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Introduction

This seminar can play a significant role in exploring the aesthetic and sustainable issues which are so important to house building.

In view of the well publicised figure from 1991 of 4.4 million additional new homes, allegedly required in the next 15 to 25 years, we all need to gain a better understanding of how housing is currently realised in this country, and what options exist in the future, and how we can all contribute in order that new ideas can emerge to answer this challenge.

Added to this figure is the need to replace obsolete dwellings, estimated at more than 1/2 million, and the renovation of some 5 million existing dwellings. I will leave it to others to explain what 200,000 new homes a year represents in building output compared to other eras. Of this 5 million, the changing profile of households from the “nuclear family unit” to anything but, indicates that at least one third of all these new UK households will be occupied by only one person.

This seminar seeks, among other issues, to explore, particularly in relation to private sector housing, who commissions housing and upon what basis, how it is designed and under what constraints, and what can be done to improve the quality of housing in the future both in itself and as an integral part of our built environment, whether it is new build or conversions of other building types - warehouses, offices etc.

With such big numbers being talked about, the challenge is evident, and it will only be through a spirit of collaboration across all sectors and the need to recognise quality as a vital ingredient in housing that future success will be achieved.

Obviously as an architect and commissioner, I consider design quality to be a very high priority. I will put forward some philosophical investigations and observations on urbanity and aesthetics, as well as suggestions where appropriate new ideas may be useful.

I would like to begin with an anecdote from the very recent past.

Milton Keynes is housing. It is why it came about. It was conceived to be a new town (even a city) of 250,000 inhabitants living in low-density developments and running around in cars.

During the seventies the Milton Keynes Development Corporation built 2,000 homes a year in public ownership. In this period housing meant ‘social housing’. It began with employing some of the best young architects of the time to design the homes - Foster, McCormack, Cullinan, Phippen, Richardson, Erskine etc.

The second decade showed a dramatic change where homes were dictated by market forces and home ownership. Public sector house building virtually stopped, and owner-occupied homes tripled. Bright young architects vanished from Milton Keynes.

In the first year of the nineties no new homes were built in the public rented sector. Today, there are about 58,000 homes built in Milton Keynes.

A further 20,000 plus are expected to be built to achieve completion, and , will be developed almost certainly by the private sector for private ownership.

Were the designs of the young architects successful or not? The success or otherwise of these designs is not well documented. Certainly one or two schemes were not successful.

Who are the architects working for the private sector house builders who have been developing Milton Keynes housing since the eighties?

Dr Julienne Hanson, at University College London, summarises her recent research of Milton Keynes housing as follows:-

“At its inception, Milton Keynes recruited the best young architects to plan and design its housing, with the explicit intention of offering all the city’s inhabitants the chance of a better standard of living. This was to be achieved through a high quality and well-designed environment, for the vision of the policy makers and town planners was to bring the benefits of architecture to everyone who lived there. Twenty five years on, in the commercially-dominated housing market, only two out of thirty developers claim that their houses are ‘architect designed’.

Whilst architects and designers advocate flexible, open and well-connected domestic interiors, the houses at Milton Keynes are laid out in a much more compartmentalised and segregative manner, at every level of the market. To the extent that the speculative housing market can be viewed as an expression of popular taste, the domestic space of Milton Keynes suggests that the lifestyles to which ordinary people aspire have little in common with the concepts which architects use when they theorise about the relation between house form and family life.”

Brownfield and Greenfield and Intelligent Action

Brownfield has become a catchword in recent years, and there is an ever-increasing interest in securing development on brownfield sites. However, we are all aware of recent pronouncements by present government ministers that new housing developments on greenfield sites is OK because that is where many people wish to live - illustrated by the fact that more than 330,000 people have left London in the past few years. Yet we are also aware that a greater percentage of people in the UK now reside in the big cities than ever before - it is now 80%.

To choose, for those who can, to live in brownfield rather than greenfield, is as much to do with sustainability, the quality of the urban environment and what city life can offer beyond the home as it is to do with the design quality of the brownfield housing itself.

For many, there is no comparison between the dream world of the country cottage and the urban nightmare of Needle Park, graffiti, noise and air pollution, and poor schools.

This is one perception of the cultural context in which the future residential and mixed use development densification of our urban environment will have to take place.

We must, I suggest, tend towards the idea that urban living must and will become more and more attractive because we have little choice but to invest in our cities and make them more attractive at every level. The scale of the anticipated new housing provision should have a crucial impact on the improvement of our towns and cities. Although I would accept that, in the public eye, the architecture of individual housing is not as significant visually as say a national museum or a bridge across the Thames, the cumulative effect of monotonous and repetitive housing developments characterised by lack of design investment makes a major cultural statement about our society. If we cannot or will not engage the very best talent to design our future housing it says much about our cultural values and it will result in having a negative impact on the quality of the urban environment. The recent past is an everyday reminder of this.

The DOE identified that of the 5,500 hectares used up for housing in 1993, more than 50 % was taken from a combination of invaluable green space in urban areas and agricultural and other rural uses

As a society we must recognise our obligations to the future - this is at the very core of the meaning of progress. Can we afford to take up relatively virgin territory around the edges of our cities and towns before cleaning up our inherited polluted urban wastelands?

