

INSTITUTE ANNUAL CONFERENCE FRIDAY 10TH JUNE 1983

TECHNOLOGY FOR TODAY

The programme for the Institute's 1983 Conference is now being finalised and promises an interesting day on Friday the 10th of June, at the City Conference Centre, Mark Lane, London E.C.

Under the Chairmanship of Institute Honorary Member Bert Rockhill MConsE, FCIBS, FInstR, MASHRAE, Consulting Engineer, who has presented papers at previous conferences, the major theme this year centres on technology. Especially the evaluation of new techniques and equipment which can enable the industry to improve efficiency, make greater profit and give better customer satisfaction.

Under the title 'How much Practice do we need' the opening paper by Institute Member Norman Rickwood, B.Sc., FIGasE, MIDHE, Technical Services Manager of South Eastern Gas, will be discussing aspects of wet central heating systems and asking some pertinent questions on how the future should be viewed, especially in the light of new developments.

A paper of very obvious interest for all those who need to save time, but can't afford to waste too much effort in the process is that to be given by Derek Howe BA on 'MicroComputers for Design'. Derek who is Lecturer in Charge at the College of Building, Southend, has been responsible for the considerable success of the Institute's Courses in the area and many students can testify to his commitment to get down to the practical detail. He has developed a number of programmes suitable for the 'not too costly' microcomputer and which will be of value both in design and business application. A particularly appropriate paper with the growing interest in small computers and which will be free from the commercial bias which tends to be offputting to the non computerist.

Two often neglected aspects of installation, 'System Commissioning and Maintenance' will be jointly covered in a paper by Institute members Leonard J.R. Smith MIDHE and Keith W. Venables MIDHE. As Directors of the D & C Group, who specialise in this aspect of environmental engineering, their experience is that too many systems are simply installed and then ignored. Their presentation will demonstrate the wisdom of properly setting up and correctly servicing installations to ensure economic operation and good life expectancy.

The Symposium session on 'Practical Application of Heat Pumps' will investigate the actuality of selection, installation, operation and usage of heat pumps. The problems, as well as the advantages will be aired, with contributions based on experience, from speakers in manufacturing, consultancy, contracting and end user. With market competition starting to take on a keen edge - and a whole flurry of over-rash statements on performance expectations from excessively ambitious sales organisations - the symposium will enable a balanced view to be obtained of just what the state of play is at this crucial juncture.

The Symposium will be led by Bernard J. Hough FCIBS, Manager of the Electricity Council's Heat Pump and Air Conditioning Advisory Bureau, who will give an impartial overview and an across-the-board scene setting introduction to the subject.

For the contractors, John Allen MCIBS, MInstR, Director of Airconair Design Ltd., has some firm criteria which he believes need to be stringently applied to make heat pumps attractive to the customer - both for installation and operation - and profitable for the contractor.

For the end user Terry Cole FCIBS, MInstR, MASHRAE, MBIM, Project Coordinator of C & A Modes, who for many years have been devoted users of heat pump equipment and systems, will discuss the results obtained and equipment reliability both from cost and satisfaction angle.

David W. Morris CEng, MIMechE, FCIBS, MRSH will look at the particular advantages of using heat pumps for swimming pools and compare cost and operational features with other methods of heating.

The symposium will conclude with an open forum, enabling delegates to put their own views and thus make a valuable contribution to the session.

The printed programme and delegate reservation forms will be available shortly from the Institute. However to encourage early reservation a special discount is offered to delegates who book conference places by the 30th of April.

The standard conference fee is £40.00 for Institute (& DHS) members, £48.00 non members. By booking early 25% discount may be deducted, thus reducing the cost to £30.00 (members) and £36.00 (non-members). In addition a special group booking rate also applies. Book and pay for four or more delegates at the same time and a further £3.00 per delegate may be deducted.

As is customary the delegate fee includes morning and afternoon refreshments, lunchtime aperitifs, luncheon with wine and a copy of the printed papers.

