Robin Nicholson

Born 1944.
Autobiographical life story.
Available online at www.livesretold.co.uk

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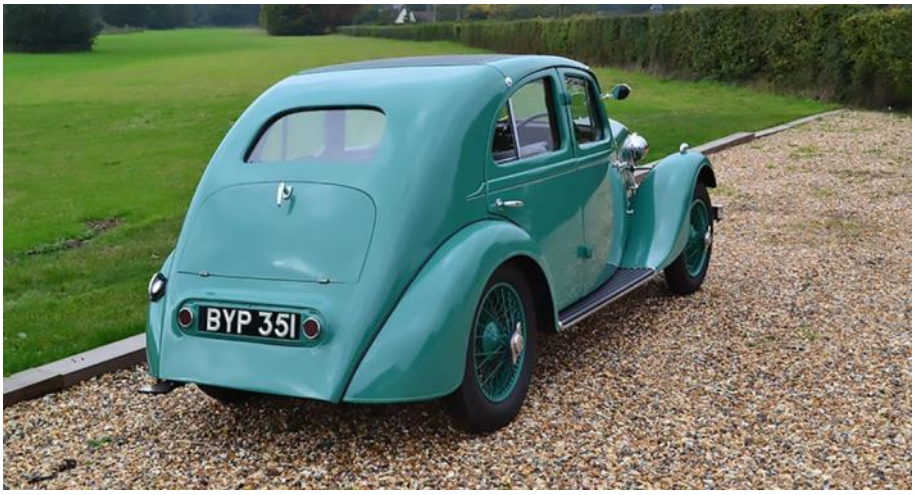
1. Parents

I was born in 1944, a war-time leave mistake, the youngest of five, five years after my next brother. So not only did I escape the deprivations of the war and rationing my two brothers and sisters had but there was a bit less pressure for me to conform.



A 1935 Rover 14 Streamline.

My father had been a dashing student at Cambridge with his Rover 14 Streamline coupé and a general man-about-town. My mother had lived a more sheltered life in Hertfordshire and never went to school, so it was a bit of a shock when her parents sent her to be 'finished' in Paris aged 18, which she did not enjoy. They had a society wedding in London and lived in a flat in Pont Street in Chelsea. With four children they moved out to a rented house in a village in Hertfordshire from where my father commuted to London by train, reading the Times sitting on the same seat in the same through carriage every day. After the war he and his brother had both became alcoholics, but I was protected from this; he took the cure and became a social recluse which my mother didn't enjoy one bit. We were comfortably off with a living-in cook, two daily helps to do the cleaning and ironing and a gardener, but not as wealthy as their parents had been.

Both sets of grandparents lived in great style in large country houses with servants. As a child they seemed rather remote and very formal. The Nicholson fortunes were based on gin distilling which started in St John's Street in Islington in 1736. My mother's family were brewers but she never drank more than a half glass of sherry and that only to be polite.

My father and I watched television together in the late 1950's in the dining room, where he could smoke his pipe and drink non-alcoholic cider. My mother was a great gardener and I quite enjoyed working with her; she taught me a lot and I too love gardening today. She was very caring and became a brilliant granny; she would be a hero today saving every envelope for reuse and darning every hole in our socks. I distanced myself after she had objected to my taking up pottery and sculpture instead of playing cricket.

2. Childhood and Education

Robin Nicholson aged 4.

My childhood was very quiet, in a village where I did not know the other children as I was driven to a private nursery in Hertford. I was quite often rather bored. Fortunately, at the age of ten a new boisterous family moved into the big house next door, one of whom was my age. I had a nanny who I adored; she took me on walks and taught me about wildflowers in the hedgerows. My older sisters and brothers brought a sense of glamour and adventure, my sisters bringing records of Rodgers and Hammerstein and other musicals into the house.

I was sent away to quite a dull boarding school at seven, a school where my mother's brothers had been educated. I was quite studious and enjoyed the little garden plot that we each had to grow radishes and lettuce; on summer Sundays we would build huts in the woods from young silver birch saplings and fallen branches through which we wove green bracken walls. Fortunately, I passed my common entrance exam and set off for Eton aged 13.

Robin Nicholson with his family, aged 9. He is in the shorts.

I loved the idea that Eton College was a town with a main road running through it and not a country house with outbuildings. Having thus far not met any teacher who inspired me my luck changed and, in amongst all the power and wealth, I found three great guides, all extra-curricular.

First my classical tutor Ralph Payne introduced me to appreciate classical music; then I took to pottery rather than drawing and was taught by the celebrated potter Gordon Baldwin who got me carving stone recycled from the refurbishment of the school chapel and taught me to look forward not back. After O-level we were allowed to choose a modern tutor in our A-level subject. John Pode was an exceptional chemistry teacher but he was also a CP Snow two cultures man and an inspiration for a teenager discovering doubt; his powerful steel magnate father had cut him off without a penny and never spoke to him again when, after coming down from Oxford, John said he was going to teach chemistry rather than join his father's Steel Company of Wales. One of my figurative sculptures (right) was bought by John Pode in 1962.

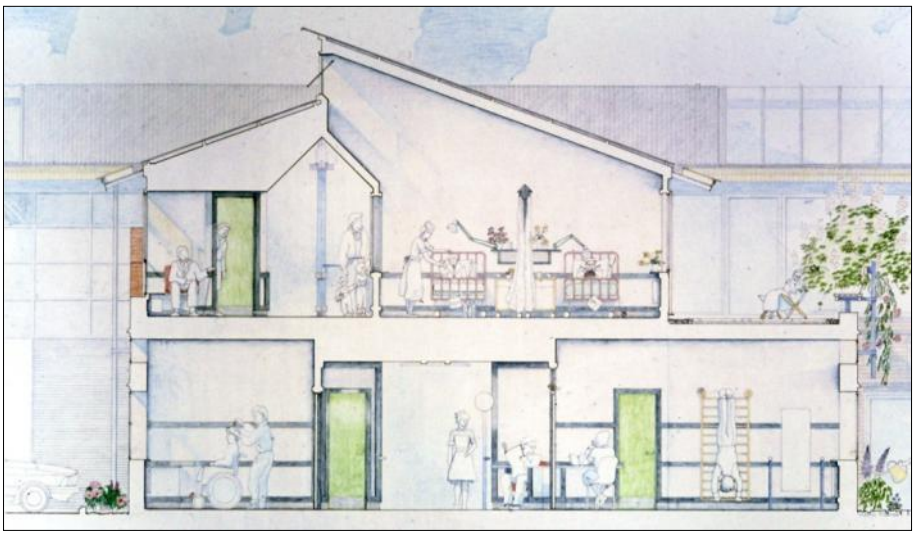
Having taken A-levels in botany, zoology and chemistry, I studied architecture as my parents would not allow me to go to art school. Cambridge was a delight, but I confess I did not extend myself hugely and partied in London as often as I could. But I did meet my future partner Ted Cullinan who inspired our second year and brought in James Stirling as a visiting critic.

By the end of my year out, spent working in London and Toronto, I decided that I really did want to become an architect. But having tasted the delights of London and with a growing political perspective, I went to the Bartlett School at UCL instead of going back to Cambridge. After quite a dull fourth year, it being 1968 we took over the running of our year and I met my fifth role model, the generous Bob Maxwell (right), who persuaded me to go and work for Jim Stirling.

