connections with the Capital.

The Centre includes the 500 room luxury hotel Metropole, the small hotel Warwick and there is ample additional accommodation in the vicinity.

Central services provided include secretarial and translation, banking, car-hire, shopping and there are restaurants, bars, conference and private meeting facilities.

If you do have time for relaxation, the region offers a wealth of restaurants, nightclubs and famous tourist attractions.

Obviously we expect a large number of people from Ireland so we have our own contact here to help you with any information or arrangements you may need.

Post the coupon and he will send you full details about the contents and structure of the exhibition and will also make any travel, accommodation or other arrangements for your visit.

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Hevac 78
Mr. B. Healey, The Ryan Tourist Group, 4 Lower Abbey Street, Dublin 1. Tel: 741114, Telex: 5273
Please send me the Hevac Hotline together with the pre-planner and Registration cards.

Name:
Address:
Title:

HEVAC 78—INTERNATIONAL HEATING, VENTILATING AND AIR CONDITIONING EXHIBITION
National Exhibition Centre, Birmingham, England. 3-7 April
Opening hours: 09.30-18.00 daily

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Wolf Angle Grinders

Wolf Electric Tools have introduced two new 2,000 watt heavy duty angle grinders, for use on 110 volt supply systems. They are designed for heavy duty grinding, fettling and cutting applications.

Both the 7" (180 mm) model 4474 and 9" (230 mm) model 4490 versions are double insulated for maximum protection against electric shock hazards and carry the BSI Kitemark, thereby allowing their use in industry without earthing.

Full load speeds are 5,500 rpm and 4,500 rpm respectively and each machine weighs 14.1 lbs (6.4 kg).

The wheel guards on both machines are adjustable to give the best view of the work and also comply with the requirements of the UK Abrasive Wheels Regulations 1970.

For repetitive cutting work, the 9" model can be used in conjunction with the Wolf cut-off stand No. 0051) and is also suitable for use with the Wolf Cutting and Chasing Guide (No. 24259).

Further information from Wolf Electric Tools Ltd, 139 Church Road, Dublin 3, (Tel: 746624).

IFSSEC '78 for London

With bookings from British and International exhibitors, operating in the loss prevention and control industries, already running at 90% capacity, the 1978 International Fire, Security & Safety Exhibition to be held at London's Olympia from 24-28 April next year looks like being the biggest yet.

Already over 180 companies in the fire prevention, fire engineering, security and crime prevention and health and safety at work areas have booked space at what is recognised as the world's leading show-case for products and services in the three combined aspects of loss prevention and control.

Throughout the duration of the show there will be an international conference comprising 15 seminars. Each paper will be simultaneously presented in English, French, German, Spanish, Italian, plus Japanese at selected sessions. Speakers of international repute will present papers on topics of vital importance and will provide delegates with an international exchange of views and opinions.

Full information can be obtained from either Victor Green or Ken Barnes at Victor Green Publications Ltd, 106 Hampstead Road, London NW1 2LS, Tel: 01-388 7661, or Janet Proud at the Press Information Centre, Tel: 01-486 8455.

Whesoe Secure Yugoslav Contract

The Whesoe Group have been awarded a £6m contract by Jugoslovenski Naftovod for prefabricated storage tanks and tank materials for an oil pipeline project from Rijeka, Yugoslavia to the Hungarian border.

Whesoe have also secured contracts totalling £7m for the fabrication and construction of cylindrical tunnel lining sections, including large steel intermediate penstock assemblies for the CEGB Dinorwig Pumped Storage Generation Station in Snowdonia, North Wales.

Catch up on all the news from Powrmatic.

There's been a lot going on at Powrmatic just lately. Things you should know about.

- Like the new Powrmatic Sabiana Hot Water and Steam Unit Heaters now available ex-stock.
- And the new Powrmatic Waste Oil Heaters, the cleanest, most efficient on the market.
- They're two of the latest additions to our air heating range. And customers will be asking about them pretty soon.
- There's literature on them available right now. As well as new updated literature on our best-selling gas-fired and oil-fired heaters. Fill in the coupon and we'll send them hot off the press.

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Apply in writing to:— The Managing Director, Hendon Bros (Machinery) Ltd, Richmond Rd, Dublin 3.
Moy Project Still on Schedule

The £1 million glassfibre manufacturing plant which is at present being built by Moy Insulation Ltd in Saudi Arabia will be commissioned on schedule early in 1978. The plant, which was designed by Moy, is to manufacture thermal insulation glassfibre similar to the "Insul" range which is produced by the company at Anfinman, Co. Tipperary.

The last consignment of materials - over £30,000 of spare parts - left Dublin during the third week in December. A three-man Moy technical team is already out there supervising the installation of the plant. A further team will travel out later to do the commissioning.

Construction in progress on Moy Insulation's glassfibre manufacturing plant in Saudi Arabia.

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Torgrip's The Strong One.

If you want to know which is the strongest expansion bolt, don't ask us. Ask the National Swedish Board of Urban Planning. This graph shows the results of independent tests carried out by them. You can see at a glance that Torgrip bears tensile loads way above any of the others.

Torgrip's unique strength means you can use a smaller size bolt. A smaller bolt means a smaller hole, so you save on installation time. In fact, Torgrip only needs a hole the size of the bolt. Its unequaled grip is produced by the unique twin locking clips which spread the load over a greater area, so bolts can be fitted closer together, and closer to the edge of the job.

But strength is only one good thing about Torgrip. Another is its countless applications.

Torgrip is made in six sizes-6, 8, 10, 12, 16 and 20mm-with alternative lengths on all sizes. There's a choice of three finishes: electroplated 10um zinc for indoor applications; hot dipped galvanised 60um zinc for outdoor use, and acid-proof stainless steel to special order for special environments demanding high anti-corrosion properties.

What's more, Torgrip is just as easy to fit as ordinary expansion bolts. Post the coupon today for more information.

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A three-man Moy technical team is already out there supervising the installation of the plant. A further team will travel out later to do the commissioning.

Searching for Alternative Energy Sources

The growing realisation that fossil fuels are a diminishing resource has given a new impetus to studies and experiments aimed at a more efficient use of remaining supplies. Greater emphasis is being placed on the quest for alternative sources of energy. In this context, an international meeting of experts on the use of energy in buildings and the built environment, hosted by An Foras Forbartha was held from 6 to 10 February.

Experts from Eastern and Western Europe as well as from the United States attended the meeting at An Foras Forbartha. The meeting was the fifth of a special working group of the C.I.B.-International Council for Building Research, Studies and Documentation. An Foras Forbartha is a full member of the C.I.B. and its representative on the group is Mr. Patrick Minogue, currently engaged in research on thermal performance of buildings.

The main topics discussed at the meeting were: Energy conservation in existing and new buildings, with particular emphasis on building fabric; building energy design guidelines and heat pumps. Current research on experimental low energy buildings was examined and a new national plan for energy research in the building services sector was proposed.

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NEW PREMISES FOR NON-FERROUS METALS

P J Walls & Co. have just signed a contract valued in excess of £40,000 with Non-Ferrous Metals Ltd to build new office/warehouse facilities for the company in Ballymount Road. Consultants for the 25,000 sq ft project, which is scheduled for completion this Autumn, are Scemepac.

Non-Ferrous Metals, Ireland’s leading stockholders and distributors of aluminium and copper based building products, moved into their current premises in Clondalkin in October, 1975, but due to the current boom in the industrial building sector felt that expansion was absolutely essential at this time.

“We’ve recently opened a depot in Manchester,” said Barry O’Gorman, Managing Director, “in order to provide our UK customers with a speedier, more efficient service, but it didn’t solve the fact that we still needed more room here in Ireland. Our product range has doubled in the last two years, and we needed the space to cater for the increasing demand on them.”

“Alucobond, a composite aluminium fascia panel, without a doubt has been, and continues to be, one of our more spectacular product ranges. Its light-weight, its sound dampening, its resistance to corrosion, and weather, and its ease in shaping to any number of patterns, has made it a highly acceptable product (both monetarily and aesthetically) in architectural building in Ireland. The new Organon factory in Finglas is an excellent example of its use as in Lenehan’s in Talbot Street and the soon to be completed Smurfit headquarters in Breechill. It will also be used, together with Granges aluminium panels – for which we have just been appointed the sole distributors in this country – on our new premises, thereby making it an entirely aluminium clad complex.”

Manufactured in Sweden, Granges profiled aluminium sheeting comes in a wide range of colours and is especially suitable for exterior wall and roof cladding, soffits and internal wall linings and ceilings. The panels, which are corrosion resistant, are also insulated, thereby saving considerably on heating costs once the building is completed as well as on erection time. Savings are also substantial on the supporting steel structure due to the weight differential between an aluminium panel and the normal alternative steel one. “Like Alucobond,” Mr. O’Gorman said, “Granges will achieve, at acceptable economical levels, an industrial building of high aesthetical achievement with due respect to the existing environment.”

For further information contact: Tana Lane, Tel: 764101.