Reservations may be sent on the form herein, together with remittance, to the Institute at 93 High Road, Benfleet, Essex. Marked 'Conference Organiser'.

IRISH BRANCH CONFERENCE WEEKEND IN WATERFORD

The Irish Branch of the Institute will be holding their 7th biennial conference from 6th to 8th May 1983 at the Ardree Hotel, Waterford, Co. Cork.

The theme of the conference is Revival and there will be papers from six eminent speakers in the industry. The Conference will be opened on the afternoon of Friday 6th May by the Minister of State for the Department of Industry & Energy.

The Branch have organised a special weekend and the programme has many social events, including Golf on the Saturday afternoon, a Dinner Dance on Saturday evening, a visit to the Waterford Glass factory, boat trips, tours etc.

Institute Chairman Eric Farrow is looking forward to attending and chairing the conference. Has hopes also that perhaps those dusty clubs may get some fresh air and a few small divots!

Members who would like to attend should contact Hon Branch Sec; Harold Pattison. Harold has a special rate for the complete package at very attractive rates - and don't forget that you will get more for your pound in Irish money. Ferries operate from Fisguard to Rosslare, from which Waterford is but a couple of hours, or Holyhead to Dun Laoghaire (Dublin) which will take a few Irish miles extra and a total of about 3½ - 4 hours without too much of a rush.

Harold Pattison may be contacted through Irish Branch correspondence Secretary Katriona McTiernan at 18 Aranleigh Vale, Rathfarnham, Dublin 16. Tel Dublin 945257.

YORKSHIRE BRANCH DINNER DANCE

In case you think that the headline refers to a forthcoming event then it has to be reported that you are too late for this year. The Yorkshire Branch held their Annual Dinner Dance at the Queens Hotel, Leeds on Saturday 19th of February.

And a very nice function it was too with a good venue, good food, a swinging disco, the ever popular Ladies Raffle, (for those who don't know - you always get your own one back) and Chairman Allan Stirk presiding over it all.

Organised by Eric Morris there were some eighty members and guests who continued festivities until 1.00 a.m. As is now customary Jack Connah had lined up a goodly selection of raffle prizes - his powers of persuasion with manufacturers and merchants would make him a formidable Euro MP.

The toast to the guests was given by Allan Stirk and responded to by Institute Founder & Chairman Eric Farrow who conveyed good wishes to members from President Norman Bailey with apologies for his unavoidable absence through awaiting hospitalisation.

Details of the next Dinner Dance and other branch functions can be obtained from any member of the Branch Committee who will be pleased to welcome members and their guests.

NORTHERN IRELAND BRANCH

Just around the time when the printers are putting this to press members in Northern Ireland will be looking forward to welcoming Institute President Norman Bailey to their Annual Dinner, being held in Belfast on Friday the 18th of March, Branch Chairman Brian Page, who so well deserves his elevation after many years of sterling service as Hon. Sec. promises that a good time will be had by all. When Past President Don Hayes visited last year he waxed eloquent about the great reception received.

Talking to Harry Dane, who has now taken on the task as Hon. Branch Sec. it seems that one of the highlights of the evening is a draw for a gallon of whisky. We trust that Norman will bring it to the next E.C. meeting should he be the winner. Another feature this year is that the 'Stag' night is being invaded by two ladies. Mrs. Burnison, Manager of OBC, Belfast and Mrs. Brian Page. Harry Dane says that the cabaret is a special feature of the function. Just what have those girls got up their sleeves for a surprise double act? Always be suspicious when the ladies want to attend a stag night - it might cost you dearly the next time.

On Thursday the 14th of April a party of around fifty members and friends are travelling over to Stranraer for a days curling and golf. This annual event is always well supported and matches are played against other enthusiasts from various parts of the country.

The whole event is hosted by OBC, Belfast and various manufacturers including Bowaters. The golf matches are the early rounds of the YHS competition which culminates in a final, later in the year at Harrogate when YHS present a cup for their best customer player. In this first round customers from Dumfries and Kilmarnock will be to the fore (if you will pardon the pun) and keen to show the visitors the way home.