Have we come to a point where individual desire has to be tempered by more intelligent action, action which is informed by a more holistic appreciation of how we can better commune, commute, consume and dispose?

Although sustainability is now a recognised philosophy at the heart of many government policies, actions by government, designers, developers, and constructors in housing are still by choice and not imposed by effective legislation and audit. For example, even our most recent thermal regulations will not radically change UK household space heat energy consumption, which is currently more than 10 times that of some other European low energy developments. Will we ever be able to recognise sustainable development? We talk about sustainable development as if we all know what it is, but could we ever recognise it even if we got there? The economic and ecological concerns of the source, transfer and management of energy is a preoccupation in most aspects of society. However, it should not be viewed in isolation from the many other aspects which inform architectural design. “Green”, “bioclimatic”, “sustainable”, or “solar” homes are merely labels. The quality of our future homes is not about such labels but about many diverse and interrelated issues. The architecture does not have to “scream” with such labels, and an intelligent approach need not lead to mediocrity in appearance or performance.

Urban Densification

The densification of our towns and cities is environmentally, ecologically, and I would suggest economically advantageous. It is about being more sustainable. All forms of servicing and transport infrastructures will be more effective, and in particular the economic viability of public transport is improved. Densification will also help to ensure more mixed use development which is necessary for urban living, and this should result in more life and economy to town and city centres. It also means that there should be less pressure on the countryside.

The Georgian, Victorian, inter-war and post-war developments, whether as streets, estate blocks, or high rise are all of very similar density - around 100 habitable rooms per acre, or in today’s definition 100 habitable units per hectare. In London, high rise and high density are not the same thing. It will also help ensure that social and affordable housing is integrated into the social fabric of our cities - and not seen as something a developer can “buy off”. It is precisely in the inter and post-war housing estates of our cities, often superbly located but with much meaningless open space between the housing blocks, that densification can and should take place.

A housing scheme in Limehouse which we designed ten years ago achieved nearly 200 habitable rooms per acre, twice the norm despite planning constraints. The design exceeded the minimum sunlight and daylight standards into habitable rooms, and overlooking was not a problem. This project convinced me that, by design, planners can be encouraged to reappraise these issues. It is however, politicians who will continue to decide in which direction our ideas of living and urbanity will develop. It is up to all of us who are concerned with housing and society to inform and influence them.

Where do we actually live?

Living in the “periphery” or run-down inner city often has little pride of place, and we need to discuss the innovation of the nature of tenure (care, pride, ownership etc.), of ecological and socially acceptable density, of variation and mixture (diversity and flexibility) in these locations.

This discussion inevitably raises the question of the time we actually spend living at home. If living rather than subsistence time is increasing, will it be spent in the living space of the unit or the living space of the city? At the moment we have no measures and we do not really know.

I would venture to suggest that the majority of us who have work spend only a small percentage of our waking lives actually in our homes.

It is vital that all of us concerned with housing provision investigate and understand better the nature of the way we live and will be living in city spaces and home spaces.

We have to understand whether a sense of family “community” exists in the home as much as we think. Does the high percentage of single person homes within the forecast number of 4.4 million homes suggest a problem of community? If a sense of community does not exist in the home, it surely questions how urban communities can possibly exist in the sense that we have understood it in the past? A true sense of community exists because of interdependence, not by design.

The fact that the last two decades of developer housing, and not just in Milton Keynes, is based upon lots of individual rooms with separating doors, and not the architects’ dream of open-plan, suggests that the need for individual privacy or territory in the home is more important than shared living space. Or is this an illusion? It is evident from new house sales that the more rooms a house has (not square metres) the higher is its selling price, and by inference, the higher the social status of the occupants. Is this the essence of the dream? A dream which has nothing to do with living as a family “community”. In these houses does each room have its own “tenant” settling down with the TV/internet after finishing the microwaved meal?

This is the opposite of what I have found among the aspiration of tenants in Glasgow’s east end. They desire family community, and consequently have requested an open plan, large shared central living space because they fear alienation within the family. They do not deny the need for visual and acoustic privacy for children and adults, but they recognise that a generous polyfunctional shared space is essential. Perhaps this view has its corollary in the public domain outside, for they appear confident about an extended community.

Observations on the teleconnected individual and the housing unit.

Individuals may be passing more and more time in global virtuality, and as a result, the local reality acquires a greater importance and demands much new thinking. The physical world of the housing unit and its public spaces will always be physical, solid, sensual, and perhaps the domain of the slow, slow world of social discourse can become a haven against the faster-faster, rougher-rougher passage that characterises the competitive world of work.

I suggest that few will want to work from home, even though technology permits and some ecological views allegedly demand it to alleviate travel and energy waste.

It is clear that technology will continue to contribute to living in the home, as the proliferation of gadgets and home computers increases. However, rather than as individual items - each with their own small and relatively simple electronic chip, e.g. washing machine, television, sound system, heating control and alarms - the evolution of technology in the home will more and more focus upon integrating individual chips into an intelligent network based around a small home computer with a very simple user interface, and one that can be accessed remotely by phone enabling residents to programme and check on their homes while away. Security and energy controls will be the first aspects to benefit from such integration.