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Wexford Firm Wins Contract

The Alsthom Company of Belfort, France has awarded a £300,000, contract to the Wexford firm of John Jackman (Engineering) Ltd. The contract is for the construction and installation of exhaust ducts for the new 60 megawatt gas turbine generating station at Marina, Cork and consists of 200 tons of steelwork.

John Jackman (Engineering) Ltd has been engaged in the servicing of the offshore oil industry and its downstream activities and the new contract ensures the continued growth and expansion of the company.
A 66% increase in business to £2.5 million has been achieved by Walker Air Conditioning, following a growth of 56% in the previous year. More than 40% of equipment ordered has been for installation in major projects, including Travenol Laboratories, NIES, Northern Bank, IBM, Aer Lingus, the new Smurfit Group headquarters, ICI, the Midland Bank, a substantial order for the Iranian Navy and so on.

The Company has always attached particular importance to providing efficient after sales service and this year their policy once again has shown satisfying results. The service department has contributed substantially to the overall profits with a turnover of £1 million projected for next year. There are also plans to strengthen further this side of the business and during 1978 the company will be looking to employ and additional eight service engineers, bringing the total to 27.

Analysis of product sales shows a continued trend towards packages. The most amazing growth area has been in the sales of air handling units. With the advent of the recently introduced Carlyle 39M modular air handling unit range early in 1977, the company's air handling sales have jumped to over £200,000 and this trend is expected to continue next year.

Playing an important role in the Walker success story is the newly formed Refrigeration Division which has beaten its first year budget by 96%. Over the past year they have handled a number of interesting projects covering low temperature blast freezing, medium temperature blood cooling and fishflake ice at a plant on the West Coast of Ireland.

The Belfast office, is also coping well, showing an increase in order intake of 40% over last year.
HEVAC INTRODUCE NEW SERVICING DEPT.

During a recent meeting with IHVN, John O'Sullivan, Manager of the air conditioning division of Hevac Ltd, outlined the main ideas behind the establishment of the company's new servicing department.

It will be led by the newly appointed Service and Installations Manager – Eddie Fitzpatrick – who has worked with quite a number of air conditioning and refrigeration firms since coming to Ireland from America approximately 10 years ago.

The broad experience he gained before coming to this country, and indeed since he came here, is part of the reason for his appointment since the main objective of the newly-formed department is to service all kinds of equipment, irrespective of the brand name.

There is a large market for this type of service according to Mr O'Sullivan who says that within the year they expect to have three to four other engineers working as a team under Mr Fitzpatrick. Initially, any new members will be fully qualified and experienced but the long term view is to take on trainees and send them on product familiarisation courses dealing with the most common type of unit that calls for servicing.

John O'Sullivan has also taken on a new assistant in the form of Brendan Gallagher, Chief Applications Engineer, who will be responsible for preparing the quotations and designs once Mr.

O'Sullivan has collated the basic data from the consulting engineer. He will have a certain amount of contact with the clients but will be mainly office bound while acting more as the project co-ordinator.

Information on the specific brands of equipment supplied by Hevac Ltd can be found within our air conditioning feature starting on page 11.

'Wet' Radiator System

The Extensive and costly research by Consumer Power into electric thermal storage boilers for "wet" radiator central heating systems has now payed off with their two systems – BAC 150 and BAC 100 – receiving electrical safety approval from the Electricity Council. They have also been included in the Supplementary List of Approved Appliances.

Developed by Consumer Power in association with Backer Electric and the National Research and Development Corporation, these boilers are designed for "off-peak" operation and extend the range of electric space heating equipment currently available.

They are eminently suitable for new or existing, well insulated houses and commercial premises, and are ideal for underfloor hot water space heating installations.

All boilers are fully assembled and tested prior to dispatch and can be installed in about three hours to prepared pipework. There are a maximum of four plumbing connections and electrical connections to a terminal block inside the casing.

The very high standard of insulation ensures minimal standing losses, and operation is almost silent. There are no more moving parts other than electrical contact and virtually no maintenance is required.

They have considerable advantages from the structural aspect. No flue or fuel storage is needed, and the boiler can be sited anywhere under cover – inside or outside the premises.

'Tradesman' Range from Black and Decker

Professional power tool manufacturers, Black & Decker Industrial of Harmondsworth, have launched a complete new range of medium duty power tools which have been specifically designed to meet the requirements of the skilled tradesman.

Designated 'Tradesman', the range comprises a new series of pistol grip and end handle GD drills and hammers, a further improved HD1000 184mm circular saw, a new half sheet orbital finishing sander, the GDS6 two speed jigsaw and the newly introduced DN10 100mm disc sander and grinder.

Incorporating industrial purpose motors, each tool in the 'Tradesman' range is ideally suited to the skilled tradesman whose demands are less arduous than the industrial or construction site worker but who, nonetheless, requires the same facilities and high quality, which are found in heavier duty tools.

Black & Decker Industrial 'Tradesman' tools appear in an easily identifiable saxe blue and light grey livery and, being double insulated and BSI approved, meet all the current legislation and safety requirements.
product review:
AIR CONDITIONING AND VENTILATING EQUIPMENT

LACK OF SERVICES SPACE—CIBS VICE-CHAIRMAN SAYS... ARCHITECTS TO BLAME

Although the ways of faith are strange indeed, they are not all necessarily bad and even those which appear to be so in the first instance can, with the passage of time, be sometimes seen to be positively advantageous. The case in point, in my opinion, was the fuel crisis of 1973 which, despite its traumatic effect on the world economy, has at least precipitated a situation whereby the finite fuel which we have at our disposal will at least be managed in a more sensible manner, thereby ensuring maximum benefit for the world community as a whole.

NAIVE APPROACH

There are few instances in which this applies more aptly than in the control of the thermal environment within our air conditioned buildings. In the affluent indulgent days, before the fuel crisis, buildings were constructed with little regard to energy requirement, and the widespread and naive belief that an air-conditioning installation could solve all problems encouraged a philosophy which was to be shattered in an almost brutal manner. Apart from the simple fact of reduced availability of petroleum fuels and the increased costs involved, I would contend that the virtual demise of air-conditioning from commercial developments would have come in any event because of the following factors—

SHORTCOMINGS

Design — Many of the installations of the late sixties and early seventies indicate, at even a superficial inspection, a sadly lacking design capability with the result that many systems will never operate in a satisfactory manner and of those that do, the energy consumption is such that a major amelioration of the plant in the near future is almost inevitable. The Americans refer to this as retrofit — or the art of doing something new which should have been incorporated in the original installation.

Commissioning — Due perhaps to the absence of skilled work within the industry, commissioning skills often leave a lot to be desired with the result that even well designed installations are often badly commissioned and handed over to the client without any recorded data concerning the air flow or hydraulic characteristics of the plant.

Management — Building owners have been traditionally accustomed to minimal plant attendance normally by a hall porter with perhaps periodic visits by an external contractor to clean the oil burner or to check some plant component mal-functioning. With this background, there is inevitably great reluctance on the part of building owners to embark on an expensive programme of plant maintenance which, of necessity, is required by a sophisticated air-conditioning installation.

LOST OPPORTUNITY

With the above in mind, I would contend that it was only a matter of time before air-conditioning in commercial premises was seriously questioned and rejected by the majority of new building developers. The truth of the matter is that building designers, over a decade, had an opportunity to utilize air-conditioning in a simple, rational and economic way and this opportunity was lost. The oil crisis therefore merely precipitated the inevitable.

Where do we go from here? As long as city centre development continues, the need for a sealed building envelope will be desirable in order to minimise traffic noise nuisance. There is very little else to justify the use of commercial air-conditioning, in our climate, except perhaps the building shape which, due to depth of plan or perhaps multiplicity of internal rooms, may require refrigeration in order to ensure an acceptable thermal environment.

SAVINGS POSSIBLE

The sad aspect of all of this is that the technology exists for the economic design and careful analysis at the design stage can result in a considerable saving of energy. For instance, the items of plant which use the greatest

Continued on next page
amount of energy are usually the fans and circulating pumps which operate continuously throughout the year, rather than the refrigeration plant which would operate for only a comparatively short season.

Good fan selection is therefore absolutely essential and installations which utilise low supply air quantities such as induction or variable volume systems should be considered wherever possible. Special attention must also be directed towards the use of automatic controls so that a balance is achieved between such fundamental requirements as overall simplicity and economic operation of the plant.

In particular, greater attention is required to ensure that the cooling effect of the fresh outside air can be maximised. Total heat depends only on wet bulb temperature and there is therefore a lot to be said for the old wet bulb detector in the fresh air duct which relates the prevailing external air-conditioning to that within the conditioned space.

High velocity air-handling systems inherently consume more energy than those utilising low velocities. Why, therefore, use high velocity systems which were originally designed in order to reduce services distribution space in

The air conditioning system of the Irish Life Centre is a four pipe induction type which operates by drawing fresh air into the building at roof-top level. This is then filtered and humidified before being distributed throughout the premises via light velocity cill line induction units located in each module.