3. A building

As a practice Edward Cullinan Architects, now Cullinan Studio, has had the good fortune to win a number of opportunities to design buildings for people who want to change the world into a better place and need a building to do that in. This can be a dangerous path to tread and we remind some new clients of one of Parkinson's Laws that an organization begins to decline at the point at which it builds a building for itself. One of our most treasured projects was the Lambeth Community Care Centre which we won some six months after I joined the practice and for five intense years (1980-85) I was the job architect working with Ted Cullinan and Mungo Smith.

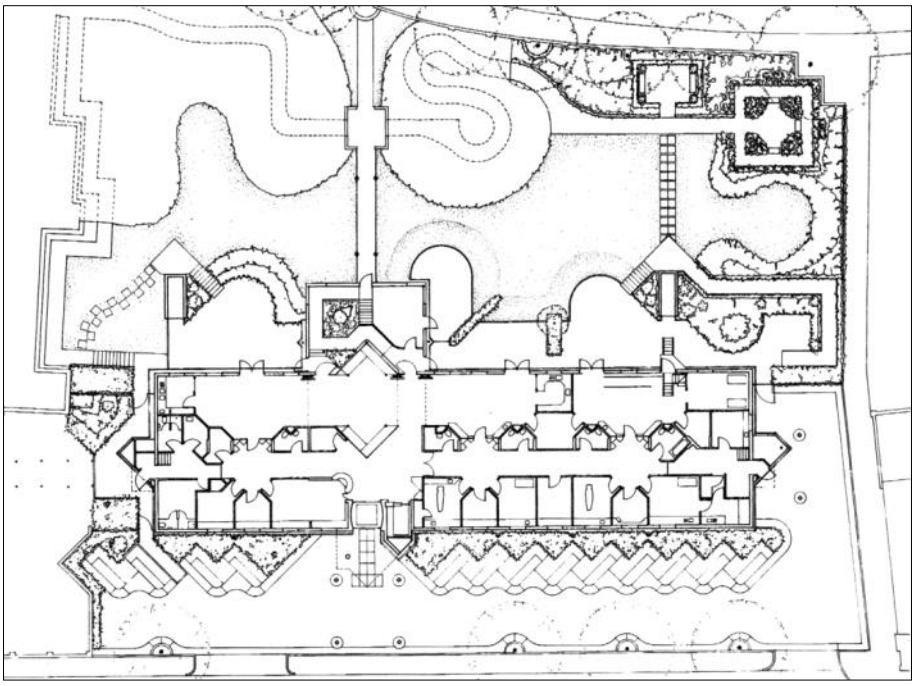
Cross-section sketch by Ted Cullinan of Lambeth Community Care Centre.



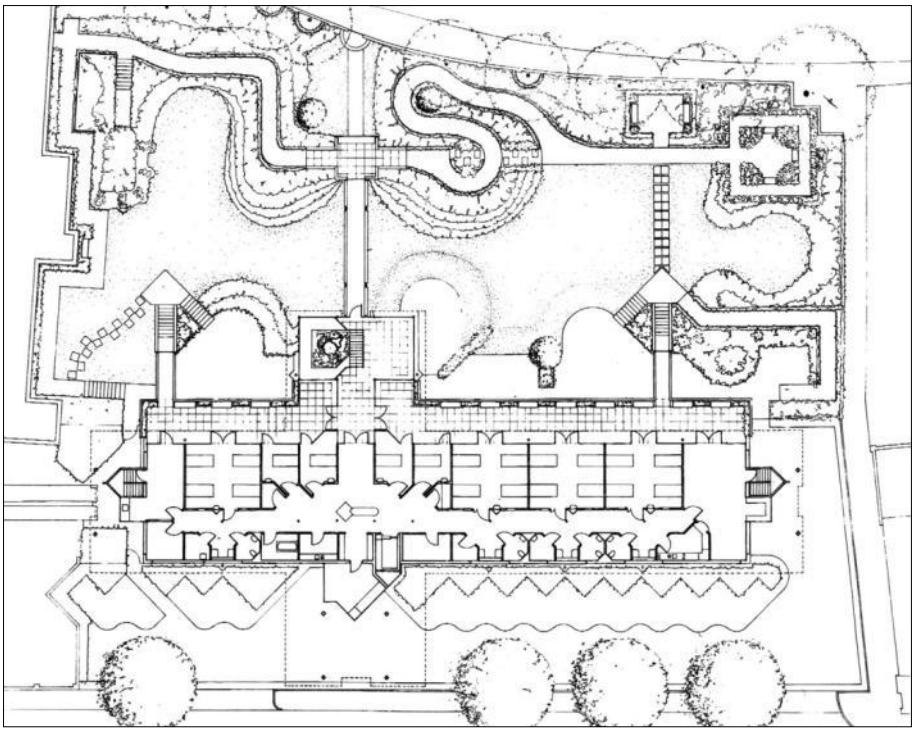
Lambeth Community Care Centre cross-section.

The proposition was a response to the inexorable growth of the hi-tech District General Hospitals such as St Thomas' doing wonderful state of the art medicine but a frightening and hugely expensive way to provide short-term care whether post-operative, respite or last days. A group of GPs and the secretary of the newly created Community Health Council proposed a local community care centre with 20 beds where patients would be looked after by their own GP as though they were at home and a day centre with a range of services including physiotherapy, occupational therapy, dentistry and chiropody, in the community. There was no

precedent, but it was an amalgam of the Cottage Hospital tradition, the celebrated Peckham Health Centre and Lubetkin's Finsbury Health Centre.



Lambeth Community Care Centre: Ground Floor Plan.



Lambeth Community Care Centre: Upper Floor Plan.

It was an instant love affair between the leaders of the multi-disciplinary project team and the design team but we all had our own ideas abut what we were talking about. The process was well documented by Jules Lubbock in a Special Issue of the Architects Journal (16 Oct 1985) and the first year of operation in the 'A place like home' by Gillian Wilce (1988), so I will describe the most basic design innovations. I wrote a full description of the project for a conference in San Francisco in 1990

which was published in ‘Innovations in Healthcare Design’ edited by Sara Marberry (1995).

However, never before or since have I experienced such complete scrutiny of every design decision we proposed; they wished to change all the rules including healthcare design conventions. The intensity of the process led to some major rows but also a lifelong friendship with the key players. They wanted to place the delivery of intermediate healthcare where it belongs in the community which was opposed all the way by the health establishment; it was funded directly by the Health Minister, over their heads. It is as relevant today as it was then but it crossed too many boundaries and was too small to be adopted more widely despite its effectiveness and it being about half the cost of conventional hospital care.

First, we had to persuade them to move the site from one side of the redundant Lambeth Hospital to another so that they could have a large sunny garden. Then we had to persuade them that it should be a two storey building not the single one them had imagined; partly this was because we were on a street in a city but also so we could design them a large arts and crafts house where you went upstairs to bed. There was a brief with operational policies that were re-developed alongside the design and there was a budget that was never going to be sufficient so we had to challenge some assumptions and get them to share space. One example is the standard provision of toilets on a ward were based on a regime where all patients were made to use the toilets at set times each day; however if you let patients go when they need to you only needed half the number.

Lambeth Community Care Centre, completed, in mature garden.