However, I would not expect technology to drive the nature and organisation of the physical space of the home, although our contemporary society’s predilection for gadgets within the home will continue and the arrival of “virtual gadgets” with simulated effects is imminent.

Observations on residential development and urbanism

It has been presented throughout history, that living in the city was a problem which could be precisely defined (e.g. Parker Morris standards, single-use zoning) and solved by architecture. This is nonsense.

This idea goes further in a similarly prescriptive, but totally different direction; social interaction and responsibility in behavioural rules, e.g. tenants must not create disturbance/nuisance and must enter and exit in a manner which does not give the landlord grounds for complaint. The disposition of residential buildings according to planning standards (planning regulations, space norms etc.), and standards of human need (sanitation/hygiene, security/safety), and their configuration in a unified exterior form and facade is thus the duty of the architect in the sense of society and the city. The nature of living in the city is changing, and there is a need to reinvestigate some of our preconceptions which have become enshrined in "rules".

It is perhaps worth recalling that a habitation unit has two functions. The first is to provide shelter and some degree of individual or family expression, and the second as the fundamental component of urban form, density and growth.

The way such units are organised together informs the unity and density of a particular urban area. The way individual units relate to the natural environment - sun, wind, and topography will inform how well the occupants inside will feel related to the outside environment and the way they are collectively organised inform the quality of the outside or negative space.

Negative spaces link units together and also direct the circulation of traffic and infrastructures. These spaces form the urban environment and sequence of spaces we all experience. The hierarchy of these spaces naturally organise where and how community life and movement can take place, and defines the scale and type of activities which takes place in them.

A repetitive series of cul-de-sac housing developments can never create a sense of urbanity.

Hierarchy and diversity of spaces is essential to allow different functions of urbanity to be integrated, and to offer the opportunity to provide an important sense of place.

Part of the art of residential design is understanding social norms and balancing the private and the public elements in a manner which is urban, not suburban, privately spatial in itself, yet publicly defining urban space.

Historically in cities, the lower income household presented net curtains in the windows and an unlocked door to the street. We could not look in and did not go in uninvited. The same building today, transformed by middle and upper income households, have no curtains, and we are almost encouraged to look in and see the carefully arranged objects and library shelves. The door is bolted, has a French style number plate, and a burglar alarm adorns the facade to the street.

The building's external architecture has not changed, but the inside is now more open plan.

The individual external architecture of the house is probably not that important to the individual occupier. However, the quality of the street's overall architecture, where it is located, and what type of person is likely to be living in the street are all important. The latter will almost certainly be reflected in the house price.

The formal unifying emphasis of urban facades, until the arrival of reinforced concrete, was always vertical. Verticality still dominates most cities. Individual capital, expended by individual families led to the architectural diversity of mediaeval towns, yet relative harmony of the overall street or square. Only when capital was used to buy large areas of the street and city did uniformity take place - (Cubitt in Belgravia, millworker terraced houses etc.). The control of these larger areas (local authority/state/private) led to uniformity; sometimes successful in an urban aesthetic sense, sometimes appalling and banal.

Banality also characterised the post-war period. But there was also another layer of active control during this period, which has lasted to the present day - the power and capacity of the building industry of today and the philosophy which underlies it.

I would like to quote from my erstwhile partner, Peter Rice, an engineer who was honoured by the RIBA with its Gold Medal shortly before his untimely death.

“To build quickly we must standardise. We must use industrial techniques. Components become industrial elements which are used and re-used to create giant facades. Similar buildings multiply over the landscape and the building components dominate the architecture and the growth and power of technology is given the blame. To counteract this architects and designers have returned to the forms and images of old. But to do this is to miss the point and the problem. What is needed is something which returns the human scale and human involvement to buildings. It is the feeling that people are unimportant when compared to the industrial processes which is so damaging. . The Victorians succeeded where we do not. “

In housing, several tactics have been employed to overcome this - the social route of participation or empowerment, now called the “third way”, and there has been the stylistic interpretation - which Peter referred to. But one aspect which is obvious and recognisable is “individuality”.

This can be expressed by the personal ecstasy of an architect; or, and I would argue more importantly, changing industrial language. Joy and delight through innovation has to be developed from the language of the standardised product.

Innovation is recognisable as individuality, and the means available to us through computers to be innovative have never been stronger. It is a question of attitude. One can use computers creatively to design, to analyse, to fabricate. I sit on the government construction foresight panel and I have seen the reluctance of our industry to develop an innovation culture. If we do not innovate, we stagnate.

Along with the power of industry came the international style and more recently the invasion of the N.American “parcel”. All of these have contributed to the decline of the party-wall as the dividing and vertical ordering mechanism of the facade. The party wall more than any other element has contributed to the human scale and rhythm of urbanity.