No need to make a meal out of grille selection.
It's all here, on a plate, from Myson, Grilles, Registers, Diffusers to suit every taste.
In the widest range of sizes and finishes.
The standard range has an Analum stoved finish and has the finest welded corners in the business.

The E range of grilles and registers is made from Satin Anodised Extrusions with a unique corner construction. And the quality of the service is just as good.
Delivery is prompt so your order won't grow cold, Finheat carries a large selection ex-stock.
HALL THERMOTANK

Tomorrows Technology
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Irish Management with Experience for Irish Conditions

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19 Nth. Cumberland Street, Dublin 1. Phone: 746054 Telex: 30943

Paracon W 150 vertical packaged water-cooled unit with special plenum and louvres.
Continued from page 12

the large American commercial developments – in the comparatively small buildings which form the bulk of Irish development. Architects must take a considerable amount of blame, in this instance, for providing buildings which are almost devoid of services distribution space and therefore offer minimal scope to the services engineer.

Even with the best possible use of fresh atmospheric air there is inevitably a considerable amount of air discharged direct to atmosphere from an air conditioned building. The heat in the discharged air can often be economically recovered and the fact that this facility is not incorporated in many more installations is perhaps an indictment of many services engineers rather than a reluctance to agree to the additional expenditure on the part of the building owner. It is therefore essential that services designers should become more conscious of their key role in the energy management field and respond accordingly.

So far as future trends are concerned, it must be accepted that low pressure hot water heating installations will become the accepted standard, even when totally unsuited to the building involved. Air-conditioning will be considered for new buildings only when a combination of innovation, design skill and operating economy can be effectively integrated to form a viable proposition. Can we rise to the occasion?

This article was written by Seamus Horgan, MIIE, Vice-Chairman of the CIBS, Republic of Ireland Branch.

Daikin

Daikin’s ceiling mounted split type air conditioner is ideal for use in offices, shops, restaurants, etc, where floor space is limited. It weighs only 38 kg and is extremely quiet in operation.

The air in the room is directed to the bottom of the discharge grille through the groove at the bottom of the drain pan. This prevents moisture from forming on the air discharge grille. Thus there is no need to worry about valuable goods being damaged by moisture stains.

When the junction kit is connected to the condensing unit, RZAS 3E, one to four fan coil units can be attached; for example, the fan coil units – whose total nominal capacities become twice that of the condensing unit – can all be operated by this condensing unit. In addition, the connected fan coil units can each be independently controlled – regardless of whether the other units are operated or not. And if all of these units are operated simultaneously, the capacity of each unit becomes 62.5% of its nominal capacity; the capacity of the condensing unit, on the other hand, rises by 25%.

It is recommended that the multi-room air conditioning system be used in the following manner: the 3 HP fan coil unit is best used during the daytime – during the hottest part of the day; and all four fan coil units should be operated at night. This insures economical and rational air conditioning.

The air cooled packaged refrigeration units – LACM 2E, 3E, LCAF 2E – can be easily installed into prefabricated coolers. No special refrigeration knowledge is needed. A one-touch ON/OFF switch assures easy operation. Everything else is fully automatic, including defrosting of the evaporator, to insure constant working efficiency.

Because of its slim, compact construction, the unit takes up very little storage space.

The air discharge outlet distributes cool air evenly throughout the storage area to keep the stored goods fresh.

The LCAM model is for cold storage (−5°C...+10°C), and the LCAF for frozen storage (−15°C...25°C).

Daikin air cooled water chilling units were developed to meet demands and requirements from abroad. They are available in 11 models, from 7.5 to 120 HP, and can be ideally used almost anywhere, even in deserts, since they are operative at outdoor temperatures of up to 52°C without cooling water.

The larger models (those over 15 HP) house a large condenser which dramatically increases operating efficiency. Each model has a wind bypass protective board for keeping horizontal wind from bypassing through the unit. This prevents pressure from rising abnormally, and the wind is directed upwards.

These are just some of York’s vast range of Air Conditioning Equipment. For further information contact John Sullivan or Brendan Gallagher.

Published by ARROW@TU Dublin, 1978

FOR FURTHER INFORMATION CONTACT:

Hevac Limited
Head Office: — Lomond Avenue, Fairview, Dublin 3.
Phone: 373796/374646 Telex: 5827 Grams: Hevac.
Lister Group Sales Ltd.,
Anglesea Building,
Anglesea Terrace,
Cork.
Phone: 021-55988

J.S. Lister (Belfast) Ltd.,
Adelaide Industrial Estate,
Belfast.
Phone: 084-20770

Nominal capacities from 135,000 to 540,000 kcal/h (45 to 180 TR).
Semi-hermetic, reciprocating packaging
liquid chillers, factory assembled, piped,
and wired and tested.

Air cooled packaged liquid chillers for outdoor
distribution. Nominal capacities from 20 to 328 tons.

Turbo Pack
Nominal capacities from: 270,000 to
2,000,000 kcal/h (R11); to 3,780,000
calh/h (R12) – 90 to 1,260 TR.

These are just some of York’s vast range of Air Conditioning Equipment.

Continued on page 18.
Now Vent-Axia A-V-A extends

One system, one solution.

Now, from single-unit installations to multi-unit, multi-duct configurations, you can solve your ventilation needs with Vent-Axia ventilation.

And Vent-Axia A-V-A.

Vent-Axia A-V-A is a complete range of Approved Ventilation Accessories, extending and complementing the Vent-Axia Universal and Standard ranges of ventilation units and making Vent-Axia ventilation extremely competitive against central ducted systems.

Total flexibility in ventilation, considerable cost economies, ease of installation, ease of maintenance and service.

From now on there is one system, one solution, to ventilation needs.

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For further details on Vent-Axia, please contact your nearest Vent-Axia Divisional Office.
Vent-Axia ventilation.

To your ventilation needs.

Vent-Axia

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VENT-Axia DIVISION,
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DUBLIN 8. PHONE: (01) 781700
Divisional Offices at: Athlone, Cork and Limerick

DESIGN SERVICE AVAILABLE
For further technical information and advice,
Write or Phone: Vent-Axia Division (01) 781700

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DOI: 10.21427/D7B713
Air Conditioning and Ventilating Equipment

Continued from page 14

by means of the condenser fan. This board does the work of three components as it protects the compressor, the evaporator and the liquid receiver from wind and rain. It also greatly reduces operation noise.

Large laminar flow fans are adopted to reduce fan speed and noise. These fans draw and discharge an ample amount of air with a minimum amount of turbulence, thus ensuring quiet operation.

In addition, the fans are located in the best possible position for minimising noise caused by passing air. The casing is finished with the electronic depositing method, and the screw bolts on the casing have bushings to protect the panel from deformation, loosening and corrosion.

A large door is provided on the side of the unit. This door can be locked so that only authorised persons can enter to ensure safety. All electric devices are housed in a single box, well protected against penetration of water dust and sand.

Finally, there is the Daikin air cleaner Model No ACE 15. This unit can electrically remove microscopically small dust particles of down to 0.01 micron, which is a significant improvement over conventional mechanical filtering systems. It is equipped with an activated carbon filter to absorb odors and toxic gases such as sulfuric acid gas.

In addition, the anion generator adds anion — the vitamin of the air — to the room's air, thus making the breathing environment as well-balanced as fresh mountain air. The ACE 15 is perfect for use in shops, conference rooms, etc. — wherever people gather.

The dust collector is of the cartridge type. All the collector elements are made of metal, which eliminates cracking and burning, common troubles with plastic elements. The cartridge system means easy element and pole plate removal and easy cleaning; and they can be used semi-permanently.

The ACE 15 can keep the ozone level over 0.02 ppm, which means that it supplies nearly natural air.

The only material consumed is ionizing wire, which is used in the anion generator. The spring system is adopted to facilitate attaching and detaching.

Further information is available from Coolair Ltd, Unit 25, Cookstown Industrial Estate, Tallaght, Co Dublin, (Tel: 511244).

Mez

Woodside Engineering are exclusive Irish agents for Verroloch Ltd's wide range of equipment which includes the Mez wedge-clamp, Mez-Pilz splitter-vane fixing, Mez corner pieces and Mez ducting-flanges.

The wedge-clamp (catalogue No 500) is for joining flanges together in inaccessible corners where normal bolt-fixing is not possible. They are suitable for both types of flange profile. The splitter-vane fixing is available in the sizes and applied by simply drilling a hole through the duct, pushing in the Mez-Pilz to pick up on the edge of the vane and tapping it home, and then inserting the punch in the centre and tapping that home with a hammer.

There are two Mez-flanges available, the 120 which is for use with corner piece No 225 and the 130 which is in conjunction with corner piece No 223. The 120 is made of 1.00 mm galvanised steel while the 130 is manufactured from 1.25 mm galvanised steel.

Woodside Engineering are also agents for Zone Conditioning whose products include, grilles and registers.