This year for the first time the Institute will be donating a perpetual trophy in the YHS competition, to be awarded to the member who achieves highest overall placing. So get the dust off those clubs lads - and get swinging.

EVERY LITTLE HELPS

A nice surprise and very gratifying to see in the recent HVCA publication entitled 'Domestic Heating Fitter' a nice 'plug' for the Institute Courses. Under the reference for young entrants to the trade - 'Once you have acquired the various craft skills you can go on to study the technical and managerial aspects at day or evening courses. If you pass the necessary examinations you may become a member of the Institute of Domestic Heating and Environmental Engineers and be entitled to write AMIDHE after your name!

A concise little booklet it performs a useful function in introducing youngsters to the idea of what the industry has to offer. With the current shortage of skilled craftsmen in the industry it should help to improve the future situation. If you know a young person who would like to have information on the subject they may obtain a copy of the publication from:-

HVCA Careers Service
Esca House
34 Palace Court
LONDON W2 4JG
Tel 01-229 2488

OR HVCA Careers Service
23 Heriot Row
EDINBURGH EH3 6EW
Tel 031-225 8212

BARTOL PLASTICS ELECTED AS FIRST CORPORATE MEMBER

The Institute take considerable pleasure in announcing that Bartol Plastics Ltd have been elected as the first Corporate Member of the Institute.

Bartol first expressed interest in giving further support to the Institute's activities some while ago - they have long been a regular sponsor of the Institute's Annual Conference - this new association is a natural extension of that sponsorship and reflects their interest in promoting high standards within the industry.

Bartol are now entitled to use the specially created Corporate Membership logo to indicate their affiliation with the Institute. This is available to be used in all types of publicity and advertising from catalogues through to tags and labels on material and equipment. The Institute views this as an important part of Corporate Membership which will enable members to appreciate the support for their professional body. With the extreme selectivity which is being applied in inviting applications from industry the logo could soon become recognised as a 'hallmark' of the responsible organisation.

Presentation of the Institute's Warrant of Corporate membership is planned to take place at the London Hevac show on Tuesday the 26th of April. An appropriate choice in view of the Institute's link with Hevac through the biennial Award of Excellence. Mike Marsden, Managing Director of Bartol Plastics Ltd will receive the Warrant from Institute President Norman Bailey who will be accompanied by Chairman Eric Farrow and members of the Executive Council. Members are cordially invited to attend the presentation.



THE CORPORATE MEMBERSHIP LOGO

DINNER DANCE — LONDON FRIDAY 28TH OCTOBER 1983

Yes, you may immediately place the date in your diary for the Institute Dinner Dance, which will be held at Bucklersbury House, Cannon Street, London EC with President Norman Bailey and his wife Audrey heading the festivities.

Under the organisational genius of Vice President Bill Keegan - who is well practised in such skills - a splendid evening is confidently anticipated. Having had the pleasure of attending functions at Bucklersbury House on several occasions, your Chairman can report that the food has always been good, the wines reasonably priced, the dance floor first rate, the lighting at the right level, the toilets in accord with all regulations (always look at the piping & ventilation - sure indication of the management's care) and the cost not excessive.

What more is there to say except - watch this space for more details. In the meantime to indicate your interest a briefline will be appreciated, just a postcard marked Dinner Dance will do. Tickets are yet to be costed but around £15.00 is anticipated. For companies who wish to sponsor a whole table special arrangements are being made, early reservation for groups of eight to ten are particularly invited.

PRESIDENT'S LETTER

I trust that members situated in other parts of the U.K. will forgive me if I choose this medium through which to apologise to our Yorkshire Branch for not being present at their Annual Dinner and to thank our Chairman for standing in for me at very short notice.