Uniformity of facade results from the control of capital invested across large areas of land. Today’s landowners - such as English Partnerships, British Gas and local authorities represent the continuation of large developments under single ownership. Private volume house builders compete for this land, and having bid ever increasing costs to secure the land, has led to an extreme economy in design, space standards and building. Could densification possibly reduce the land premium and enable volume house builders to develop a design culture.

Why should uniformity rather than unity result from large land ownership? It should not be inevitable or desirable, but it is necessary to challenge the mentality that promotes standardisation for the sake of economy is changed to say “customised solutions from standard components”.

Aesthetics - geometry, proportion, rhythm, layering and the search for quality

Environmental Aesthetics and Architecture can clearly represent symbols of renewal. Underlying architecture and the physical environment of our cities is the question of quality. Performance, economy and aesthetics constitute the ingredients of quality, of which we can all probably agree on what performs well and what is economic (at least in the short term).

What constitutes the grammar of aesthetics today? It is composed not only of the visual, but also of the political, economic, and moral language. It needs to be made evident and show intelligence with humanity. Goethe described good architecture as frozen music, but in reality, it is also frozen politics, economics and power. Part of the changing vision of our culture is how we spend our resources. We must distinguish the syntax of fashion from more enduring fundamentals of this grammar. We have all witnessed the beginning of the late twentieth century aesthetic paradigm.

Under the generic name of "post-modern" we have witnessed, through its designers, the first visual manoeuvres which have indicated our tele connected societies' capacity to visualise this paradigm - a pluralist arena within which "art is art is art" - where anything goes if the artist says it is art; and of post-modern, neo-constructivist, de-constructivist, neo-modern, neo-neo classical... architectures compete for the attention of clients and their advertising agencies.

These veneers conceal the real paradigm - the nature of "progress" today. It is only recently that the confidence shown by recent generations in technology as the positive driving force of progress has been questioned. We now live with the conundrum that the only certainty about certainty is uncertainty. Science, in the service of commerce, is still the predominant power, which is expressed through an ever increasing rate of technological change. But technology is increasingly being questioned (pollution etc.), and yet technology has been and still is for many people symbols of progress - Pylons yesterday, satellites and Internet today.

How and to what extent technology is perceived through design depends upon the position from which progress is perceived - individual, local, national or global progress. Those designers who adopt "technics" as a style are liable to be pursuing an ephemeral goal - it will pass as fashion.

Can we agree on aesthetics? We can probably all agree on that which is aesthetically inadequate. Much of most city environments and artefacts within them can be described as visually poor - the street landscape of poorly designed lighting and a plethora of traffic signs immediately comes to mind. It is important to ask what does aesthetic poverty communicate to the general public? I suggest that it is something which lacks morality - it hurts the viewer's sensibilities and in so doing can become a symbol of harm. It has the effect, a bit like Chinese drip water torture, to slowly wear you down. There is a general lowering of aspiration and expectation that creates a climate of acceptance, or, more dangerous, of ignoring. Acceptance and ignoring translate through the social, cultural, psychological and physical environments. A numbing.

The history of the aesthetics of western architecture and space making is particular, and very different from that of other cultures, such as Japan or China. The underlying grammar of western aesthetics is under challenge from theories of deconstruction and chaos, which is no bad thing in itself. However, it is important that we understand our aesthetic heritage against which new theories are making a challenge.

I will briefly illustrate through our housing project in Limehouse how we drew upon part of our aesthetic heritage to seek a solution which is undeniably modern yet coherent with the past fabric of the city. This is not to imply some universal truth, but to explain that I believe good architecture is always, whatever its cultural basis, underpinned by an appreciation of geometry and proportion. Its acceptance is a matter of how well it can be understood, which in some contemporary proposals is difficult, particularly if there is little apparent explanation, and understanding requires a great deal of investigation. Producing good architecture has never been more difficult to achieve as many more people, particularly those who commission designs, appear to accept architecturally illiterate proposals.

In search of the practical "outdoor" room

Sometimes I despair at witnessing the repetition of received notions which appear to lack reason or reflection. Consider the case of the apartment block balcony.

If the number of urban dwellers and densification of urban areas increases, and we cannot afford, for all sorts of reasons, to provide lots of little houses with a garden, then there will surely be a need to find a personal "outdoor" alternative.

The crucial missing ingredient in the apartment block living space is the “outdoor” room. The place to mend the bike, put out the washing, observe the kids playing in safety, to grow vegetables etc.

The balcony, conservatory, loggia has nearly always been placed beyond the apartment, never as a threshold. Yet the idea of taking the bicycle through the apartment, through the lounge to the balcony is daft, as is the notion that a parent can supervise the children on a balcony when s/he cannot see it from the kitchen. Many recent apartment housing developments, presumably for economic reasons, have reduced the balcony to a prison-like grille in front of the living room, where the living room doubles up as the outdoor room or balcony.

Apparently from surveys across western Europe, second only to size is the desire for a garden. This is true of a house or an apartment (balcony). However, so often these become storage areas because they are too cold or windy; and conservatories are either too hot or too cold for too much of the year; or because not enough storage space is provided; or because the successful elevated garden places a time demand on the tenant for which s/he is not prepared. The conservatory or glazed-in balcony has not proved successful. Today, they are being promoted by heating cost experts/the eco-minded and architects passionate about glassy buildings and “transparency”.