Further information is available from Woodside Engineering Ltd, Grand Canal Harbour, Dublin 8, (Tel: 780152).

Hevac

The air conditioning division of Hevac Ltd are exclusive distributors for the entire York range of air conditioning equipment; Wespair air handling units; Airwell air conditioning products; and Solvent-Ventac axial and centrifugal fans. The most recent additions to the range are the Airwell Split System and the Corniche range of fan coil units from York.

These units offer the design engineer flexibility, choice and elegant styling to cover a vast area of air conditioning application.

They are competitively priced, Corniche fan coil units are equally suitable for heating and cooling and thereby providing economy and comfort all the year round.

New, renovated and existing buildings alike, are enhanced using this simple engineered design which ensures easy installation and complete access to all internal and external components.

Two types of units are offered — a chassis model for application using builder's work exterior, and a cabinet model of elegant modern styling which compliments practically all interior contemporary decorations. Both types are capable of universal mounting either for horizontal or vertical applications.

The following list of standard features provides the widest possible choice in selecting the correct unit for the right application.

Casing: Galvanised metallic component treated with fire resistant material to provide insulation and sound deadening properties. All units can be easily converted from top to front outlet as required using the interchangeable chassis front panel.

Cabinet Unit: The exterior cabinet comprises a metallic front panel in mild steel and textured mist coloured paint with matching brown grilles. The end panels are teak wood grain and compliments the painted components.

All controls are fitted to the chassis unit and can be operated simply through the front panel. The entire cabinet is removed during installation or maintenance.

Removal of the cabinet provides complete access to all internal components.

Slideshow Fan Tray: Similarity between sizes is maintained between chassis and cabinet unit commencing with the slideshow fan tray which acts as condensate drip pan for horizontal and vertical mounting. By quick release fixing the tray can be removed for installation and maintenance. For safety, in ceiling mounted units, the fan tray is further secured using secured bolts.

Further information is available from the Air Conditioning Division, Hevac Ltd, Lomond Avenue, Fairview, Dublin 3, (Tel: 379673).
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stock Vent-Axia installation which solved the problem of ventilating four inter-

nal toilets by using a single Vent-Axia unit with A-V-A ducting.

Dan Chambers

A wide range of material for the trade is available from Dan Chambers Ltd including Novenco fans – a name synonymous with Danish quality. Their successful penetration of the Irish market has shown that reliable quality products, keenly priced, are always better value.

Novenco manufacture axial, centrifugal and propeller fans, roof units, air handling units, heating coils and regulatable unit heaters.

Complementary to the range of fans are air distribution products from Netaline, including all types of grilles, rhomboidal air controllers, linear diffusers, duct dampers, external louvres and floor grilles. Many other air movement products are also stocked.

Further information is available from Dan Chambers Ltd, 3 Echlin Street, (off James's Street) Dublin 8, (Tel: 720448).

Vent-Axia

Armstrong Autoparts now have the full range of A-V-A accessories ex-stock. These accessories complete the range of products and provides even greater flexibility in solving all kinds of ventilation problems.

Accessories ex-stock include: Roof plate assemblies (for flat or pitched roofs), soaker flange sheets to suit most profiles of corrugation, ceiling housings (for ceiling void or concealed ventilation), wall plates (fixed and removable types), egg crate grilles, non vision door grilles and external weather louvres, PVC flexible ducting in sizes 102 mm, 178 mm, 229 mm, 254 mm, 305 mm, and 406 mm and the corresponding worm drive clips.

Adaptor kits for splitting Vent-Axia fans to accommodate a large variety of ducting and grille sizes. Four core white PVC cable is supplied in minimum lengths of 5 m.

Details on other A-V-A accessories can be obtained on request.

For technical information or advice contact Vent-Axia Division Armstrong Autoparts (Ire) Ltd Carnac Close, Emett Road, Inchicore, Dublin 8, (Tel: 781700).

GEC

As a member of the GEC Group of Companies, GEC Distributors (Ireland) Ltd., handle a wide and varied range of industrial and domestic equipment in the heating and ventilating field. Their principal products include those manufactured by Woods of Colchester, Ltd; Keith Blackman Ltd, Xpelair Ltd; Claudgen Ltd; and Redring Ltd.

Total capability is the "Woods of Colchester" theme and this would also be true of GEC Distributors, with their comprehensive stock of 'Woods of Colchester' products, including Aerofoil Fans 150 mm to 800 mm diameter; fume cupboard fans; portable cooling fans; roof units; fibre glass and glavanised 9" to 48" diameter handling volumes in excess of 44,000 cfm and available with horizontal or vertical discharge, and the ever popular propeller fans in sizes 250 mm to 800 mm diameter, all regulatable and in some cases to 10% of full speed on the 450 mm and 630 mm models.

Keith Blackman offer a large selection of centrifugal fans with direct or indirect drive available with SISW or DIDW, dust extraction units and their unique Bifurcated Fan capable of operating in a temperature of 320 degrees C.

Claudgen Ltd, are a prominent name in the heating industry and are represented by their range of powerful fan assisted overdoor heaters available with 3 KW and 4.5 KW loading.

Xpelair offer a whole range of controlled ventilation and heating

Continued on next page

FAN COIL UNITS

There is a Wesper Fan Coil to suit all conditions through its capacity, shape and aesthetics.

Air Handling Unit

1,000 cfm to 45,000 cfm. Modular Construction.

AXIPAL

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Heating, Ventilating and Air Conditioning.

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Anglesea Buildings, Anglesea Terrace, Cork,
Phone: 021 - 55988

Adelaide Industrial Estate, Belfast BT12 6QH.
Phone: 084 - 20770

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equipment that makes living and working a fresher, cleaner business. Their range for window, wall and roof mounted fans are available in 6", 9" and 12" diameters. The 9" and 12" models are available with combined reversing and speed controllers.

Other items in the range include toilet fans, available with time delay units. Each unit has a 4" spigot off the back for free air or ducted systems. There are also ceiling fans above the shower unit.

Further information on the complete range of air conditioning equipment from GEC is available from GEC Distributors (Ireland) Ltd, 15-19 Hendrick Street, Dublin 7. (Tel: 775413).

RSL

RSL Ltd announce that they have been appointed the sole distributors in Ireland for the ASPERA range of hermetic compressors and condensing units. Of particular interest will be the air conditioning models ranging from 1/4 to 15 T.R. All models are now available ex-stock.

Further information is available from RSL (Ireland) Ltd, 48F Robinhood Industrial Estate, Long Mile Road, Clondalkin, Co Dublin, (Tel: 508011).

Carlyle

Now available from Walker Air Conditioning Ltd, authorised distributor for Carlyle air conditioning and refrigeration equipment, is the 50 series single package heat pump range. These units are fully automatic combination heating and cooling units which provide an economic form of distributing electric heating.

As a heating unit, the heat pump takes advantage of the fact that even cold, outdoor air contains heat that can be recovered for indoor use. Since it recovers heat, the heat pump produces far more energy than it uses.

During the summer months, the unit can be set to reverse its operating cycle, taking heat from inside and pumping it out. This reverse cycle principle makes double use of the two coils in the single-packaged heat pump. The coils alternate as evaporator or condenser depending on whether heating or cooling is required.

In addition to their energy saving benefits, the 50 series units also have the advantage of easy, low-cost installation. They are delivered ready to install — piped, wired, charged and tested. Protection and control circuits are also incorporated to minimise maintenance.

Designed for use with ducting in commercial or domestic applications, the units can be mounted indoors, through the wall or the roof.

There are three models in the 50DQ range — the 006, 008 and 0016. These have nominal cooling capacities of 15,900, 22,400 and 37,400 kcal/h respectively with heating capacities of 16,900, 21,900 and 41,600 kcal/h.

To complete the range, at the lower end of the scale, is the 50MQ027 with a nominal cooling capacity 6,680 kcal/h and 7,450 kcal/h. heating; and the 50MQ047 with nominal cooling of 12,350 kcal/h and heating of 12,350 kcal/h.

Further information is available from Walker Air Conditioning Ltd, Dublin Industrial Estate, Finglas Road, Dublin 11, (Tel: 300844).

The 50 MQ single package heat pump from Carlyle.
The Carlyle 39M
air handling unit.

The one way
solution to your
three way problem.

Problem: What air handling unit to complement your Carlyle refrigeration plant for air conditioning requirements?
Solution: The new Carlyle 39M air handling units. The perfectly balanced partner for your Carlyle chillers. Modular, efficient and competitive. (Yes, competitive.)

Problem: What air handling plant for your heating and ventilating projects?
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Problem: Air handling units in general?
Solution: No problem at all. The new Carlyle 39M. It is the one way solution to your 3 way problem.

Get the full facts about the new Carlyle 39M from Walker. Modular, efficient, competitive, available in a wide range of standard sections to meet all your requirements up to 15,000 cfm per unit.