Since my last Newsletter I am pleased to be able to report that the recently introduced Technical Sales grade of membership has had a most encouraging reception. The even more recently announced Corporate Membership has already brought forth companies who are prepared to join with us in our campaign for a higher achievement in standards and a more professional approach within our industry. Should you have contact with any concern conscientiously engaged in the heating, ventilating or a related field and you know them to be in accord with the aims of the Institute it is in your interest to see that this method of support is made known to them. This is a testing period through which we are passing, from which as I have said before a leaner and more qualified industry will emerge and I am now sure that the I.D.H.E. will be the body which, with foresight will merge all factions together to produce the professionalism we now stand for.

COME MEET US AT HIVAR

EDINBURGH, BRISTOL, HARROGATE

Through the good offices of Heating and Ventilating Review and the Institute's long time friend and supporter Vic Gould, their Chairman we shall this year be participating an entirely new series of exhibitions in the U.K.

The Institute will be at each of the three day shows and members are cordially invited to attend and discuss matters of interest. You are assured of a warm welcome and we will even throw in a free buffet luncheon.

First date for your diary is 17th-19th of May at the Royal Highland Exhibition Hall, Ingliston, Midlothian. During this exhibition it is intended to set up a Scottish Branch of the Institute, so members in Scotland who are interested are asked particularly to write to the Institute that they may be advised of arrangements.

INSTITUTE AT THREE EXHIBITIONS

The second exhibition takes place from 14th to 16th of June at the Bristol and City Docks Exhibition Centres, Canon's Road, City Centre, Bristol. Again members who are interested in formation of a branch are requested to advise the Institute.

Third venue is Harrogate Exhibition Centre, Ripon Road, Harrogate from 22nd to 24th of November. Members of the Yorkshire Branch will be anticipating an upsurge of new members from this exhibition. There will be over 200 stands at each show featuring a wide range of building and mechanical services.

Tickets for each show may be obtained from the Institute or direct from the organisers. Travelling Exhibitions Ltd., Faversham House, 111 St. Jame's Road, CROYDON, Surrey. Tel 01-684 4082

DIRECT DEBIT SYSTEM — A GOOD RESPONSE

Thanks are extended to all those members who so swiftly returned their Direct Debits forms in respect of Annual Subscriptions, thus enabling an expeditious commencement to the system.

A plea from the heart to those who have yet to return the form. Do send it back signed and dated ASAP. It really will greatly assist in organisation of the records and has the considerable advantage that, once entered correctly, it will be a tremendous time saver.

Gratifying to note that only one solitary member wrote to say that the 'didn't believe in' the system, nor the unequivocal statement by the banks that if for any reason an error was made in payment they would immediately correct matters.

The safeguards and advantages of the system are fully set out in the green pamphlet, issued by the clearing banks. It clearly shows that direct debiting is the easy way to pay and to quote from that document 'Your bank will reimburse you if a direct debit which does not conform to your instructions is charged to your account'. Can't say fairer than that!

For members who may have mislaid the Form, another is enclosed herewith. Don't worry if you can't remember all the details - we can insert these from your records - but please ensure it is signed and dated.

Incidentally only ONE member made the error of sending his form back directly to his bank. Ouch, mustn't do that, we have to insert the details for their computer records first. Forms must be returned to the Institute.

Note that Membership Subscriptions remain at £20 for Member and £17 for Associate Member, Technician, Affiliate, Graduate.

BE SURE YOUR SINS

Dear Eric, said this letter, could you please arrange for a membership upgrading form etc to be sent to Mr..... AMIDHE as he would like to apply for advancement to MIDHE.

Fair enough, thinks I and dictate the usual letter to the man concerned. But wait, let us check on the fellow's present qualifications and thus save time at the EC meeting when the application is considered.

Into the alphabetical records for the membership ref and surprise, not there. Into the deadfile - not there. A check in the college files for the area. Well, would you believe - there he is. Have we slipped up? Has he somehow been elected and not listed. Just not possible.

All is revealed. The man has taken the course and 'forgotten' that in order to become a member he has to complete the formalities of making an application, be elected and pay a subscription. Oh sure, he passed the examination - and as far as he was concerned that was it. He simply ignored the communication sent advising of eligibility for election, the reminders that his application would be automatically accepted as he had passed the examination and the further reminder that he could not term himself a member until so elected.