They are not about the garden, or gardening. Because they are not designed for common natural behaviour, their diurnal temperature fluctuations, lack of serious irrigation / soil, they all too often end up being an embarrassment in front of the lounge window.

The scale shift from the potted plant to the terraced garden is significant. The former demands less of the architect and resident, while the latter will inform the architecture and may make demands of the resident’s time for its maintenance.

The fallow terrace, or external ‘yard’ which is capable of becoming a landscape if the occupant has the time and desire to create it offers a realistic and more practical approach. The potted plant on the window cill informs not only the depth of the cill, but also the placing of heating, the nature and scale of window openings etc.

Historically, the balcony was a place to be seen and to see from.

As architecture in the typical 20th Century apartment block they are all the same - there is no hierarchy - either to the sun or street noise or view. The housing hygienists’ viewpoint was that a balcony should be an island of distinction, of recreation, of light / air / sun - that every flat should have a balcony as well as a bathroom / toilet etc. The minimal exterior of tenement blocks were enriched by balconies - the front garden, back yard, flower garden, vegetable plot, sundeck, clothes line and playground all in one - in an area incapable of accepting these activities. It was both private - an extension to the lounge, and public - to see and be seen from - to converse with neighbours. It is essential that children can see through balconies - to reduce risk and parental anxiety because they don’t have to climb to see!

It was never considered as “the crucial space”, but always as the undefined minimum with inevitable results. Social apartment buildings still fail to address certain issues of living - where to repair the bike, supervise toddlers at play outside, dry the laundry, or leave the empty and recycling boxes etc.

The balcony / terrace / loggia is a key area for architectural innovation in plan section and urban facade composition. It is an important space which can provide for very diverse living needs and expression.

I believe there are many areas in housing design which demand intelligent reflection and innovation. The window is another example. Consider the window to bedrooms, particularly the master bedroom. This room is often one of the largest spaces in a western dwelling yet it is occupied with open eyes for only very short periods every day. Other cultures make better spatial use of sleeping areas.

What else do we do in bedroom that requires anything other than adequate ventilation and well placed modest natural illumination for either applying makeup or working at a desk? In so much housing all windows, except the living room, appear the same size. They often appear to be uninformed by function or architectural composition, but by economy of repetition.

Image of housing - the absent public discussion

There are deep rooted prejudices and preconceptions of what a house and an apartment look like - inside and outside. But these vary enormously throughout Europe, and between different economic/social groups. In the UK, the image of urban housing hovers between modest apartment blocks, both tall and squat, and suburban invaders, between lifestyle escapism of the affluent (inner-city lofts) and the decline in the welfare system, between historic conservation of bourgeois housing and the 'villa banal'.

The housing distress in our cities is discussed in terms of quantity, and only occasionally quality. Quality is composed of essential factors: economics, efficiency, ecology, durability and aesthetics. One could suggest that housing aesthetics remains largely under the control of the estate agent, investor and insurer (private and public). For the architect, reconciling aesthetics with the other factors inevitably means "proving" them before a new aesthetic can be accepted.

The language of marketing brochures also reveals much about how volume house builders see popular taste. These brochures are probably more important than the show house or apartment. They are taken away for studied comparison. Generally, the common language used in brochures is one which seeks to persuade the prospective purchaser of his or her opportunity to enhance their sense of social prestige and to impress visitors - exclusive, luxury etc. The descriptions are also more often associated with the idyll and tradition, as too are the names of developments and individual houses - Greenacres, Watermeadow, Water Garden, Manor, Cloister, Friar and Cottage.

Tradition, associated with style or craftsmanship, hardly ever exists in the construction of any of these houses. These words are about image and illusion. The developer is selling a dream, not reality. They are hardly relevant in a town such as Milton Keynes or a city.

A visit to a show house usually lasts only a few minutes. These are carefully designed to seduce by communicating the dream - the cottage or manor. They are designed and decorated with images of the past and of the lost countryside. They rarely have contemporary furniture.

I cannot recall ever hearing visitors discuss the architecture of the show house, either inside or outside. Architecture, along with the word architect, is rarely mentioned in brochures, by sales staff or by prospective purchasers. I would suggest that in minds and dreams of the volume house builders and purchasers, architecture and architects do not exist or help. The dream is about lifestyle - whether it be country or loft. It would appear not to be about "home" in the sense of community. We should also be aware of the cultural differences among those who live and seek to live in our cosmopolitan urban centres.

Although the average English person would probably prefer an old house - the older the better because it probably has more value - to a new one, this is not necessarily the cultural dream of others who now live in our cities.

Observations on the plan

Is the traditional modernist notion of unit plans organised to "satisfy" a host of social groupings and arranged to form a whole architecture - an urban component - while at the same time creating aesthetic spaces a disappearing idea? Or is it a false starting point?