Walker Air Conditioning Limited

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Glasgow: 136 Strathmore Road, Balmore Industrial Estate, Glasgow G22 7TA Tel: Glasgow (041) 336 4327 Telex: 779406
Belfast: 9a Cherryhill Road, Dundonald, Belfast BT16 0JH Tel: Dundonald 5235

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DOI: 10.21427/D78713
Danfoss

Danfoss has developed a self-contained system for regulating the air volume flows in high-speed terminals for VAV and CAV plants.

The designation is "LA-system" and covers "Luftregulerings Automatik" (i.e. air regulation controls). It is based on three components:– a pressure regulator; a thermostat; and a motor damper.

The motor damper is available in three different designs – normally open damper, normally closed damper, and normally open speed regulator respectively. In all the versions it is delivered finish mounted and tested, ready for building into the terminal.

The control air is conducted from an outlet in the ventilating duct through a filter to the pressure regulator and leaves the latter at a constant pressure. By means of an orifice this constant pressure is converted into a variable pressure, the size of which depends on the amount of air blown off in the thermostat. This new pressure which is thus a function of the thermostat position is in connection with a motor damper and moves the latter to the position required.

Thermostat range is 15 – 30 degrees C; Minimum duct pressure: 200 Pa; and Rated damper capacity: 400 m³/h at a pressure drop of 200 Pa.

For further details contact J.J. Sampson & Sons Ltd, 12A Wexford Street, Dublin, (Tel: 752317/8).

Nu-Aire

Nu-Aire are following up the success of their Mark 10 roof mounted extract units with the introduction of the Solo range.

Solo units, built around Nu-Aire's own propeller fans, are aimed towards the general ventilation market where most applications are free inlet.

Solos are top discharge units, designed to prevent the extracted, contaminated, air from re-entering the building. They include as standard, air operated shutters, bird/safety guards and inlet guards. An externally accessible isolator can be factory fitted but all units are pre-wired in flexible conduit to a terminal box. Following Nu-Aire's proven policy, Solo units are engineered in non-corrodible aluminium alloy and are easy to service.

The units can be fitted with special motors, shutter smoke release mechanism and can be finished with an epoxy resin powder paint. A range of corrugated soaker sheets and pre-fabricated curbs compliment the range. The unit is also available in a wall mounting version.

Nu-Aire, who claim that their Mark 10 equipment incorporating the mixed flow impeller is continuing to win a larger share of the system market, is confident that the Solo will achieve similar success in the general ventilation sector.

Nu-Aire is represented in Northern Ireland by William H Leach & Son Ltd, 299 Ormeau Road, Belfast BT7 3GG, (Tel: Belfast 645339); and in Eire by Pan Aer Sales Ltd, 31 Lower Mount Street, Dublin 2 (Tel: 779811).

HTI

The range of equipment for the air conditioning, ventilation and industrial refrigeration market manufactured by Hall Thermotank is

Continued on next page
Air Conditioning and Ventilating Equipment

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regarded as the most extensive in the world ranging from 1000 TR liquid chilling sets suitable for use on such diverse applications as nuclear submarines to power stations through to miniaturised air terminals for passenger comfort on aircraft, including the Concorde. In fact, Hall Thermotank air terminals are used by virtually every aircraft manufacturer in the world outside the USA and including the USSR.

The diverse range of products manufactured by the HTI group ensures that, at the present time, Hall Thermotank is the only organisation capable of providing every component necessary in a complete air conditioning system, from primary capital equipment to final air distribution.

Hall Thermotank's activities extend geographically throughout the world with offices in North & South America, the Far East, Africa and Australasia. In recent years an enormous expansion programme has taken place in the Middle East under the Hall Thermotank Medafic place and there are now offices operating in Dubai, Iran and Bahrain.

In these areas, as in Ireland, involvement and participation with local people and local knowledge has been critical to the development of the company and its position as a major supplier and contractor. Hall Thermotank has been specified in many major contracts in Ireland ranging from air distribution terminals in literary and religious institutions to Government contracts involving packaged air conditioning equipment from the Paracon range.

Indications of the total range manufactured will be on view during the forthcoming Hvac exhibition at Birmingham NEC where the public launching of the production versions of the unique, single rotor, HallScrew refrigeration and air conditioning compressor will take place. The incorporation of this innovatory technology equipment into packaged systems for air conditioning is well advanced.

Further information is available from Hall Thermotank Ireland, 19-22 North Cumberland Street, Dublin 1, (Tel: 746054).

Finheat

Finheat Ltd who must rate as one of the fastest companies ever to have firmly established itself in the heating and ventilating market completed its third major exhibition in "the Galway Ryan Hotel" recently.

Michael Higgins and Tim O'Flaherty founded Finheat, only eighteen months ago during a development stage. They decided on a number of policies which has proven them correct because of their accurate feeling of the market potential. Not least of these policies was the carrying of stock levels contrary to the general beliefs of many of their competitors and securing contracts on that basis which succeeded in giving their customers confidence in dealing with them. This coupled with trade shows in Dublin, Cork and Galway with the full backing and assistance of their principals has helped to make '77 a very exciting and successful year for Finheat.

Their agencies include:

1) Argosy Fenton Equipment which includes the Fenton Bym range of propeller fans, motorised roof units and the Argosy range of natural and fire ventilation equipment.

2) Myson RCM range of diffusers, grilles and registers which are now available in two standard finishes. The existing stove enamelled finish and the new "E" range of satin anodised aluminium finish.

3) Standard and Pochin Ltd's range of Fenton Bym heating products, which includes the new FBM range of fan convectors up to 60,000 Btu/hrs, the FT range of unit heaters and the CV range of ceiling void heaters.

Further information is available from Finheat Ltd, 34 Watling Street, Dublin 8, (Tel: 782446).

THERMOSTATIC VALVES FOR VENTILATING AND AIR CONDITIONING SYSTEMS

Danfoss self-contained automatic controls for air conditioning systems are composed of various thermostatic elements and water valves, which when combined will provide proportional controllers for induction or fan coil air conditioning systems.

1. The controllers automatically ensure a constant room temperature according to the set value.

2. The air systems can be low pressure or high pressure using induction or fan coil units.

3. The water systems can be 2-, 3-, or 4-pipe change-over or non-change-over systems.

Please send on free literature on climate valves

Name:

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Phone:
Our land drainage piping does its best work under cover. Nu-Flow Land Drainage piping lets excess moisture get away, and makes wet land productive again. Each 20ft. length of light, durable Nu-Flow has a collar for easy joining and junction pieces are easily added. Grants are available for land reclamation schemes. Ask the Dept. of Agriculture Land Project Office, Kildare Street, Dublin 2, about Grant Aids.

Ask your local merchant about Nu-Flow Land Drainage Piping from Nu-plast.

**nu-plast**

**the underground organisation**

Our land drainage piping does its best work under cover. Nu-Flow Land Drainage piping lets excess moisture get away, and makes wet land productive again. Each 20ft. length of light, durable Nu-Flow has a collar for easy joining and junction pieces are easily added. Grants are available for land reclamation schemes. Ask the Dept. of Agriculture Land Project Office, Kildare Street, Dublin 2, about Grant Aids.

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**NON-SHATTER** **SLOTTED POLYTHENE PIPING**

Shove together & the job's done!

**nu-plast**

Low density polythene piping to standard IS 134 1965. Nu-plast piping is something to build on. Sturdy, reliable, adaptable Nu-plast piping is easy to handle. Ask your local stockist.

Nu-Plast (Arklow) Limited
South Quay, Arklow, Co Wicklow
Telephones: (0402) 2144/2955.

**product review**

**PIPework and Drainage**

**UPVC**

Since 1 October 1977, all soil pipes, drains, sewers and fittings made of unplasticized polyvinyl chloride (UPVC) manufactured in the State and used in grant-type and local authority houses and other works assisted by State loans, grants or subsidies are required to conform with the revised "Provisional Specification for soil pipes, drains, sewers and fittings made of unplasticized polyvinyl chloride (UPVC)", dated January 1977, which replaces the Provisional Specification dated July, 1967.

Copies of the revised specification are available from the Department of Local Government (Housing Construction Section), Floor 5, O'Connell Bridge House, Dublin 2. Where imported UPVC pipes and fittings are used, they must conform to the revised specification or to an equivalent standard prescribed by an appropriate authority of a Member State of the European Communities.

There are no major revisions contained within the new recommendations, the most significant changes having to do with underground applications. These are dealt with in Table 2, Section 2, which is reproduced here.

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<th>Nominal Outside Diameter</th>
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**Cast Iron**

Whether to drain or irrigate fields, to supply a town's inhabitants with water, or carry away the waste, there has always been a great need to transfer water from one place to another. Industrial progress has intensified the overall demand for water, and this demand has been met with many advances in pipe technology.

Piping has been made in a variety of materials, both natural and man-made through the years, and one of the more widely favoured is the cast-iron drain pipe. Drain pipe systems require a large range to meet every requirement. This is one of the areas where cast-iron pipes and fittings have a natural advantage as they both use caulkeld lead sockets which are capable of accepting wide manufacturing tolerances, all incorporated in the one network.