So if you meet a man who claims to be a member and you're not convinced, simply check by asking to see his membership certificate. And our man? Well he is now going to apply for Associate Membership - wonder what the EC will think of that! Better late than never perhaps?

ENVIRONMENTAL APPRAISAL OF ATRIA

David C. Sales

Tech (CEI), MIDHE, MIE, MIP, AMInstR, AMASHRAE

Senior Engineer for Building Environmental Services,
Air Conditioning (London) Ltd.

1. INTRODUCTION

Atria or Atriums in architectural terms are essentially lightweight glazed structures, taking a multitude of forms and functions. The prestigious building project is hardly without one and there exists today some very excellent specimens. The aesthetic impact of Atriums is quite impressive and they do much to enhance the building image in general. In addition to this they act environmentally as an envelope protection and sometimes a weather barrier to adjacent buildings. Many incorporate walkway balconies and pleasant landscape planting, but despite their air of attraction and delightfulness they do present to the Building Environmental Services Engineer a variety of environmental problems.

This short descriptive feature is intended to provide the Architect and Engineer some positive direction to appreciating the environmental implications of Atria and enlighten on some ways of solving the problems based on first-hand experience.

2 ATRIUM TYPES

As designs have progressed there have emerged a pattern of Atrium types, embracing many shapes and sizes. In my own experience of engineering the necessary environmental systems required by Atriums, basically three types of architectural designs have been encountered. Construction materials may vary from transparent membranes with tension cables and supporting masts, to vertical or inclined facades, glazed conventionally to specification, sometimes with curvatures and the like surfaces. Atrium types and some case examples follow next.

(A) Integral Building-full environmental control.

(b) Covered External-no direct heating or artificial cooling.

(c) Exposed Internal-heating without artificial cooling.

(a) Integral Building

Some building projects possess an Atrium as a fully functional annexe and this type can be designed to fulfill numerous uses and client/tenant requirements. The Coutts Bank in London and certain hotel Atriums are examples.

One particular design I was engaged on in 1980, proposed to include dining and catering facilities with provisions for leisure recreation. The remaining blocks linking the Atrium were purely residential in nature, in fact private hostel style. A focal point was created by the presence of the Atrium itself and also greatly enhanced the public interest in the vicinity, by acting as an unusual environmental attraction.

(b) Covered External

This type of Atrium is simply a transparent cover, usually over areas of high activity such as a terminus, station concourse or traditional arcade. The Old Covent Garden Market Hall is a good example and many of the older railway stations are reminiscent of this Atrium type.

(c) Exposed Internal

Precincts of circulatory movement for people invariably accompany this category. They are occasionally found between building blocks, at entrance halls and similar locations of building reception. Particular emphasis on this type of Atrium is the facility to provide a buffer zone for people in transition outside to inside of premises and vice versa. Temperature extremes can be more noticeable otherwise. Shopping Malls, Cathedrals and Museum Halls typify this kind of Atrium design.

3 ENVIRONMENTAL FACTORS

In order to begin evaluating the degree of environmental comfort to be achieved in Atrium spaces, the basic factors governing this and their resultant implications must be studied in detail to form a reasonable appraisal.

Thermal performance, ventilation, fire/smoke control, condensation, acoustics, light and landscape planting (internal) are the main design considerations in establishing an adequate level of environmental control.

(a) Thermal Performance

Heat accumulating within the Atrium space due to the action of Winter and Summer sunshine, is an identical process experienced in greenhouses known as the 'Jolais' Effect. The massive expanses of glass produce extreme mean radiant surface temperatures internally. Low in Wintertime and high in Summertime. The thermal effect will be most felt during the hours of darkness when the night sky radiant temperature is well below that of the inner surfaces. This occasion is the probable time for dew-point surface temperatures to decline and condensation to form as a result.