The plan may determine many things, in economic as well as spatial organisation, but the plan is also a prison. It defines apparent limits, it does not recognise human living with all its experiments and change and conformity to social norms. The plan is not all. Human beings are not mechanisms who should be living in mechanically standardised habitation. The plan may proceed from the interior to the exterior, from within to without, but it can equally proceed from without to within. In fact there is no law that the private to the public or the public to the private domain is the dictum. It is a balance, a search for harmony which reconciles both. This harmony reflects space, light, mass, volume, organisation, limits and freedoms, public and

private spheres. Few read plans - they are abstractions - we read space with our eyes, through movement and social protocols.

The control or suggested social engineering of behaviour or how we should live, expressed through the plan, is an illusory notion of modernism disproved by the evidence we have inherited. The idea that space (from plan) is woven with our behaviour is also an illusion. The plan comes first, but it does not dictate our behaviour, or manner of living. It merely shows how we can or cannot see, hear and move around the habitable space and will indicate how much it will cost to construct. Even the measure of costing / m³ rather than /m² is not common.

So what does the plan do? We know it underpins the architecture but is not a control, even if we wanted it, over the way we live. Living in modern times is less associated with our home than ever. It is more associated with work, the TV, the virtual electronic world and leisure time. Work is no longer a fix either in terms of certainty or type of occupation. TV is proving to be an isolator, isolating us from social discourse, and leisure is forced non-work for many, and for the affluent another consumer choice.

A lifetime in one home is disappearing. It is becoming rarer, or indeed a prison (negative equity).

Mobility is increasing both among the poor (between social housing and private rented space), and among the affluent in their search for change and social status (kids' education, environmental quality, lifestyle). Unemployment, part-time work or regular new jobs, education for life, all increase mobility (results of variable and uncertain income) and suggest that we ought to reinvestigate our preconceived ideas of habitation.

Sound isolation, sunlight, low bills and low maintenance are priorities which have to be addressed, and which the design team can strongly influence. These are not ingredients for happiness, although they can help create a more pleasing environment. They are simply common sense prerequisites for decent housing.

Our way of looking at contemporary shelter

A shelter, which can provide and adapt to changing financial security for non-owners is a basic starting point. What constitutes shelter in this context? It is fundamentally a space undelineated, a retreat, a territory; a space which can be very economically built and repeatedly customised over many decades. The city is where we live publicly. Telecommunications and the internet are where we are beginning to live virtually and the telefax, modem, answering machine and computer are becoming necessities in the 'home-base'. The services of this space: heat, light, electrical power, drinking water and sanitation remain as the infrastructure. It may not even demand a kitchen in the traditional sense. It is a poly-functional living space of the individual, couple and family. Its size is defined by one's age, family connections, and financial capacity. This space is one which can be personally tuned and tweaked. It is this new synergy - space(s) inhabitant(s) in tune with our age, where modernism's segregation of work, play and living accommodation is no longer valid. Housing has to try and catch up with the way most people now live.

A Strategic Approach to Housing Design

In order to respond to the future, the key strategy should embrace:

- diversity through flexibility
- a radical reappraisal of the way we design, manufacture and construct, alter, recycle and demolish housing
- education of funders, insurers, engineers etc. that design and sustainability are vital and have essentially the same agenda.

Flexibility reflects an appreciation of long-term economic and ecological issues.

Well-designed flexibility can also respond to changes in the family structure and living patterns. This could reduce the need for 4.4 million homes. Sharing accommodation is the essence of family life. If one third of new homes are for single people, do we know that all of them will want to be on their own? Should we not be designing with some thought as to how some people may wish to share certain spaces, while having privacy in others? Is this not sensible for economic, environmental and social reasons.

Flexibility and serendipity are a more appropriate strategy for the next millennium. The framework for serendipity exists in the city, but rarely in housing schemes.

I would like to say a few words about our design approach to Scotland's Home of Tomorrow - an affordable housing scheme in Glasgow which we recently won in competition.

To help us formulate our recent thinking and design we have, for the first time, made an attempt to use non-architectural triggers. We have selected to explore and communicate design through all our senses - **sight, touch, hearing, smell and taste** - and the following material and immaterial ingredients - **light, air, energy, water, and time**

We hope that by synthesising our design through these we can arrive at an integrated proposition which is fundamentally about the quality of habitation.

By implication, "green" issues, sustainability and life-cycle costing are not dealt with in isolation.

We believe that this approach, coupled with an analysis of the process of realising architecture, rather than focusing upon the end product's performance and appearance, can release new ways of creating homes in the future. A highly integrated design approach which optimises the processes and systems in design and construction is far more intelligent than optimising individual components.

Sight

There are three main influences upon the way we see:

- our visual sense. How we see physically and through what cultural filters. The visual sense - aesthetic - has tended to be the domain of the designer and is more associated with the image of their creations than any other visual aspects. It is of primary consideration by architects but is only one part of the total design. Housing aesthetics have been appropriated and diminished by house builders through marketing language.
- sight & the law. What we recognise are not only things such as a door number, but also those sight issues partially enshrined in planning law, such as overlooking and access to sunlight.
- impaired vision. Architects rarely consider impaired vision as a crucial element in design.