Cast-iron piping has also proved itself reliable over the years - it is not unusual to find systems over 100 years old - and there has been tremendous development in improving the material to meet today's needs, particularly in methods of jointing. Cost savings, too, can be significant in situations where high external loading and fire risks are a significant factor. There are also large time and material savings, as little preparation is needed with cast-iron materials.

The consultant engineer or contractor, having decided on the method and materials for a water scheme, can then save even more time and money by adopting a logical approach. The availability of the required materials and possible alternatives prior to the production of the Bill of Quantity, should be researched.

The cost of various materials should then be compared, taking particular care to note the total cost, i.e. the cost as laid in the ground and of maintaining the system. This point is often missed by smaller contractors who are inclined to buy the cheapest materials as it is on the shelf, only to find that the considerable extra preparation for laying pipes other than cast-iron can often inflate the overall cost.

Continued on next page
Flemings Fireclays

Since ancient times vitrified clay has been accepted as a material which neither time nor the elements could corrode – recent archaeological expeditions have unearthed such pipes buried in aggressive soils and yet in as good a condition as the day they were laid. Modern manufacturing techniques have made possible the production of longer, stronger and more accurately dimensioned vitrified clay pipes, which in turn has led to greatly improved methods of laying and jointing.

Plain ended pipes with push fit couplings are the result of the traditional advantages of clay being harnessed to present day engineering requirements. The push fit coupling complete with rubber sealing rings to BS2494 Part 2 gives a compression seal which is leakproof under a pressure of up to 200 lb/sq ft. Being a compression seal the joint cannot be infiltrated by roots or ground water, while the design of the sealing ring prevents it from being dislodged from its groove in the coupling. This joint now being truly flexible allows for angular deflection (59°), linear draw (19 mm) and vertical displacement (10 mm) without leakage.

With the advancements of modern man in this technological age, vitrified clay has proved its durability and thus finds itself widely used in industrial and domestic fields. Its resistance to corrosion and acid makes it the ideal material to combat the various substances discharged into the present drains of today, while at the same time it can be laid and joined in the same fashion as its present day competitors.

Further information on vitrified clay pipes is available from Fleming’s Fireclays Ltd, The Swan, Athy, Co. Kildare. (Tel: 0507 25513).
Continued from previous page

including the Barvac anti-siphon trap is also manufactured in white polypropylene to complement both the Bartol Push-fit Waste System and the Bartol Solvent Weld Waste System.

Bartol's other above-ground drainage products include uPVC soil and vent systems manufactured in 82.4 mm (3"), 110 mm (4") and 150 mm (6") sizes and a comprehensive rainwater system available in square or half-round profiles in black, white or grey in a variety of sizes.

All Bartol products are available from a national network of builders and plumbers' merchants, and further information is available from Bartol Plastics Ltd, St. Peter's Road, Walk instown, Dublin 12, (Tel: 508970).

Tonge & Taggart

Tonge & Taggart Ltd produced their first casting in 1869 at their Bishop Street premises, but in 1973 the entire foundry operation was centralised at the enlarged East Wall Road plant. In addition to being major suppliers of cast iron water main products to the municipal authorities, Tonge & Taggart have in recent years completed a large number of industrial projects. These include Abbot Laboratories, Merck Sharp & Dohme, Digital Equipment International, Mitsui, Burlington Industries and Asahi. On the export front, over the last two years, orders have been filled for projects in England and Scotland, Nigeria, Abu Dhabi, Kuwait, the Lebanon, Bahrain, Syria and Saudi Arabia.

Further information is available from Tonge & Taggart Ltd, East Wall, Dublin 3, (Tel: 786088).

Wavin

Wavin manufacturers three types of polyethylene (PE) pipes — low density normal gauge; low density heavy gauge; and high density. The diameter ranges from 3/8" to 4" and all pipes are made to both the Irish and British standards for export. They all carry the required standard mark of the IRFS.

In addition there is a complete range of fittings, including the revolutionary joint for large diameter high-density PE. This pipe is extensively used for group water schemes, particularly in the western parts of the country where the soil conditions require a more flexible pipe.

PE pipe is also extensively used on farms, especially for carrying water to tanks out in the field. Housebuilding is the other major source of use of PE pipe.

Further information is available from Wavin Pipes Ltd, Balbriggan, Co Dublin, (Tel: 412260).

Unidare

Unidare of Finglas market both rainwater and soil and waste systems in PVC including 4" and 5" half-round and square section rainwater systems with leakproof recessed sealing rings and strengthened support brackets.

The Unidare-Terrain soil and waste systems, in black or grey finish, can be used both externally and internally having special access “doors” to inside of pipe.

Further information from Unidare Ltd, Finglas, Dublin 11, (Tel: 7771801).

Molyneux

The uPVC water sealed drainage gully from Molyneux can be opened for easy cleaning or to provide straight full bore access to the drain for rodding. The vertical outlet connects to any uPVC drainage system to BS4660: 1971. Standard adaptors can be used for connection to drains in other materials.

The gully has a grating on the surface drainage while top and inlets provide entry points for rainwater pipes or waste pipes from ground floor appliances. Its use often avoids the need for a manhole at the branch junction to the main drain and the same fitting can be used for any normal situation found in domestic drainage systems.

The body, cowl, top inlet plate and locking plate are made from unplasticised polyvinyl chloride. The gratings are polypropylene. All are injection moulded. The body and cowl are in golden brown while the gratings and top plates are black. Minimum wall thickness of the body of the gully is 3.44 mm.

All parts liable to mechanical damage through misuse are separate from the body of the gully and replacement parts are obtainable from the manufacturer. When used in situations with domestic effluents, the gully can be expected to have a life expectancy in excess of 50 years.
The key fitting in the design is the SCB41 collar boss and it is estimated that over 200,000 of these components have now been supplied for above ground sanitary plumbing. This patented unit (Patent No 1107023) receives branch discharge pipes above floor level from baths, wash basins and sinks thus simplifying the problems of installation. Small 16 mm loop ventilating pipes protect essential trap water seals from self-siphonage with the result that it is possible to locate sanitary appliances in dwellings with greater freedom than when adopting single stack principles.

Further information is available from Marley Plumbing Division, Concrete Products of Ireland, Lucan, Co Dublin. (Tel: 280691).

HIVN regrets that, due to a local dispute which has stopped postal deliveries in the Blackrock area, some material sent to us for publication in this issue could not be included.
The largest ever display of engineering products and services to be held in Ireland took place this month at the ENQUIP exhibition held at the RDS.

In a hands across the border gesture the organisers arranged for the Minister of State at the Department of Industry, Commerce and Energy, Raphael Burke, TD, to jointly open the exhibition along with John Concannon, MP, Minister of State, Northern Ireland, reflecting the support of the companies from Northern Ireland who took part.

ENQUIP was organised by the Royal Dublin Society and sponsored by the Engineering Industry Association with the support of the Northern Ireland Engineering Industry Association, the Electricity Supply Board, Irish Export Board, the Irish Goods Council and the Northern Ireland Employer’s Association.

Over 150 companies took part occupying the 100,000 sq ft of available stand space. This included 26 firms from the North who were sponsored by the Exports Branch of the Department of Commerce.

James Meenan, Chairman of the Executive Committee, RDS, welcomed the Ministers and visitors stating that the opening of ENQUIP was the fruition of a 15-month period of hard effort by the organisers. He was confident that the exhibition would succeed in its object of providing a market place for the rapidly growing Irish Engineering Industry and establish itself as the premier Irish Engineering and Industrial Equipment show.

Mr. Burke expressed his pleasure at opening an exhibition which had the intention of capturing a larger share of the market for engineering products, equipment and services for Irish firms, both in the North and the Republic. He stated that engineering exports had grown from £6.3 million in 1960 to an estimated £15 million in 1977.

He felt that there was too much emphasis by some firms on capturing export markets while the home market suffered as a consequence. Research, he said, had indicated that the total Irish market for engineering products is well over the £1,000 million mark with imports taking the lion’s share i.e. approximately 70%. “While we must accept that some level of competition with imports is inevitable” he continued “I feel there is great scope for increasing Irish firms’ penetration of the total Irish market”.

Mr. Burke sounded out a warning when he said that in the current climate of increasing demand for goods and services, it was becoming essential that producers should actively promote their products in the home market.

There was criticism for those firms who insist on importing components when, as his Department had discovered, in the case of two factories only a few miles apart, a simple enquiry would have led them to discover that they both could have supplied each other with their needs and at a considerable cost saving. Mr. Burke blamed this situation on the lack of salesmanship by Irish workshops, “In a great many cases, they literally hide their light under a bushel” he said “undertaking no marketing activity. They also do little or nothing to even let a potential purchaser know that they exist”.

Mr. Concannon referred to the many problems shared by the North and South such as unemployment and remoteness from the major markets of the EEC. He said that ENQUIP provided manufacturers and customers with the ideal opportunity to come together and work for their common good.