The two most radical design moves were the passive solar design, which was a key interest of our practice and the internal circulation. While Ted had built himself an early passive solar house in Camden which is now listed Grade II*, our first scheme for the Nationwide Conference Centre was a zero-carbon heat scheme but this was deemed unaffordable. Similarly, at Lambeth Max Fordham with whom we shared our office designed an early ‘no-heat’ scheme with solar thermal panels but that too was unaffordable, as indeed was double glazing! Nevertheless, the largely glazed south-facing bedrooms protected by a significant translucent yellow overhang, opened out onto a paved terrace. The day lighting was enhanced by the high-level

clerestory, installed for cross ventilation but allowing the daily passage of the sun to animate the ward.

We all have experience of getting lost in health buildings as a result of operational adjacencies and the need for staff-only back-up areas. So Ted organized the ground floor such that there were three groups of rooms, three consulting rooms on one side and one major space on the other clustered around a widening of the corridor with a seats either side of the door for waiting or resting, lit by windows into the major space. Similarly, upstairs with a smaller footprint, there was an alcove with two cosy seats overlooking the street, framed by toilets and bathrooms. It is a small building but more importantly it is an intimate one.

The two floors were connected by a staircase within a conservatory, which we had added to the brief. When the cost-cutting came, it couldn't be removed because it was the main stair. The patients particularly enjoyed the upper conservatory as they were projected out into the garden yet felt protected. The garden was and still is a delight with plants and especially spring bulbs largely donated by visitors to the opening and members of the team.

Of course, there have been many changes and the building's special charm has largely been lost but it is still in use albeit as the only residential post-operative amputee centre in London.

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4. A Journey into Architecture

Back in the fifties aged 14, the Acropolis (above) was both mysterious and awesome. As a country lad I knew about seasons and soil, animals and birds, plants and crops but I was totally ill-prepared for the ordered chaos, the scale of the conception and the destruction through time that was the Acropolis.

I had previously been overwhelmed during a school-boy exchange by Chartres Cathedral (above) and on our return from Athens, I was both scared and puzzled by the tanks on the streets of Paris, there to quell protests about the war in Algeria. Traditionally big-A Architecture was about power, housing Royalty, the Church and the Military, and to a large extent it still is, albeit now Corporates, the Arts and the State. I decided to study architecture when I realised that I was more engaged with making sculpture – we were lucky enough to have large pieces of stone to carve following the restoration of the school chapel – than I was in pursuing the new biology that had previously captured my imagination.

But architecture is a collaborative practice and its study is a life-long journey, so this is a brief account of our collective, Edward Cullinan Architects. Ted Cullinan set up the practice as a cooperative in 1965 and forty years later we number forty and practice collaboratively. Ted had been brought up with a distinguished arts and crafts architect ancestor (Morley Horder) and his publisher/musician Uncle Mervyn Horder was passionately keen on Ted becoming an architect.

Teaching and learning are two sides of the same coin and when Ted taught me at Cambridge, I was certain that I wanted to work with him but that took a further 14 years. Being a cooperative, in which members join if we both enjoy a 12 month probationary period, means that everyone is working with us for a purpose; not necessarily the same exact purpose since few of the younger members, brought up in Thatcher's Britain, would share the libertarian socialist dreams that drove Ted and I to want to do it differently. Ted is 74 and our average age is 34.

We recently published a book, *Ends Middles Beginnings* that describes some of the driving architectural ideas as well as setting the work in some kind of context. The work covers many fields including University and other education projects and more recently housing-led mixed-use urban regeneration. Some of the best projects are those with clients who don't know exactly what they want but are determined to change the world and we have had our fair share of those. And now there is a growing divide between those clients who know that climate change is serious and those who cannot see the opportunity. Ted designed and built, in two years of weekends, a passive-solar house for his family in Camden Mews in London in the mid 1960's. For the next twenty years we explored the potential of solar architecture but now the range of issues and environmentally sustainable techniques has expanded the potential and the challenge of making a difference through architecture.

One such innovative client was Chris Zeuner, the director of the Weald and Downland Museum just north of Chichester. He is shown on the right at a gridshell workshop at the museum. This museum collects threatened timber buildings of the area and re-erects them in the beautiful valley of West Dean; they teach traditional craft skills and conservation. In 1996 Chris, with his architect colleague Richard Harris, asked us to design the Museum a workshop and a store for their artefact collection, so that the restoration of their new (old) buildings could become part of the Museum display and their tools and carts could be kept in better conditions, on site.

The process was as iterative as any, going back to go forward many times; but this project was special because we were collaborating not only between ourselves and with our engineers but also with the client and, later, the carpenters as integral members of the design team. As is so often the case, innovative ambitions lead to expanded outcomes. The humble workshop became a joint workshop and craft-teaching space, as well as being used for conferences and a venue for fund-raising

parties; the lead carpenter even got married there. Doubled curved, its skin is the structure and is made with four layers of 35 x 50 mm green oak laths.

Widely recognised as a great building, the building is featured in the recent Taschen publication 'Architecture in the United Kingdom'. Although we have made many timber buildings, the risks taken by everyone at West Dean were huge and the learning significant. The potential for timber structures in the drive for buildings with less-embodied energy is expanding fast and this timber structure plays its part, having but 3% of the embodied energy of a steel or concrete structure enclosing the same amount of space. Tragically Chris died before it was finished but we shall always remember him for the Downland Gridshell.

All buildings have stories and we each have our own set, be we client, architect, builder or plumber; sadly they are seldom recorded. The delight of architecture is the integration of the spatial, the functional and the technical; sometimes this is easy to read but usually many of the mysteries, the pain and the humour remain secret.

The roof of the gridshell building at the Weald and Downland Museum.

5. Architects Who Open the Books

The following is drawn, with acknowledgement and thanks, from an article by Robin Nicholson in the Architects Journal , August 1992.

Six months ago, I was telephoned by an associate in a friendly rival practice – one to whom we had lost several times in design competitions. She had been looking at the reasons for the all-too-familiar feelings of permanent pressure at their office, always feeling overstretched and understaffed, despite spending considerable efforts on job-costing, programming and resource allocation. Would we be interested in forming a small group of three or four practices to compare our facts and figures? The invitation seemed to offer an extraordinary level of trust and was quite irresistible.

We at Edward Cullinan Architects had, during the previous six years, bcome steadily more committed to trying to understand where the time went, and in the immediate past had been reviewing our cash flow forecasts with ever increasing alarm. It was relatively easy for us to be open since we are structured co-operatively and all members of the office, including the administrators, are directors. Nevertheless, there was a sense of teenage anxiety when we range the doorbell for the first date.

Our hosts laid on the table their anxieties, their statistics and worked examples of a range of current jobs with their anticipation of profits or losses. As the meeting moved from office to office, so we each in turn laid our figures on the table. We explored our costs – premises, levels of taxation and the price of publicity – as percentages of annual expenditure.

The pulse quickened when discussing professional indemnity insurance and the all-too-real cost of competitions. There was no hiding the exceptional 45 per cent of our own practice's time spent on non-assignable activities – work for which we wre not getting paid, such as administration, lecturing, trying to find commissions.

The sense of relief was immense, relief that our regular expenditure broke down in remarkably similar ways, relief that we all had trouble accurately predicting the

resources a job might require, and hence the risk that an anticipated profit could turn into an unwelcome loss, relief that we were all equally worried about our ability to go on producing the best buildings we knew how for the benefit of our clients, the users of the buildings and the wider community; there s a real worry about the ability too act as we are obliged by the RIBA charter.