Touch

In many recent projects we have consciously introduced a tactile quality; up to now relating to the hand rather than the body or lips. Certain materials in themselves have particular tactile qualities, like wood, but it is also through scale, shape and surface texture that tactility can be expressed and buildings made to feel "friendly" when they are caressed or parts of them held. Tactile qualities are important in improving the quality of architecture and the environment.

The other aspect of touch is feeling the air and radiant energy. To have the choice to feel gently moving air inside and outside while remaining within the territory of our private home is important to our health. However, good quality air is vital. This not only concerns pollution, but the control of wind speed and smell. In this respect, orientation, chicanes and landscape are key design criteria.

Hearing

Privacy through acoustic isolation, reduction of airborne sound transmission and structure-borne impact noise from neighbours is the most important performance criterion for housing. It is the source of most complaints about housing throughout western Europe, and has a direct impact on people's health, social and economic life. Additionally, isolation between different activity/time zones (sleep/play, adult/child) within the home is vitally important. The number of noise generating equipment - washing machines, TV and music centres - has multiplied recently.

Another important aspect is sound quality within the home, in order that we can appreciate the quality of the physical space and the quality of music making, listening to recordings and conversation. The degree of absorption can be built into the fabric (perforated/absorbent ceilings etc.) in combination with floor coverings, curtains and furniture to provide absorption. Traffic noise in cities - from road rail and air - is an important issue. Here, mass and double construction is most important in the areas of walls and glazing. This is not necessarily a cost penalty. Double, or triple glazing used for energy reduction gives the additional benefit of high sound insulation provided that the frame detailing is carefully considered. The combined rôle of windows for natural lighting and ventilation is questionable from a technical performance point of view. It is easier to introduce sound attenuated ventilation other than by opening windows or "trickle vents". However, it is difficult for most people to adapt to an independent ventilation source, which suggests that there may be an opportunity to develop specially designed acoustic openable windows. Alternatively, operating remote ventilators could be overcome by IT control. Separating units by air space, using more dense thermal insulation, and paying particular attention to structure-borne sound at connections between units and structure (e.g. acoustic washers, glass reinforced bearing pads) are some of the thoughts which have emerged so far.

Smell

The air quality in our home environment is crucial to our well-being; one of its important characteristics is smell. Smell is usually considered as a factor to overcome, e.g. neighbour's cooking, vehicle exhausts.

It is also an attribute of both the external and internal environment overlooked by architects but not by those who live within the buildings. We have all experienced buildings with particular smells which have come from some of the products and glues used in construction, e.g. artificial floor coverings, and which have lingered for years.

Used externally, judicious plant selection and location relative to wind direction and windows can help alleviate disagreeable odours.

Taste

Taste is a relatively unexplored part of architectural design. We do not design for buildings to be licked or kissed. Yet through the intermediary of touch, the taste of building surfaces do affect us. Toxicity is an issue since children have been known to eat some building materials, such as paint.

Light (& sunlight)

Natural light is the essential material of all architecture. No artificial light source is a substitute.

Our experience has led us to believe that occupants demand sunlight and a quality of light and sunlight without the problems of overheating or draughts. Natural light is psychologically and physically health-giving and makes space alive. This reduces the time artificial light is required, reduces energy consumption and costs reflected in quarterly bills. This leads to feeling better which is then reflected in improving the quality of life at home and at work.

Air

Architectural space is not a vacuum, and the architectural envelope is not hermetically sealed. Air moves by means of temperature differences, in space and through walls.

We are beginning to attempt to understand the spaces we design as microclimates, rather than voids defined by physical dimensions and surfaces; this should lead to a better understanding of the quality of them. Air movement is inextricably linked to comfort: the transfer of sound, smell, heat and “coolth”, water vapour (humidity), dust particles, mites, fungal spores, organosols and other irritants in building materials. These issues have to be analysed during the design process.

Energy

The means of transfer of energy - radiation (which does not need matter) and conduction, together with moving it about through convection (only in liquids or gases) - occurs continuously in our homes. The obvious sources - our own bodies, cooking appliances, space heating appliances, light fittings have to be understood together with solid and transparent walls, ceilings, and floors. This synergy can be understood, and it can be managed by information technology, but it is potentially better if it is managed, by simple means, by the natural and intuitive response of the occupant when they are at home.

A Home of Tomorrow should be cost efficient in its construction and energy efficient in its operation. The only measure of the latter has to include the behaviour of the occupants. Too little research has been done working with natural psychology of users in energy-saving technology. At present, the best measure of this is the quarterly energy bill. All the heliophilic and energy efficient experimental homes so far have been somewhat singular and have yet to be successfully achieved in dense urban projects. It is perhaps intelligent to approach any new inventions with caution. If the invention requires the occupants to change their habits, the invention is unlikely to be successful for some considerable time. Understanding our habits is a key ingredient. The importance of IT to manage the “intelligent” home, as well as its use by occupants (shopping, banking etc.) will develop rapidly in the near future. At the moment basic IT controls reside in several unconnected pieces of equipment in the home, e.g. fridge, dishwasher, washer/dryer, cooker, heating system, telephone/fax and in home based PC's.