He also spoke of his confidence that Northern Ireland firms and their products would be well received in the Republic, and told the visitors that the Northern Ireland businessman was only too aware of the rapid economic growth of the Republic. “The industry representatives on our group”, he said, “are confident that they can contribute to this economic development by supplying a wide range of quality products and skills at competitive prices”.

Right and below: A selection of photographs showing some of the participants and their stands.
**Computer Controlled Welding Robot**

Improved working conditions, considerable production output and low costs are just a few of the features that can be incorporated in the ESAB - ASEA IR 66 programmable welding robot just introduced to Ireland by Welding Products Ltd.

Of Swedish design and manufacture, the welding robot is according to Brian Crumpin, Director, Welding Products Ltd., "represents the most significant technological advancement in welding procedures in the past decade.

The development of the semi-automatic welding machines of the 1950's formally launched the industrial gas metal arc welding technique which today is in use all over the world. Arc welding though is a relatively complicated process which requires close co-operation between the operator, the welding machine and the workpiece.

However, there has long been a need for a machine which could eliminate the heavier, more monotonous welding operations, thereby those involved in the assembly line production of cars, agricultural components, etc. The ESAB - ASEA IR 66 robot is just such a machine. Not only does it improve the working environment, but there is also a considerable production output — up by as much as 60% over either completely manual or semi-automatic welding. The initial investment cost — in excess of £25,000 — is relatively low when one considers that the machine is totally flexible and can be reprogrammed by its own mini computer in less than half a day to adapt to any number of other welding situations. The robot has a ten year life span."

Formally less than 18 months Welding Products Ltd has already made a name for itself in the market by providing everything for the welding profession — from consumables to the actual tools and machines. A member of the J S Lister Group, the company is located at 65 Mountjoy Street, Dublin 7, (Tel: 302911).

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**Travel To Hevac**

Riordan's Travel Ltd of Dublin are offering inclusive tours to Birmingham for HEVAC 78, the international heating, ventilating and air conditioning exhibition being held at the National Exhibition Centre from 3-7 April.

Return air transportation from Dublin to Birmingham and three days two nights in Birmingham with bed in twin room and continental breakfast in the Birmingham Centre Hotel costs £64. Extra days cost £8, single room supplement is £5, and supplements from Cork or Shannon are both £6.

Further details, or reservations with £10 per person deposit, are available from Riordan's Travel Ltd, 11 Lower Baggot Street, Dublin 2, (Tel: 682600).

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**SINGLE SCREW COMPRESSOR**

Consolidated Pneumatic Tool Co. Ltd. has introduced a single screw, single stage air compressor. One of the main features of the machine is its fully balanced operation and low friction running, with a bearing life stated to be in excess of 200,000 hours. Should the air end prove defective at any time during its first three years, it will be replaced free of charge.

Marketed as the CP Single Screw, the machine, at present available in two sizes of 140 cfm (66 l/s) and 185 cfm (87.3 l/s), achieves air compression by a single screw rotating between two rotat­ing seals, and is registered as "Roto-Seals". Unlike twin screw compressors, where pressure build-up on the mating faces imposes axial and radial forces on the bearings, the single screw principle provides simultaneous compression on both sides giving balanced performance.

Oil is circulated without an oil pump and absence of metal to metal contact, balanced compression, oil flooded lubrication and lack of gears all contribute to a low noise output even without sound absorbing canopies.

Further information from Consolidated Pneumatic Tool Co. Ltd., J.F. Kennedy Drive, Naas Road, Dublin 12, (Tel: 505586).

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**Blakeborough 150 Years in Dublin**

J. Blakeborough & Sons Ltd of Brighouse, West Yorkshire celebrated their 150th birthday in Dublin recently. To mark the occasion, a reception for the engineering profession was held in the Hibernian Hotel.

The choice of Ireland as the first stop on their jubilee tour is a result of the many years of friendship and excellent business with their agents in Ireland, Tonge & Taggart Ltd, who are members of the T M G Group.

Ronnie Grandage, Chief Engineer with Blakeborough, delivered an illustrated talk on the design features and advantages of the rubber seated wedge gate valve which is used for waterworks and various industrial applications.

Blakeborough have pioneered the development of wedge gate valve technology. Their SF valve is the outcome of complete re-thinking of the wedge gate design in terms of modern materials and techniques, bringing improved characteristics and an entirely new standard of performance. Stringent tests have proved its suitability for safe handling of potable water.

Despite the break with tradition, there is nothing in the valve of an experimental nature. It is a tried and thoroughly proved product giving maximum effect to the advantages of resilient seating and backed by an impressive record of results in service.

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**Cape Fire-Resisting Casing**

Vermiculux is a new asbestos-free fire-resisting board from Cape. No adhesives are necessary since the board is sufficiently strong to allow casings to be constructed by edge screwing alone. This obviates mixing glue on-site and shaping and fixing nogging onto edges. Vermiculux boards are already rebated on two edges, so there is no need to use cover fillets underneath the joints.

The Vermiculux is one of the few asbestos-free non-combustible materials capable of providing up to 4-hour fire protection. The Vermiculux system has been tested by the Fire Research Station of the Building Research Establishment against BS476: Part 8: 1972. Manufactured from exfoliated vermiculite clay, having a low thermal conductivity, Vermiculux is non-combustible to BS476: Part 4: 1970, is Class 0 to the UK Building Regulations, and has a Class I, surface spread of flame to BS476: Part 7: 1971. It is non-toxic, inert, unaffected by humidity, and will not warp, swell, rot or corrode.

Boards may be cut, drilled, and shaped on site using ordinary hand and power wood-working tools. Standard board sizes are 1,200mm x 610mm with short edges rebated and are available in nine thicknesses from 20mm to 60mm. Special sizes are available to order, together with boards rebated on the long edges.

Illustrated literature containing comprehensive product information is available from Cape Insulation (Ireland) Ltd, St Pancras Works, Mount Tallant Avenue, Terenure, Dublin 6, (Tel: 960222).
Cost Advice and Controls

For cost advice and control on any major construction project the client requires a comprehensive and complete service. The quantity surveyor cannot provide such a service while the engineer is concerned only with a part, notwithstanding that the part is important, and the consultation is wasted.

The quantity surveying profession has come a long way from days when he was known as a "measurer" and when his main function was largely confined to the measurement of traditional building operations and before the large scale introduction of engineering services. The quantity surveyor is now an expert on construction costs who can provide a comprehensive service as an advisor during the feasibility and design stages and as a cost advisor during the construction stage.

His discipline is concerned with the study of construction costs including building, civil engineering, petroleum installations and oil rigs, all of which incorporate engineering services. These services are inseparable from their projects and from a cost point of view cannot be regarded as a separate and independent part.

His skills are analysis, measurement and valuation and such skills are not confined to any particular section or part of the construction activity.

As a cost advisor he exercises his discipline and skills in respect of the total cost, and he is concerned with the cost of each element and the interrelationships of cost, concerned with the relationship between the elements. To carry out these functions he is dependent on the information required. At the market prices which is best obtained, from priced bills of quantities and these can be organised and structured to provide the informartion required. As the measurement for and the preparation of bills of quantities is the principal activity of his traditional role as a "measurer", it would be an extra cost arising to prepare the bills of quantities for services and organise the information to suit his requirement as cost advisor.

An cost co-ordinator during the construction stage the quantity surveyor has traditionally exercised the function of financial administrator of a contract based on priced bills of quantities. For a contract and a half he has measured and valued work executed for valuations, for variations and negotiated the settlement of final accounts. In many cases he has also added cost analysis which has permitted the explanation of otherwise inexplicable differences in cost and has introduced regular financial reports which have persuaded the client with a form of budgetary control which he had previously lacked.

Unlike the quantity surveyor, the engineer's involvement in measurement and valuation is subsidiary to his main function of design and supervision of engineering systems. Traditionally they have not been involved in measurement, except in exceptional cases, and in some cases are still opposed — to the use of measurement for the calculation and valuation of variations. Nor is it everywhere, as I am aware, is their professional body involved in the determination and agreement of methods of measurement.

The preparation of bills of quantities is not a matter of measurement alone. It includes the preparation of contract particulars and the document becomes a contract or subcontract document. The quantity surveyor customarily prepares the conditions for both main contract and subcontract documents and not document is wasteful for the services engineer to draft separate conditions which can easily conflict with the main contract unless co-ordinated by the quantity surveyor.

In respect of cost co-ordination during the construction stage again the services engineer appears to be less experienced than the quantity surveyor. By custom the engineer has deprived himself and the client of the benefit of priced bill of quantities both with regard to the evaluation of changes and to budget control.

The priced bill provides a previously agreed basis for the adjustment of a tender related to tender prices both for variations and for additional loss or expense due to disturbance or delay. Without such a basis the client is unprotected for the schedule of prices which is sometimes attached to summary tenders is only a partial protection.

But the main disadvantage arising from the absence of a bill of quantities has been the inability to unswervingly prevent such excessive variations. The control system which is compatible with the quantity surveyor's financial reporting system. In most cases it has not been possible to co-ordinate his own cost advisors and providing encouragement for the adoption of package deals where such co-ordination is provided as part of the package.