It was at this point that we suddenly found ourselves mounting a rearguard action to try and stop the publication (in association with the new Conditions of Engagement) of the ACA Survey of Fees paid to architects. The arguments about the validity of the survey, the degree of pressure from the Office of Fair Trading, and the extent of the reduction in the fee levels show will continue to be debated. We have all be subjected to fee pressure from clients, usually in a downwards direction from the recommendation of the '88 Blue Book' and we felt that it would be suicidal to report 'the ACA facts' which will merely offer our future clients a lower threshold from which to bargain.

The ACA survey diverted the group's energies as we saw the already tight rope straining too far, but it helped coalesce the group, which had begun to settle into a pattern of trust and understanding.

I am now convinced that, in this grotesque recession, a normal response of increasing secrecy would be counter-productive, and I can strongly recommend the benefits of co-operative action. For a start, it serves to reassure practitioners that they are not alone, however hostile the recession. Furthermore, if the case for architectural quality is going to be made to the government, it is essential that we start compiling databases of such factual information – and this is more difficult to initiate institutionally than in a small group such as ours.

The excellent RIBA Strategic Study (Phase 1) suggests that we need ot review our whole method of charging, on a value-added basis, which, I fear, is going to be difficult to implement without yet further attacks on standards. It is too important for all architects to let them-at-Region or, even less responsibly, them-at-Portland Place, sort it out. This would one good reason for coming together and opening our books.

The principal and urgent task for us all is to try to promote the best practice of architecture, to get through to government and commissioning agencies the essential value of good design and to come to expect the proper remuneration for practising that art.

The four original practices referred to, ranging in size from 13 to 48, are Burrell Foley Fisher, Nicholas Hare Associates, Edward Cullinan Architects, and MacCormac Jamieson Prichard.

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6. Highbury Corner

The following was written by Robin Nicholson for the Highbury Fields Association newsletter, September 2005.

You probably know that the Council has been consulting on the future of their AI Strategy (www. Islington.gov.uk/A1borough) but you may not appreciate that the excellent strategy of releasing the potential of the Great North Road as a continuous story from Old Street to Archway has been waiting to happen for far too long.

Right in the middle is Highbury Corner or Highbury Island as the sign on the fence proclaims or Highbury Square as this plan rather optimistically tags it. At first, I thought the plan showed people gathered in a clearing right in the centre of the island but sadly it turns out to be a municipal flowerbed. Nevertheless, the proposed pedestrian access raises at least three questions:

- until we have fuel-cell cars who would want to sit in the middle of a roundabout?
- should we have free access to the island 'arboretum'?
- if the planting is special how do you make a clearing in the densely planted centre?

One might also wonder whether Alwyne Estates would continue to pay to clean up our mess in their support for so-called 'sustainable planting' as the present signs claim?

One of the best kept secrets, not least within the Council itself, is the reason for this strange collection of trees, everyone different. They were planted in 1959 and then between 1974 and 1978 as an experiment to see which species would best survive in the most polluted environment in London.

The trees' progress was monitored; then the lead was removed from petrol and we are left with a freak coniferous collection that some will see as being historically significant. I for one think that the trees are rather suburban in character and inappropriate for such an urban site so would have no objection to the removal of some trees and the creation of a good space in the centre; providing, of course, that first a final survey of the trees is done and the research wrapped up. But I suspect that Robin Mabey and, no doubt, others would tie themselves to the trees to stop their removal.

I also strongly support the removal of all the railings around Highbury Corner since traffic barriers tend to lead to abuse and even more accidents; may I recommend a visit to Kensington High Street for sceptics to see the potential of a barrier-free high street? Similarly I support the idea of the establishment of a raised and 'pedestrian-friendly' paved road but I want to understand where it is proposed that the large numbers of busses and bicycles will go and that is not on the website.

I remain to be completely convinced that free access at all times would be a good idea and would ask for precedents across Europe. We definitely need proper

pedestrian rights to cross the Holloway Road by the Post Office and hopefully we can get a good space in its place and a new post office in a really wonderful concourse to the many railways.

Transformation of Highbury Corner; opening up the experimental arboretum.

But the idea of ‘revealing Highbury Fields’ seems totally wayward. Every Islingtonian and everyone in the Premier League knows about Highbury Fields and their magic; the football fans bring life (and security) to the Fields but the Fields need protection from the relentless traffic noise and fumes and random invasion; they need to be discovered.

The transformation of Highbury Corner was completed in 2019 and is successful although the quality of the new ‘place’ outside the station is a tragic lost opportunity.

A tragic lost opportunity.

7. What is Good Design?

The following is an article by Robin Nicholson, who lives on Highbury Place, for the Highbury Fields Association newsletter Autumn 2006.

Creating value through good design is better understood now and championed in some surprising quarters but we are none too comfortable discussing the finer points of architecture. We happily argue about the beauty of a mobile or a pair of trainers but too often just rubbish new buildings whether they deserve it or not. Despite the extensive guidance and the planning system's development controls, sadly in some parts of the country little effort is made by either developer or the local state to get better value for us all.

Highbury Fields.

Buildings and public spaces provide the physical environment within which we live our lives and yet too often we don't get that lift that you get, say, on crossing Highbury Fields, seeing the long rhythmical terrace of Highbury Place under and through the great plane trees. The new entrance from the roundabout is a huge improvement as the railings and accumulated tat have been removed and a high quality shared surface for pedestrians, cyclists and cars provided. The challenge will be to stop new black and gold litter-bins, new camera poles and new signs appearing or the unregulated wanton excavation by privatized utilities.

Created in 1999, the Commission for Architecture and the Built Environment (CABE) is the Government's advisor on architecture, urban design and public space. As a Commissioner I am delighted that its influence has grown and that it has helped public sector clients and increasingly the private sector to be better clients and to raise awareness of the importance of good design. The championship of design quality is central to our mission; so what is it? One of CABE's core activities is the Design Review of about 350 of the most significant schemes throughout England, each year. This summer CABE re-published 'Design Review: How CABE evaluates quality in architecture and urban design' which is downloadable from the website or available free by post, along with much other best practice guidance.

Design Review at CABE. I'm in the pink shirt back right.

Architects nearly always have three categories of client, the owner and funder, the users over a period of 30, 40, 60 or more years and us, the community; inevitably we each think our views are the most significant. However, when you consider something like a new school, you can appreciate that briefing is even more complex and yet the school is one of the most important buildings in our communities and needs more time and skill than we allow. The Local Education Authority, The Head, the other teachers the new parent, the cook, the facility manager, the receptionist and the pupils all have competing demands and differing perceptions of what a school is.

Some of these complexities are captured in the Design Quality Indicator (DQI) Tool www.dqi.org.uk which was developed around a classical idea. The Roman architect and engineer Vitruvius determined that there were three inter-related dimensions to architecture; his Latin slogan was translated in 1624 By Sir Henry Wotton as 'Commoditie Firmenes and Delight' which the DQI has re-translated as Functionality, Build Quality and Impact. The key is that these tried and tested fields are not absolute; rather they allow us to discuss the relative aspirations and attributes of any project at any stage from the initiation to occupation.

In Islington, we are blessed with a great urban heritage and relatively little damage from traffic engineers; today there is an increasing quantity of better designed buildings and spaces, some new, some recycled and certainly all need to be considered in their own particular contexts. For some the Arsenal Emirates Stadium is a disgrace but that is mainly a political response whereas in urban design terms inserting such a huge building into the surrounding city has been really neat.