I will not dwell on the specifics of how to achieve energy performance, but simply say that a 2 person home should not consume more than 2,000kWh per annum for space heating and 1,500kWh p.a. for hot water. - and to note that for example small gas boilers to satisfy heat loads of 4kW typical installed load are not available.

Imagine if the level of fees were paid in direct proportion to the energy savings achieved over five years? This really would motivate energy-intelligent design, and may, ironically, produce higher fees for the designers

Water

The supply use and storage of water is becoming a vital issue in our society.

Although the supply infrastructure is in many instances still very wasteful, and a decent potable supply sometimes unavailable even at the end of our technological century, the obligation on us to use water more economically is unquestionable. I do not propose to go into detail on what are commonsense and practical ways of achieving much more efficient use of water, in all its forms.

Time

Energy, the building envelope, the microclimate within the dwelling and the spatial feeling are all dynamic. Our design approach acknowledges the changing seasons, and the development of facades should be informed by solar geometry - as if carved by nature's own light pen.

Life-cycle costing incorporates the effect of time, such as the degradation and maintenance of materials and systems and understanding which building materials have a benign impact throughout their life-cycle.

Allowing enough time to design projects is crucial. Computers should not be an excuse to reduce thinking and reflective time during the design process. We believe that more design time at the front end of a project always results in a better design and one which should take less time to build. The overall time scale need not be longer, and indeed should be shorter.

Materials and construction approach

We have examples from history of anonymous and standardised prefabrication, but little on bespoke from standardised processes. The revolution from unserviced Victorian offices and residential building to serviced offices and fast steel frame construction took place earlier this century. Concrete panel systems, pioneered in Europe during the inter-war years, and post-war in the UK (Uni-Seco, Arcon and AIROH), and more recently international chain hotels and bathroom pods, office toilet pods and oil rig accommodation modules succeeded because of mass production.

“Where is the Henry Ford of future housing systems?” has been an oft-repeated question. It is still a relevant question.

Lifetime cost benefits imply capital investment in high quality materials and long-life products provided that spatial flexibility means that the accommodation can be tuned in line with the way people will reside/live/work and play in the future. It also implies low maintenance and management costs.

Pre-assembly versus site assembly of complex components saves time and money, and quality can be controlled before it is built.

A radical innovation in the process of manufacturing housing requires the active participation (financial and technical) of major companies interested in mass production of housing, and time. It also requires a large enough market to enable the initial set-up costs of production to be amortised over the production run without making the product uncompetitive. Given the need for 4.4 million homes in the UK, the market is there, and it will probably happen very soon.

These new processes and the materials they employ must be used with maximum efficiency if they are to compete with traditional load-bearing masonry and precast floors. Our experience has shown that the greatest economies in industrialised construction do not come from new materials or technologies, they come from simplification of the process and rigorous evaluation of the necessary specification standards (floor and wind loadings, sound and thermal insulation etc.).

The design of most buildings starts with the finished object and then works back to the components. Sometimes the design is modified to suit components but frequently the components are modified or are used inefficiently. Each component must do as much as possible and the cost of materials must be compared to the cost of labour or process.

Conclusion

Finally I wish to appeal for the need to provide decent habitable space measured and costed for construction and energy consumption in four dimensions, not two.

Our housing space standards are generally about 20% lower than in Europe, and our housing energy standards are profligate compared to some in Europe.

There has to be an expression of the art in architecture beyond building technology and financial constraint. Yes, ingenuity by the architect, encouraging developers and industry, can reveal this art, but it may prove very difficult to camouflage the driving forces behind it unless we change towards a culture of innovation in the broadest sense.

The architecture and urbanism of inner city developments, can only be informed by the quality of the brief, derived from an understanding of the local and city context, and realised by the quality of the client. I would suggest its success is dependent on the client's moral power, whether the client is a developer, a local authority, a community group or a partnership between any or all three, and the recognition that they are all "clients" in some way. Designed housing needed.

The idea of progress is bound up with polarisation between optimist and pessimist - those who can embrace the future, and deal with uncertainty, as opposed to those whose insecurity drives them to cling to what they think they know; a comfortable (even, and especially if, illusory) historical image or fantasy. Was it always so? We often have the impression of earlier twentieth century attitudes to progress and the future as being characterised by optimism, and above all, certainty. There is seldom reference to doubt about the essential goodness of the direction in which the developed world was "progressing"

The rate of technological progress towards the (apparent) mastery of nature bears no relation to the rate at which human social evolution can keep pace with the consequences. Our mental structures were honed over millions of years of living in small tribal groups, and we bring the same structures to bear on an existence that has changed materially, however we measure it, by several orders of magnitude to the reality that technological developments underlie and affect all factors of city life. The change in the rate of change of technological development is such as to destabilise not only citizens, but governments.

Cities are created by acts of will.

The ultimate art is the art of living. If we live a lot of the time in our homes, then we have a moral obligation to continue to seek better housing solutions. If we live a lot of time in the city, then we have a moral obligation to continue to see better urban environments.