It is important to note here that with such radiant temperature extremes, difficulties in designing for a totally comfortable environment are often encountered.

With regards to the tall and slim Atriums, which are quite common, these create temperature stratification by the natural 'stack effect' and an allowance for height must be made when contemplating thermal comfort systems.

Solar transmission and blockage can be purposely controlled by the careful integration of areas of steelwork, formwork and glazing into the Atrium facades. Natural daylight factors for the various internal zones need to be given thought to in context with the fenestration aspects.

(b) Ventilation

Air movement within Atrium spaces is essential not only for occupants but also for positive fire/smoke control and any plant transpiration. Depending on the pattern of useage and densities, the ventilation can be effected by either natural or mechanical means. From the safety point of view for fire/smoke control, it is desirable, and sometimes mandatory,

to provide an automatic system of roof smoke release vents, augmented by natural louvre apertures at high and low level in the external facades. The local Fire Officer will almost certainly dictate on the provisions for natural ventilation automation.

Commenting again on tall Atriums, coupled with natural vent points they act as potentially good smoke extractors.

Always a crucial consideration is the fire resistance of Atriums. The famous Crystal Palace was reduced to cinders rapidly in 1936. Perhaps this terrible holocaust is an extreme example but it clearly demonstrates that glass is not rigid in the emergency event of fire break-out. Structural stability of Atriums under intense temperature sources is not within the scope of this article and therefore expert advice should be sought.

(c) Condensation

Atrium enclosures consisting mainly of inherently cold surfaces and hence low dew-point temperatures, condensation is inevitable especially at night when a small amount will occur. Minute quantities of condensation are not really harmful to the structure and can be tolerated. However, drip channels sited at low level around the Atrium periphery would safely collect any moisture droplets and pass them to drain or directed to internal planters, if incorporated, as extra irrigation.

(d) Acoustics

Hard, impermeable surfaces such as glass and marble, are low absorptive to sound waves which in turn would typically reflect a long reverberation time (that is the time taken for a constant sound source to decay by 60dB). Sound sources originating within the Atrium spaces are thus likely to result in multiple reflections and thereby generating echoes. Consideration of internal surface finishes is important to the Architect and Interior Designer, at initial concept stage so that allowances for acoustic linings can be assessed and provided for if thought advantageous to the integrity.

Conversational speech and footsteps are two potential sources of sound generation. Plant foliage on the other hand would offer some degree of absorption.

(e) Light

Provisions for both natural and artificial lighting in Atriums influence standards of decoration, directional character and utility. Overall, the artificial lighting system should be invariably special, and specifically deployed to give the Atrium interest, colour texture and generally enhance the aesthetic impact.

Glare index limitations of the building occupants should be ascertained when assessing total performance and interactions of the individual lighting systems.

Natural light penetration is unrestricted in highly transparent Atriums but the Lighting Engineer will obviously need to consider the quality of penetration and sunshine patterns, in order to determine how much of the artificial lighting service will be needed to supplement the natural components. Shading due to the form of construction chosen or adjacent buildings will interplay with resultant illuminances of daylight.

With all the above factors in mind, a compatible mode of lighting control can be designed.

(f) Landscape Planting

The Architect usually includes in the concept design, internal planters/trees. Nature affects people in many pleasant ways and this type of scene presents the Atrium as safe delightful places.

Artificial irrigation of plant foliage is a minor service provision but it tends to add to the maintenance list, depending on the size and composition of the garden enclosed.

Plantation naturally goes through the continual process of transpiration, which increases the moisture content levels of the ambient air. The rate of transpiration into the space is governed by atmospheric conditions of humidity, temperature and air movement. High humidity percentages will reduce the rate of evaporation and vice versa for a dry condition. Transpiration will increase with the elevation in air temperature. When the leaf becomes warm, moisture emission occurs more rapidly. Direct sunlight without a warm atmosphere will have this affect (Winter internal condition) since the leaf absorbs radiant energy and its temperature rises.