Meanwhile the adjacent 1980's all-glazed Metropolitan University Library on the Holloway Road is dispiritingly unambitious and plain bad while the newly completed key-worker housing on Hornsey Street overlooking the railway is equally unsatisfactory. But the prize for uninspiring must go to the new Municipal Dump, also part of the Arsenal redevelopment, which makes you feel depressed instead of being rewarded for your necessary and virtuous activity in a contemporary cathedral, flooded with daylight and hope.

The excellent Islington Urban Design Guide, which provides a guide to urban design with many illustrations of buildings and spaces in the Borough, has been out

for consultation; with luck it should spark many hours of discussion. Taken with the CABE guides and other Government advice, there is no excuse to do design badly. This is explored in a recent CABE booklet 'The Cost of Bad Design'.

There is however a whole new and urgent issue for our consideration, the impact of climate change. Buildings and the way we use them are responsible for 40% of the CO2 emissions, which we need to reduce by at least 60% world-wide by 2050. At a stroke, all-glass buildings go from being a symbol of progress, ambition and wealth to symbols of arrogant irresponsibility. Nothing seems to be happening to rebuild the disgraceful Highbury and Islington Station; so, instead of repainting it, why don't we move the post-office to the vacant site opposite as an exemplary public building for a sustainable age with high quality key worker housing over it and make best use of our new granite shared surface in front?

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8. I Wish I Had Done That

Written by Robin Nicholson about the GSW Building (1991-9) by Sauerbruch and Hutton. He visited the building during an office visit to Berlin.

Last November we went to Berlin for the first time and found the city and its architectures as delightful as we had anticipated. Though I had heard Louisa Hutton describe the GSW Building, I was not prepared for the sheer pleasure when we came upon it just around the corner from Checkpoint Charlie early on our first morning.

GSW, Berlin's largest housing association, was running out of space in its 1952 17-storey tower close to the city centre. A competition was held to add a further 19,000m^2 of offices and shops and after a second round Sauerbruch Hutton won their first major competition; a long haul through planning and construction begun. Aiming to naturally ventilate the new flexible offices and save 40% energy was ambitious but they seem to have been more successful than other such experiments.

The relatively thin new boomerang-shaped slab (above) is attached to and partially protected by the recycled existing tower. Fresh air is taken in through the east elevation either side of the existing tower and exhausted up through a metre-deep 70 x 70m thermal flue as the west elevation. The details of the air path are simple but clever and incorporate brightly coloured – from pale pink to deep red, giving an overall pink feel – vertical perforated shutters, three per 1.8m-wide bay.

These shutters are individually controllable and controlled they are, giving back to the city a rare vibrancy; I know of no other building that makes one feel so good whether seen from close-up or from afar and always different. It makes an art out of its low energy ambitions and user feedback – so far only verbal - is good.

The slab sits over a three-storey building with offices over shops that follows the street pattern and is terminated with a three-storey green pill-box. Wind studies at Bristol University led to elegant foils to enhance the effect of the flue and to protect the passer-by. The design and detailing of the external works is properly European to a standard we seldom see. Delight is an essential part of sustainability and I would have been delighted to have done this.

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9. All Change at the University

Cullinan Studio have worked in Cambridge and Warwick Universities for over 20 years and at the time this article was written were shortly to go out to tender on the £70m+ National Automotive Innovation Centre at Warwick.

National Automotive Innovation Centre, Warwick, designed by Cullinan Studio.

With 162 UK Universities with 2.34 million students, 425,000 of whom are non-UK students we live in a knowledge economy, which is every bit as important for the future as our over-cooked financial services. It is estimated that the 24 Russell Group Universities will spend £9bn in the four years to 2016 to generate £44.3bn, at present day rates, over the next 25 years.

One of the bright spots in this recession was the amount of HE projects. There are three dimensions – new buildings for expansion, refurbishment of existing buildings and the reduction of their carbon footprints; all universities have to have carbon reduction strategies. Location is important but given the competitive market there ought to be a much higher weight given to designing the public realm to create a sense of place and, where possible, to their integration with the surrounding city.

The significance of the quality of design was made in CABE's 2005 'Design with distinction: the value of good building design in higher education' and has been pursued by the HEDQF. But the recession has seen building costs and fees cut to the competitive bone and risk off-loaded to the contractors, at a huge and unproductive cost; yet they know quality matters.

One university building usually finds its way onto the annual Stirling Prize shortlist. In 2012 Stanton Williams' gleaming Sainsbury Laboratory in Cambridge won but the 2013 ceremony was held in their reused granaries for Central St Martins. This year's AJ Retrofit Awards has a gratifyingly large seventeen entries in this sector.

Making better use of existing buildings can be good value but becomes essential within the global perspective of increasingly limited construction resources and a growing awareness that carbon credentials need to include both embodied carbon and operational. And one's position in the students' Green League matters.

I recently went with a group from Reading to look at Delft School of Architecture as John Worthington was keen for us to see how they had re-occupied a redundant faculty building following the 2008 destruction by fire of their celebrated Bakema 1970 building. Although some in the faculty wanted an architectural competition for another iconic building, within three months they had refurbished half the former Chemistry building and within another three the other half; they now have a whopping 36,000m^2 but more importantly they had rethought the 21st century faculty, in and around an existing building – interdisciplinary and convivial!

Architecture studios and workshops in new space created in the open courts of the old Chemistry building.

Business as usual is not an option as fees increase the competition and force students to make better use of their time; globally, Multi Open Online Courses (MOOCs) are threatening the status quo. But what an opportunity we have to design for collaborative research with industry, rethink the fabric, reimagine the spaces between buildings, change their image and dramatically improve their energy/carbon performance. Seeing our universities as an essential part of UK plc and linking the universities to the spatial economies of our city regions must be welcomed.

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10. Striving for Change

Paper given by Robin Nicholson in November 2016 at the Low Carbon Buildings Conference, Chongqing, China.

The subject of this conference is Low Carbon design in response to our changing climate; my focus will be on the importance of built environment professionals understanding and working with the physical, cultural and environmental context; and understanding that the way we behave is as important as the way we design and make buildings and cities.

My personal context

I was born just outside London in 1944 as German bombs rained down on post-Imperial Great Britain, destroying an amazing number of our buildings (more than I million homes in London alone). At that time, few had heating in their homes; if they had any it would be just a single gas or electric fire or an open coal grate. Few had cars; there was a major housing problem and many people still worked as domestic servants to keep the few better off in the manner to which they had been accustomed.

As we rebuilt the country, one of the few innovations was the programme of 27 New Towns built around London and other major cities after 1946. Building homes became the subject of intense political competition with major urban high rise developments built by the state. The level of home ownership was traditionally very low but then home ownership became a mark of aspirational success; we got up to 71% of homes being privately owned in 2003 but this has fallen back to 64% today and the young can no longer afford to buy homes, especially in London and the South-East.

The standard of living in Europe rose rapidly over the past 50 years with growing consequences for the Planet as a result; it currently requires 3 Planets for the whole population to live as we do. Our era has been tagged The Anthropocene with start dates ranging from 1610 to 1964. The increase was widespread but disproportionately in favour of the wealthier in the wealthiest nations. The UK with a population of 65 million, that is only twice the population of Chongqing, is the 5th richest country in the world, but the gap between the UK richest 10% and the poorest has grown rapidly so now it is the 6th most unequal in terms of income.