By training and experience the service engineer has been unable to develop and acquire the knowledge and techniques for dealing with the evaluation of extra costs arising from disturbance and delay. In many cases the service sub-contractor do not submit their statement of claim in accordance with the sub-contract and it is not usual for the services engineer to be asked to assist in the examination and settlement of such claims. If this is not done then there is a danger that unwarranted payments may be made to the subcontractors may pass undetected.

Thus from this comparison of the disciplines, skills and duties of the quantity surveyor and the services engineer, there would appear to be little doubt that for the benefit of the client and the proper administration of the contract and its cost the quantity surveyor should prepare the bills of quantities for engineering services. But there is the counter argument that the quantity surveyor has insufficient technical knowledge to measure and cost engineering quantities.

Information for Measurement

This assertion is closely linked to the nature and extent of the information available at tender stage.

The ACE Conditions (1970) Schedule 4 describes with Olympian authority that the engineer's obligation is to prepare "designs, tender drawings and specifications for the works in such detail as may be necessary to enable competitive tenders for the execution of the works to be obtained." With that definition it is not surprising that the profession has arisen aware of the intention and meaning of the words "in such detail as may be necessary". Certainly in practice there would appear to be a variety of interpretations. At one extreme an engineer could produce all drawings (except shopping drawings for manufactured items) including working drawings, engineering and a fully detailed specification. On the other hand elementary line diagrams and an outline specification could also comply with the engineer's obligation. It seems important therefore to prepare such working drawings as he may require to calculate his tender.

Clearly in the latter case, where the responsibility of working out the detailed design of a services installation is placed upon the sub-contractors, few quantity surveyors would have the technical knowledge to prepare such designs to enable them to measure the quantities. Nor would they wish to trespass upon the function of the services engineer to assume some of his responsibilities.

The issue therefore is not one relating to the quantity surveyor's technical knowledge but to the engineer's knowledge, for the services engineer should provide at tender stage. If the engineer provides reasonable working and detailed drawings, the quantity surveyor should have no problem in producing a bill of quantities. Where the subcontractor is responsible for such details then neither the quantity surveyor nor the engineer can produce bills of quantities other than an approximation.

With regard to the method of measurement adopted for engineering services the methods of measurement in some matters is too detailed and that it is not related to the pricing techniques normally adopted by services subcontractors. querying the activities involved in the wiring for lighting circuits is said to be unnecessary detail for a relatively inexpensive item. It could be that a柔软 servicing service for the services engineer to prepare such bills.

If these comments are considered they reflect the majority view of services subcontractors then the sooner the contractors, engineers and quantity surveyors get round a table and modify the methods of measure- ment the better.

In making this comment attention may be drawn to the fact that it is only the SMM for Building Works which includes detail of measurement for services. The Civil Engineering SMM recently published does not cater for the measurement of services.

Specialised Knowledge

Returning to the argument that the quantity surveyor has insufficient detail as may be necessary", certainly in practice there would appear to be a variety of interpretations. At one extreme an engineer could produce all drawings (except shopping drawings for manufactured items) including working drawings, engineering and a fully detailed specification. On the other hand elementary line diagrams and an outline specification could also comply with the engineer's obligation. It seems important therefore to prepare such working drawings as he may require to calculate his tender.
Continued from previous page:

...technical knowledge to measure engineering services there are some further comments which are relevant to this issue.

The first is that there is little difference between the obligation of a quantity surveyor to familiarise himself with the design and construction of engineering services. In the heady days of prefabrication and industrialised building the quantity surveyor had to become acquainted with the building systems used to meet the specification - and fairly rapidly - with many new forms of construction. I doubt if the basic construction of engineering services changes rapidly and if the building systems used to meet their heyday, and I have no doubt that the given appropriate level of information quantity surveyors have no difficulty in becoming sufficiently acquainted with engineering services to produce reliable bills of quantities.

Furthermore, the study of engineering services is a useful part of the quantity surveyor's training and reference to the Syllabus of the Professional Examinations clearly demonstrates that services are thoroughly covered at the three stages of the examinations.

Responsibility

While it can be fairly asserted that the quantity surveyor is entirely competent to prepare bills of quantities for engineering services, he may often find himself in a position where the information available is at neither of the extremes previously mentioned. That is, it is not simply an elementary layout requiring the contractor to prepare working drawings nor does it provide adequate working and detail drawings. What should the quantity surveyor do?

Firstly, he should not attempt to undertake the duties and responsibilities of the service engineer. The design and efficiency of the services rests clearly with the service engineer and irrespective of the knowledge and experience of the quantity surveyor he must not alter or amend any part of the engineer's drawings or specifications.

Responsibility for the services rests with the engineer and any attempt by the enthusiastic quantity surveyor to fill in gaps in the information could be disastrous.

But this does not mean that he can do nothing, and one can adopt the philosophy of the Civil Engineering SMM by which the bill of quantities is cross referenced to the specification. On the assumption that the specification provides all the information required to calculate a tender, a preamble to the bill of quantities can state that the descriptions in the bill are curtailed and indicative only and that all references must be made to the drawings and specifications. There are instances where the actual quantity of an item may be difficult to determine due to lack of detailed information there may be a choice between inserting a provisional quantity or providing for a lump sum etc.

While this approach may not meet the ideal requirement it can provide an interim procedure. The surveyor offers to give ammunition the lump sum approach and does not require the services engineer to provide additional information for the preparation of a bill of quantities. In passing, I would like to point out that it would save the client a fee of 1% in the UK and about 2% in Ireland.

QS Organisation

Now we come to the question of who prepares the bills of quantities in the QS office. For some time there has been some discussion on the advantages and disadvantages of establishing a group within the office which should specialise in the preparation of estimates and bills of quantities for engineering services.

In considering this matter it is necessary to distinguish between the professional quantity surveyor and the technician. At the technician level (ie, by National Certificate or Diploma) it is quite likely that a degree of specialisation is inevitable and is appropriate. At the professional level, specialisation is totally inappropriate and undesirable. The reason will be quite obvious from the description of the quantity surveyor's role as an expert in construction costs providing a comprehensive and complete service as discussed earlier in this paper.

From experience it has been found that where a quantity surveyor has specialised in engineering services he has tended to become another services engineer - which is not surprising when one thinks about it. Many of those who do specialise in engineering services have acquired their knowledge by working alongside service engineers and more often than not those engaged by the contractor. They have tended to absorb the constructional aspects of the work rather than the functional basis of the service.

While much will of course depend on individuals and how they use and adapt the information they acquire this situation has three drawbacks. The first is that it will tend to encourage and perpetuate the idea that services are something separate and independent from the rest of the project. The second is that it is likely to encourage a quantity surveyor to trespass upon the functions and responsibilities of the services engineers, which must be avoided. The third is that it suggests that specialist quantity surveyors might be required for different types of construction.

While some surveyors undoubtedly find themselves predominantly in certain field of work (eg, educational, building or industrial building) this is usually brought about by circumstances and it would not be to the benefit of the profession or indeed to firms or individuals to restrict their training and outlook to a chosen sphere of construction activity. Quantity surveyors, subject to their obligation to familiarise themselves with the work in which they are involved, should be able to operate with equal ease in building, civil engineering and petrochemicals and other spheres of construction work.

For these reasons the preparation of estimates, bills of quantities and post contract duties for engineering services should be, and is, within the competence of any competent professional quantity surveyor.

Irrespective of the intrinsic advantages in appointing quantity surveyors to prepare bills of quantities for engineering services the extent to which they will be engaged will largely depend upon the policy adopted by the public sector.

In most government departments and large local authorities there is an unquestionable division of responsibility between the architects and the engineers. The engineers are inclined to regard themselves as separate and self sufficient organisations with little or no obligation to integrate their work with that of their professional colleagues. This has lead them to develop a sort of siege mentality which compels them to protect what they regard as their specialist functions without assistance from, or co-operation with, other colleagues engaged on the same project.

If this attitude should persist it is unlikely that the public sector engineers will give much encouragement to the increased engagement of quantity surveyors to provide quantity surveying services for engineering services. But it is to be hoped that wiser and more liberal policies may prevail in the better interests of the client and the increased efficiency of the design team.

Conclusions

This paper has attempted to discuss the factors which should be taken into consideration in deciding which profession should prepare bills of quantities for engineering services. Hopefully it has established that the quantity surveyor should be selected.

To further this conclusion it is suggested that the following steps should be taken: (1) Promote increased publicity for the advantages of using the quantity surveyor, (2) Re-examine the Scales of Fees issued by the Irish Branch of the RICS, (3) Encourage a revision of the Engineers Scales of Fees, (4) Adjust the methods of measurement to suit the level of information available from the engineer, (5) Reduce the cost to the client, and (6) Ensure that the quantity surveyor retains his role as the comprehensive cost advisor and measurer of all construction works.

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