In moving air currents, the water vapour given off will be swept away from the leaf as fast as it diffuses out, so that transpiration continues rapidly. It can be confidently deduced from this criteria that with plenty of ventilation air, induced by opening up the Atrium to atmosphere, then plant transpiration will be kept within acceptable limits and therefore have no adverse effects.

The species of plants/trees decided for the landscape garden will ultimately govern the gross rates of transpiration.

I have emphasised on the biological mechanisms of plantation because more often than not this aspect is not completely understood and if condoned, can significantly add to the diurnal humidity levels.

4 ENVIRONMENTAL SYSTEMS

Atriums in general only require basic services provisions as most are intermittent or transient in nature. Background heating in conjunction with ventilation is sufficient in the majority of cases. In Atriums where tighter environmental control is required the comfort systems are more sophisticated and this trend will continue to grow as Atriums are designed to accommodate people for longer and extended periods of time.

In Winter the naturally cold glass will cause the layers of room air next to the inner surfaces to cascade slowly downwards, giving rise to uncomfortable draughts. Counteractive measures are required to nullify the air currents set up. Convective heating systems strategically positioned at low level around the perimeter offset the cold convection. Conversely, radiant heating systems can often provide the necessary energy input to produce comfortable air temperatures in strict relation to mean radiant values of the internal surfaces. Transient zones need only background heating to about 15 C air temperature and popularly take the form as high level radiant panels or underfloor heating coils intergrated into the floor structural slabs (marble finish on top).

Those Atriums which call for full environmental control, the first thought of the Building Services Engineer is to investigate the feasibility of utilising the abundant glazing areas as a solar collector (well it was mine anyway). Using my previous project in 1980 as an example, the South facing facades were studied for possible integration of an air solar collector with a second option for a water based system. Air systems similar in principle to those of Sodergren (1973), are termed as hybrid passive/active types where the solar irradiation incident on the building fabric is admitted (passive), harnessed and optimised by circulating direct to the space with fans/pumps (active) or passing to energy storage via building mass to delay and alternate heat flow. Using airways in walls and floors the useable solar energy can be synchronised to diffuse out most efficiently when the Atrium is occupied.

During the Summer, heat can be reclaimed from the air streams for topping up the domestic hot water storage. At night the air system can be used to circulate cool air through the building structure thereby pulling down the heat stored in the masses during the day.

Solar collection systems adopting water as the primary transfer medium also work on the passive/active principle and are very beneficial when large quantities of domestic hot water are demanded such as dining/catering premises with kitchens.

Feasibility studies have indicated that air based systems as compared to water type, require larger plant (fluid moving), more complex distribution networks which need maintenance, and may possibly introduce unwelcome noise and demand space. However, the system would have the ability to provide an accurate level of environmental control.

System efficiencies, initial capital investment, pay-back periods and related economics must be precisely analysed to determine the viability of a system for a particular Atrium building.

With regards to Atriums of high activity, the space temperatures can be, to a certain extent, limited by inducing rapid air change rates. Odours, moisture and heat must be essentially dissipated. Changing the Atrium volume so quickly can eliminate the need for artificial cooling, providing the occupants are entirely sedentary. An assessment of the Atrium summertime temperature can be made to evaluate the requirement to include in the design brief an air-conditioning system.

5 DISCUSSION AND CONCLUSIONS

Atriums do lend themselves to the design philosophy that buildings can act as energy systems. Accomplishment of this is only by conscious architecture and engineering.

Atria amongst the architectural profession are becoming increasingly popular. Environmental implications of these highly thermodynamic structures are revealing themselves more as the Building Environmental Services Engineer learns about Atrium behaviour.

Each individual Atrium needs to be assessed on its own merits and emanating from my own past experiences in working with them I have taken note of one particular characteristic. The majority of the problems posed are invariably overcome by adequate ventilation, whether it be mechanical or natural in form.

Early liaison with the job Architect is essential to plan into the design, openings in the structure to admit the required rates of air flow.