London and many other UK cities have dense mediaeval cores with lower density suburbs; our city centres are much less dense and much lower rise than Chinese cities, so there is a discussion to be had about the optimum form for a sustainable future city, although we will have to work with much of what we have got. For me as an optimist, the drive towards a sustainable future has been a life-long goal but I have changed some of my ideas as to what that means politically and how we might get there.

What is clear to me is that as professional architects, engineers and constructors we have an obligation to strive "to do the right thing", as Bill Bordass would say and we need to ensure full community engagement.

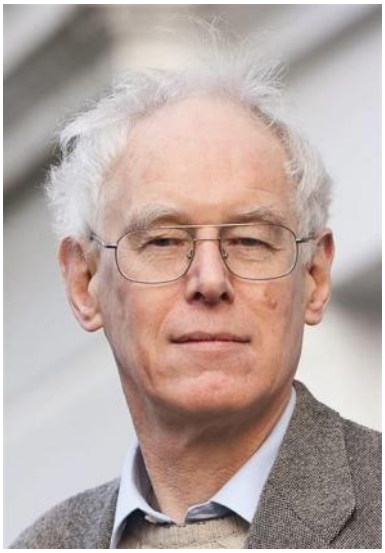
Global change

Most of us are nervous about the scale of what is needed to be done to arrest climate change, especially as many countries do not enjoy the standard of living of Western Europe. In 2006 the UK economist Nicholas Stern submitted his report 'The Economics of Climate Change' to the UK Government; he argued that we could reduce our emissions by 60% by 2050 providing that we started right away. Stern argued that it would take an investment of not more than 2% of GDP per annum and that there would be many additional benefits.

In parallel Aubrey Meyer was developing the idea of 'Contraction and Convergence' demonstrating how we might make the necessary reduction **and** reach global parity by 2050.

Buildings are responsible for roughly 40% of greenhouse emissions, so we architects and engineers do have a direct responsibility. While we know how to **design** new carbon neutral or even carbon positive buildings, 80% of the buildings that we will be using in the UK in 2050 already exist, so our major challenge is how to transform the buildings we have already got instead of pulling them down. Repeated demolition is no solution as globally there is insufficient resources; but we are still pulling them down and most of us were trained to design new buildings!

And then there is the question of how we use them! We devise ever more stringent regulations for some aspects of building design, but we design them with little thought or understanding as to how people will use them with little verification as to whether they do perform as intended.



While there are many researchers working in the field of building performance and user behaviour, it was the pioneer Bill Bordass (right) and his colleagues who grabbed our attention. We were fortunate that our Centre for Mathematical Science in Cambridge University was selected as the last of the 23 low energy workplace buildings that were monitored by Bordass and Leaman's Usable Buildings Trust as part of the Probe studies (Post-Occupancy Review Of Buildings and their Engineering (1995-2002) - see www.usablebuildings.co.uk). These studies measured the total energy used, the air-tightness and surveyed the degree of user satisfaction against 12 criteria, but they remain a well-kept secret as the construction industry prefers to languish in 'Business as Usual' or as Bordass calls it, 'Flying Blind'.

In Dec 2015 a treaty was agreed in Paris at COP 21 and 2 months ago Premier Hu and President Obama signed China and USA up to it - Hurrah! When the UK Chief Scientist spoke at the RIBA in January 2016 about his success in bringing this about, he responded to a seemingly innocent question "the global rise in beef-eating middle classes from 1.8m in 2008 to 4.9m in 2030 is a whole other game!"

Ironically we now see a major reversal of behaviour; it is no surprise that meat eating and car driving is on the increase in China and India, but in the land of 'roast-beef' we are taking up cycling and vegetarianism going on veganism - well a significant minority are doing this in London, where many fewer ever learn to drive!

So what's wrong with our cities and our buildings?

This conference is about retrofitting high rise residential buildings in this region. Others have studied this in great detail and understand the political and economic constraints. As a UK architect, I want to reflect on the challenges our developed cities face as they consider how to transform themselves into sustainable communities in which to live, work and play with reference to our largest city London. This does require us to consider the transformation of the political economy that led to the present situation. In UK we are faced with:

- A political system that believes in economic growth as the solution to our problems as the political elite of all complexions fail to accept this as an unobtainable dream, despite the reality that the average growth on the US GDP was 1.4% pa between 1970 and 2015 and Robert Gordon anticipates that it will only grow at 1% pa till 2040.
- A growing need for affordable housing in a market that is driven by the supply of expensive housing as investments or as a safe haven for the global rich; the irony is that as the rich replace those on average incomes there will be no one to provide the basic services that they need – health services, school teachers, police etc who can no longer afford to live in London.
- There are 436 towers (over 20 floors) in planning, approved, under construction or recently completed in London (New London Architecture March 2016), many of which will be excessively glazed. The highest density housing in London was built as streets and squares in 19th Century in Chelsea but even the densest Borough of London, Islington is only 138 people per hectare while overall green space and gardens occupy 62% of the land across London.
- A built environment that is very attractive and heavily treed in places but generally poorly performing in terms of the environmental conditions they provide. At least 20% of homes have experienced overheating, with a greater percentage in urban areas. 1,000 more people than normal died in England in a heatwave in one week in August 2016. A recent study showed that 100% of ventilation systems in new homes failed to meet the Building Regulations.
- The infamous London smog was eliminated by the 1956 Clean Air Act and, I understand, it is falling in Beijing but NOx levels and air pollution generally remains unacceptable with 23,500 people in UK dying prematurely from NO^2 pollution

Around the world we are building tall fully glazed buildings, regardless of orientation or climate that are clearly unsustainable, such as El Burj in Abu Dhabi which required 1m^3 concrete for every square metre of floor area. Meanwhile just 150 meters from my office the fully glazed and unprotected Lexicon tower has been

built without opening windows or solar protection - beautifully detailed but grossly irresponsible.

How much longer will we go on building gas-guzzling glass towers?

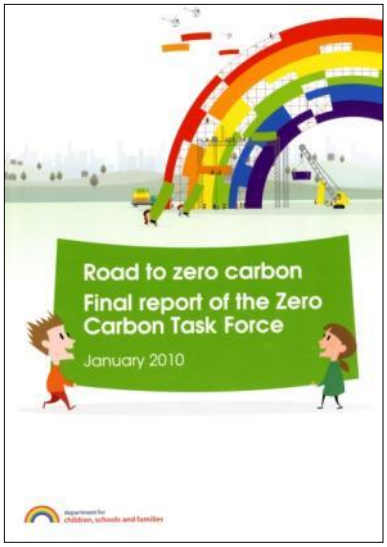
Health and demand reduction – some solutions

We know how to design low energy buildings but they then have to be built properly. We designed a new campus for the University of East London (1996-1999) with low energy ambitions and a very tight budget; we used Termodeck, a Swedish system, whereby the air is tempered by being passed up back and up again through the holes in the precast concrete planks providing cool-enough air in the day in summer, cooling the planks down at night and adding a little warmth in the winter. At 19,000m2 of deep plan flexible academic space designed to have 100% fresh air at half the energy used in a conventional university building. Imagine our surprise when we heard that after a year the staff were going sick and had called a major strike. Eventually, the diagnosis was that the major contractor had connected the systems to provide 100% recycled air! So continuous measurement of performance in general and air quality in particular are essential. The construction industry we will need to do much better as within 5 years before everyone is able to monitor their environments with their smart phones.

Zero Carbon Task Force for Schools

Our industry likes to imagine that all we need is the right technical solution to climate change and to the production of sustainable places, but the reality is that we waste huge amounts of energy (54% electricity), food (50%) and water. There is no

shortage of solar energy just a distribution problem; similarly there is a fixed amount of water with both a pollution and a distribution problem.



As just one example of this when I was asked to advise the UK Government in 2009 on what it would have to do for all new schools to be zero carbon, our task force declined to give the Department for Children, Schools and Families a direction on the best technology. On the contrary we recommended the Amory Lovins' approach of 'Halve the demand, double the efficiency and halve the carbon in the supply and you are down to one eighth of the emissions'. It was relatively straight forward to show how to halve the demand, largely by behaviour change, and double the efficiency, through effective management and selecting the right equipment; this approach is universally applicable but it does require everyone to want to do it.

Towards the end of the Task Force's research we found an existing primary school (5-11 year olds) south of London where the Head Teacher had put the children in charge of managing the school's electricity consumption. Each class elected two eco-reps who had to report the school's performance to the Head in front of the whole school every Friday; if they could keep the emissions below 100 kWhrs per day for the week they would receive a small financial reward to be spent for the pupils' benefit. Together they reduced the consumption of electricity by 51% in the first year and more later. But schools matter in this transformational process because young children understand their 'environmental game' completely and they unwittingly train their parents, who in the case of Ashley School (www.ashleyschool.org.uk) set up their own club where members had to keep their domestic consumption below 100 kWhrs per week.

Deep retrofit – three short stories

I want to start describing our approach by discussing a project that is so small and so low key that you may consider it inconsequential but if one accepts that the future must be local and our personal responsibility then I hope you will find it useful. The children of two of my partners attended the same Primary School in South London, where the original Victorian Board School design had been extended over 100 years to provide a larger school. The original 19th century brick building had been modified by a series of well-intentioned but disastrous changes:

- the original sash windows had over decades been painted so they no longer opened preventing natural ventilation
- cheap conservatories were added to the south (!) side to provide additional storage but they filled with junk
- a white board and overhead projector were installed in each classroom, so the blinds were dropped (permanently) so the lights were turned on regardless of the time of day

The net effect was that the classrooms reached 38°C in the summer and learning became difficult!

Having lobbied for change, Carol and Kristina sketched a solution, in consultation with the children and with the support of other parents persuaded the school to implement low-cost changes, using the school's existing maintenance budgets; they

- cleared out all the furniture, fittings and lighting,
- repaired the sash windows so they could be opened easily
- redesigned the classrooms both for the children and for the teachers
- reconfigured the conservatories so they operated as lobbies with coat hanging and the childrens' lockers while providing ventilation and daylight for the classrooms
- installed domestic lighting at levels way below those recommended for schools

The result was a dramatic increase in behaviour and as a result learning and the start of an annual summer holiday programme of changes to other parts of the school. Now Kristina, working with the Head of the School is organising a community energy project using the south-facing roofs of the school, the local church and a housing estate.

My home

For thirty seven years I have been adapting our house (right) which was built in 1776, starting by installing 100 mm of rockwool insulation to all the walls inside and recently fitting PVs and solar thermal; however being a protected (historically valuable) building I am not allowed to double-glaze windows!

My office

Four years ago we moved into a 19th century warehouse facing south onto a canal in North London, retrofitted to be BREEAM Excellent with natural ventilation in a listed building.

Many of the heating controls and meters were fitted incorrectly so they failed to measure energy in the way we wanted but generally it is a delight to work in and our productivity has improved. It scored highest of 6 offices that were being tested by an engineer from Buro Happold.

The offices of Cullian Studio, coverted from a canalside warehouse.

Passivhaus is coming

The German passivhaus certification system is growing in popularity in UK for new homes, schools and other public buildings, despite the difference in climate and humidity. It has been used on an invreasing number of retrofit projects so we were delighted when Queen Mary University appointed us and the contractor that had converted our office to work together to retrofit their 1970's Maths Department to passivhaus standard; a great project stalled for the moment by the University's project manager failing to realise the additional taxes we have to pay on retrofit projects – not very clever of him or our Treasury.

One of the greatest retrofit successes has been the Energiesprong ('energy leap') in Holland. Although they are more focussed on two storey terraces where 1960's houses are transformed within two weeks, with the residents in situ, to be carbon neutral backed by a 30-year guarantee. Thus far they have transformed over 100,000 homes and the rice still needs to be cheaper to be completely affordable. Meanwhile in the UK SustainableBYdesign transformed a single block at Thamesmead as a pilot that was deemed by the residents to be very successful but it was too expensive for the housing association client who are regenerating the rest of the estate!

Stonebridge – from chaos to a sustainable community

Some existing buildings cannot reasonably be retrofitted but many house vibrant local communities that need their homes regenerating without destroying the sense of community. Among the major English public housing schemes built in 1960/70s six were singled out as Housing Action Trusts in 1988 for their extreme social and physical chaos. One of these was the 14-storey precast concrete panel Stonebridge Estate in West London, where, following the rebuilding of much of the estate as 4/5 storey terraces on streets, we were selected to design the community centre and health centre. After much design development we persuaded a whole range of authorities that they should build a scheme that combined both buildings and a local

store and 60 apartments above to become the heart of the community, that it has now become. The three key sustainability dimensions are:

- environmentally, it is thermally well insulated with excellent acoustic protection for the flats above the community hall
- socially, every aspect of the design was negotiated in consultation with the health workers, the community workers and the local community
- economically, the rent from the shop and the health centre pay for the running of the community centre.

Stonebridge Hub, designed by Cullinan Studio.

Barriers

If we can understand that our life on this planet is threatened by Climate Change, how come we are doing so little to change our behaviour, the part that we can all need to do?

- we 'naturally' all aspire to ‘the better life’ that for many of us means greater consumption of services, food and goods, much of the manufacture of which we have exported to you
- centralised decision making and financial management by the State at both central and local levels, usually excludes our participation
- most of us struggle to understand climate change and the 30 year lag; furthermore we have good evidence of the ‘rebound effect’, whereby financial savings from domestic energy savings are often spend on additional goods or holidays that could not have been afforded before; and the ‘pre-bound effect’, whereby the fuel poor do not consume the energy that the models assume so the savings are much lower than anticipated.
- although we all use smart phones, few of us can manage our environmental controls (in my case this is our super-efficient boiler)

- it is technically difficult to retrofit our existing building stock in its many typologies and in our varying climates
- we are all busy doing what we know how to do and have little time or inclination to do it differently, in particular, to do it collaboratively, across the disciplines.

Communities

If we accept that we have to transform our cities and our existing buildings, then we all need to be actively engaged- 'they' cannot successfully do it to/for us - but most of us don't know what to do. In UK we need to reduce the energy consumption of our homes by 80% at the rate of 1200 homes every day but we have hardly begun.

Electricity generation is a good example of public waste whereby if you feed 100 units of coal energy into a power station you get 9.5 units of energy at the socket outlet through system losses in generation, distribution and equipment. I am certain that we have to manage our own community's energy as only then do we have a chance of making dramatic improvements in carbon intensity; then halving the demand is down to all of us, leaving those of us in the construction industry to double its efficiency.