Finally, Atriums have an active future in Building Environmental Engineering but as this article portrays, they must be considered as a total entity with the buildings that they serve.

6 BIBLIOGRAPHY

(a) Dr. Croome D.J. & Roberts K. "Low Energy Building Design". Paper presented at Symposium - Energy, Services and Buildings University of Bath 30th June 1980.

Recent Elections

Names marked with an asterisk indicate that the member as qualified via the Institute's diploma Course. Alternative exempting qualifications have applied in the case of other elections to corporate membership grades.

RECENT ELECTIONS

MEMBER

- ★ G.E. Foulger, Suffolk
- L.J.R. Smith, West Sussex
- K.H. Neate, Herts
- M.L. Parker, Kent
- K.W. Venables, Essex
- ★ L.D. Roy, Essex
- A.J. Williams, Isle of Man

ASSOCIATE MEMBER

- ★ B.A. Atkinson, Norwich
- K.J. Bradley, Surrey
- ★ S. Millen, N.Ireland
- S.M. Ellis, Herts
- T.W. Martin, West Midlands
- ★ M.T. Warburton, Cheshire
- ★ D.R. Sharwin, Manchester
- ★ G.R. Snowdon, Essex
- ★ J. Gaskell, Wigan

- ★ T. Cooper, Liverpool
- P.A. Dobson, W. Sussex
- ★ W.D. Gibson, Greater Manchester
- R.E. Milner, Herts
- P.A. Timothy, London
- A.K. Burt, Leeds
- ★ P.P.C. Holland, Herts

AFFILIATE

K.R. Piper, W. Sussex
B. McCrea, Co. Down

TECHNICIAN

J.G. Hickmott, Devon
E.M. Parker, Kent
W.L. Thrupp, Hants
J.J. Donahue, West Midlands
I.L. Scannell, Glasgow

UP-GRADING TO FELLOW

J.L. Ball, Glos
C.M.J. Sutherland, Surrey
R.W. Stokes, Sussex

UP-GRADING TO MEMBER

D.W. Fish, Cheshire (Reinstated)
V. Clark, Herts
A.M. Hingston, Kent
J.A. Edwards, Norfolk
K.K. Hawkins, Hampshire (Reinstated)
H.A. Lauder, Airdrie (Reinstated)

ANNUAL GENERAL MEETING AND LUNCHEON

The Annual General Meeting and Luncheon will be held on Thursday the 7th of July 1983 at The Building Centre, Store Street, London WC1.

The meeting will commence at 11.00 and will be followed by a buffet lunch at 1.00 p.m. The President, Chairman and Executive Council members hope to have the pleasure of your company and look forward to the useful informal discussions and interchange of ideas which have become a feature of the after proceedings of the AGM. During the Luncheon period the awards for educational attainment will be presented to those who achieved distinction in the 1982 examinations.

The full Agenda is:-

Minutes of the Meeting of the 1st July 1982
Matters Arising
To receive the Chairman's Report
To receive the Statement of Accounts and Auditors report
The President's Address
To Announce the Educational Awards
Apologies for Absence
Any Other Business

MEMBERS APPOINTMENTS AND VACANCIES

Member Colin Barcock AMIDHE is looking for small bore fitters to work in the Banbury area for a progressive company with modern premises on the Beaumont Industrial Estate. Very good working conditions are offered, together with a wide range of interesting contracts. He may be contacted on 0295 3669, or write to C.F. Barcock Esq., AMIDHE, G. Southam & Co (Banbury) Ltd, Beaumont Road, Banbury, Oxon.

An Associate Member of Rayleigh, Essex is seeking a post in the H & V industry. Age 22, he has recently qualified via the Diploma course and has four years experience in handling sales and technical applications. Replies to the Institute at 93 High Road, Benfleet. REF 3197.

If you have a vacancy to fill or are seeking pastures new please contact the Institute and ask for the details to be included on the Members Appointments and Vacancies Register. No charge is made for the service nor for publishing the details. Please state if you wish details to be confidential and a reference number only will then appear when published.

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