I am encouraged by the UK Transition Town Movement established in 2006, which says many of the right things, about managing our energy, water and waste locally and much else but which has failed to establish a popular acceptance. In UK people object when 'they' threaten a village with a wind turbine, but if it was 'their' wind turbine providing them nearly free electricity then the objections are likely to fall away. There are over 5,000 groups community energy groups in UK but in Germany 22% of all electricity is generated by renewables and 51% of that is generated by individuals and a growing number of community groups (586 in 2013).

There are 1,000 Transition Towns globally and Founder Rob Hopkins writes 'There is no reason why Transition wouldn't catch on in a country like China or anywhere else. The challenges about what life will look like beyond fossil fuels are just as pressing."

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11. Big Change for Us All

As the London temperature rose to 38°C this July and the Yorkshire Dales flooded, again, the impact of climate change couldn't be clearer yet do we understand the scale of the problem, the economic revolution we need and the speed with which we all need to change our behavior? As architects we are responsible for some of the 38% of carbon emissions that buildings generate – BIG CHANGE for us too.

For years we had no option but to design for lower energy by subterfuge, doing the best we could as part of our general people and place-focused approach. When our founder, Ted Cullinan designed and built his own house with family and students in 1965, he designed a passive solar house as an instinctive response to the site and his family's needs. Now Grade II* listed we can see it alongside other pioneering projects such as the Cambridge Autarkic House (1974) and Stewart Brand's Whole Earth Catalogue (1968-).

Goldsmith Street, Norwich, designed by Mikhail Riches.

Lower energy communities like Findhorn (1962) were continuations of a long tradition of utopian settlements and then Peabody built the most radical of all mixed use and social housing schemes at BedZed (designed by Bill Dunster and completed in 2002). Now, designed by Mikhail Riches, Annalie Riches being a former Cullinan partner, the 2019 Stirling Prize shortlisted Goldsmith St passivhaus housing was built for the Local Authority in Norwich.

When I joined our practice in 1979, we shared the building with Max Fordham's radical engineering practice, where complete design was practiced by all the engineers. Together we developed a series of innovative projects such as RMC's International Headquarters office outside Staines (1990), the Charles Cryer Theatre retrofit of a church hall in Carshalton (1991), the no-heat Archaeolink Visitor Centre in Aberdeenshire (1997) and many more lower energy schemes. These were exciting times but it was rare for a client or a planner to ask let alone demand a

lower energy building and of course we lost some brilliant ones along the way, like the zero carbon training centre for Nationwide (1980).

In parallel with the work in the office, I found myself attracted into cross-disciplinary industry affairs that led to the formation of the voluntary multi-disciplinary think-tank, the Edge in 1996. Originally conceived in response to a challenge by the late Sir Jack Zunz of Arup, RIBA President Frank Duffy devised the Edge in discussion with civil engineer Peter Guthrie and me.

Twenty-three years later we have held 93 events and still meet monthly; in 2015 we published the findings of the Edge Commission on the future of professionalism, *Collaboration for Change* by Paul Morrell (right). Having started with just ICE and RIBA, four years after the UN Treaty on Sustainable Development "the Rio Treaty" we now enjoy the support of eleven Professional Institutions and a number of other organisations in the built and natural environment. The spreading of our network was largely driven by the realization that dealing with Climate Change had to be cross-industry and trans-professional.

This year more pennies have begun to drop; the Climate Change Committee (CCC), which sets and monitors five year carbon budgets has pronounced that 'England is still not prepared for a 2°C rise in global temperature, let alone more extreme levels of warming'(2); professionals have recognized the Climate Emergency with Architects Declare closely followed by Engineers Declare and Building Services Engineers Declare using the same graphic and very similar wording; others are joining. But what does it mean? How big is the change required? Can we afford it, or can we afford not do it?

Do you remember when as Chancellor Gordon Brown commissioned (Sir) Nicholas Stern to review the costs? In 2006 Stern declared that it was indeed affordable but the sooner we engaged the less expensive it would be. The CCC has just confirmed that the new UK legal obligation of 100% carbon reduction by 2050 will now cost the same as the 80% previously targeted. Meanwhile Engineer and Edge Member Chris Twinn argues that zero carbon housing is doable today and can be cheaper than business as usual (3).

But constructive change is much more difficult than new market-led fashions like the questionable electric scooter. The scale of change we need is exciting, but it is total. Not only do we have to be ready in 5 years to design every new building as Net Zero Carbon/Energy-positive, but we have to transform every existing building too, which is much more of a challenge. Fortunately, the regulatory scheme is under review following the Hackitt Review into the Grenfell tragedy, but the market has to change from one of regulatory compliance to one of guaranteed performance – BIG CHANGE for the industry.

Hackitt's 'golden thread' should be accompanied by Engineer/QS Ann Bentley's *Procuring for value* (4) which could lead us towards Net Zero Carbon and a total rethink of risk management – BIG CHANGE for investors and their advisers. And then VAT will need to be equalised at say 5% for new and work to existing buildings, even though the Treasury is still hiding behind a deliberate misunderstanding of EU regulations – BIG CHANGE for housebuilders and the Treasury.

As I write, the temperature has reached 38°C in London and 41°C in Paris, so how clever are the tenants of the Shard feeling behind their white blinds let alone the proud new home owners many of whose homes are overglazed and overheating. While it is easy to blame Mies van der Rohe for inventing the glass tower in his Berlin Friedrichstrasse competition entry (1921-2) and hi-tech architects for developing the fully glazed habit, it is of course the agents and their offer to maximise rental area that has driven this all-glass madness; it has to stop – BIG CHANGE for most developers and their agents. Understanding the impact of orientation on design helps us optimize the delight of a well-lit, naturally ventilated building for whatever usage.

The 16-year-old Greta Thunberg captured the world's attention when she spoke at Davos earlier this year since when events have spiraled. Even Prime Minister May was encouraged in June to declare that all buildings would be required to be Net Zero Carbon by 2050.

That's not fast enough for anyone on the inside but the popular Extinction Rebellion has declared all buildings to be Zero Carbon by 2025, which most engineers think is not possible although 2035 is and maybe we should aim for 2030. What does that mean for us and for the industry?

Who is going to teach the students, when so many of the existing staff don't know and are focused on other (conflicting) outcomes? How do we become a net zero carbon practice? BIG CHANGE for Cullinans.

Three months ago, the Edge wondered how it should respond to the renewed focus on an area of long-standing interest to us? It seemed clear that we should bring some of the key Institutions together to ask them how they would work together to meet the targets of the CCC. The RIBA, buoyed with its new Code of Conduct and the inspiring work of the Ethics and Sustainable Development Commission, offered to host a round table and invited five Institutions and four other bodies. In a short space of time this Edge event grew and on the day 25 organisations gathered on the top floor of the RIBA and worked well together for three hours.

Climate Change Committee Chair Lord Deben told the Round Table "…It is URGENT. We only have time to do things (not talk about them) … We have a serious responsibility – remember Adam and Eve? When she bit into the apple, she understood and became responsible! You are responsible!" Ten days later we were able to circulate an agreement that they had accepted the invitation of the CCC to cooperate on meeting the UK net zero carbon objectives – BIG CHANGE for our Professional Institutions.

Round table meeting with Lord Deben. I am in yellow shirt dead centre.

All we have to do is help the BIG CHANGES become BIG CHANCES for a better world.
