



November 2015

Regular Features

Passive House Planning Package 9 (PHPP9)



I am pleased to inform you that the English version of PHPP9 is now available to purchase from us online at <http://www.aecb.net/carbonlite/carbonlite-programme/phpp-software/>

If you own a copy of PHPP7 or 8 you are entitled to a copy at the reduced upgrade price of £105 plus VAT if you are an AECB member. If you are no longer an AECB member the price for the upgrade is £115 plus VAT. This is the full product, a new manual and disc.

If you have not already got a copy of DesignPH you may wish to take this opportunity to purchase this product. Prices for AECB members and non members are at: <http://www.aecb.net/carbonlite/carbonlite-programme/phpp-software/>

Omnisense Remote Monitoring System



The AECB has negotiated an ongoing rate of benefit to members and can offer the Omnisense remote monitoring system at significantly preferential terms to AECB members for projects that would benefit from environmental condition monitoring. The Omnisense system is a web-based remote monitoring system for buildings that measures relative humidity, temperature and moisture level. Currently members who have taken up this offer are monitoring various internal wall insulation constructions, insulated suspended timber floors, conditions within brickwork that has been externally insulated, etc

To obtain a quotation for the Omnisense Remote Monitoring System please contact gill@aecb.net. A forum board has been set up for discussion – click [here](#) to read more.

AECB News

Welcome New Members!



A warm welcome to the following new members who have joined the AECB recently;

Johnny Winter	London
Mike Lowe	London
Tophouse Assessments	Kent
JOMA Architecture	Wiltshire
Frome Town Council	Somerset

Some company members listed above have a link to their listing in our Member Directory and this is because they have provided more information. If you have joined AECB as a company, ensure you enhance your profile listing with more information about your company/photos as this will make it more searchable.

If you are a member and need a reminder of your log in details to do this, please email emma@aecb.net.

AECB CEO Talks to Natalie Bennett at a Hereford Retrofit Project about ‘Energy Efficiency and Economics’



Jane and David Straker’s aim was to have a well-insulated energy efficient house with downstairs loo and shower, economical to heat, comfortable, easy to maintain and generally suitable for their needs as they grow older.

The plan was to upgrade their house to high environmental standards, drawing on the skills of a local architectural practice, Simmonds.Mills, well versed in this field and their son Tom Straker, as project manager, who is a builder and member of the AECB (The Association for Environment Conscious Building). The project was to be funded by downsizing from their previous property.

The structure of the house was not ideal: narrow, single brick walls and a converted loft with ladder access – theoretically a third bedroom. The house was built in 1863, one of a pair and in fact detached by a couple of inches on one side. It has right of access through a side passage, which was important to them, but means that contrary to appearances it does not have all the insulation advantages of a terraced house. It faces almost due south. EPC rating was E.



AECB CEO, Andy Simmonds, talks to Natalie Bennett (Green Party Leader) at a Hereford retrofit project about “energy efficiency and economics”.

Jane Straker said, “We have a really homely house which satisfies our wish to live comfortably while reducing our carbon footprint. The embodied energy in reconstruction should be recovered within at most four years. The life of an originally not-very-well-built house will have been extended by many years and will go on saving energy into the future.”

By projecting their energy consumption from moving in on 15/12/2014 they predict the energy use and cost (from Green Energy UK) over the first year will be:-

Gas – 5400 kWh = £290

Electricity – 1915 kWh net = £340

(Note: the cost of fuels includes standing charges)

Since 19/12/2014 their 2.08kW PV panels have exported 1427 kWh to the Grid, valued at just under £300.

Andy Simmonds, AECB CEO added, “David and Jane are part of a growing number of ‘retrofiters’ getting their ‘house in order’ and helping to prepare the ground for improved retrofit practice: moisture robust, healthy, low energy with high comfort .”

Membership Testimonials

Have a look at what our members have been saying about membership [here](#) .

If you would like to add a testimonial or give us any feedback on membership, please email emma@aecb.net with a short paragraph. A photograph of you or your project can be included but is not essential.

Soapbox



AECB soapbox is a platform which members and guest contributors can use to put forward an idea, view, opinion, or a distinctive practice or product that they are itching to share with fellow AECB members.

Comment and counter-opinion is invited via a direct link to the AECB’s member forum [here](#).

There are two Soapboxes this month;



We Don't, and Can't, Know How Much it will Cost to Tackle Climate Change by David Roberts – read here <http://www.aecb.net/we-dont-and-cant-know-how-much-it-will-cost-to-tackle-climate-change/>



Time to Wake up to the Reality by Andrew Warren – read here <http://www.aecb.net/time-to-wake-up-to-the-reality-article-by-andrew-warren/>

Training

AECB CarbonLite Passivhaus Designer courses



With Passivhaus expertise more and more in demand, AECB CarbonLite courses offer the chance to gain the internationally recognised Certified Passivhaus Designer qualification. At the same time you will be benefiting from material uniquely tailored to UK building situations and showcasing UK examples. You can take the full Passivhaus Designer course, leading to the exam, or individual modules, such as 'Fundamentals of Passivhaus', to improve specific areas of knowledge.

Our trainers are highly experience UK experts who are actually designing/ building Passivhaus in UK. Amongst others, Bill Butcher, Eric Parks, Mark Siddall, Alan Clarke, Marine Sanchez, Sally Godber, Will South and Nick Grant. Not to mention Peter Warm and the rest of the WARM staff who have supported over 200 buildings in low energy design, and are Passivhaus certifiers. Their collective experience includes non-domestic buildings, large residential schemes and real Passivhaus construction experience.

Our courses have been running and continuously updated for over 5 years, with proven experience of delivering successful Passivhaus buildings. The 2-week programme is delivered using a mixture of lectures, group and individual learning, and includes site visits to innovative Passivhaus developments, a chance to socialise and to build a support network of Passivhaus professionals.

Find out more at the AECB website <http://www.aecb.net/carbonlite/carbonlite-programme/training-courses/>

Our next courses are coming up in Plymouth, 8th February and London, 9th May. Please email us at training@peterwarm.co.uk or call Ingrid on 01752 542546 to book a place.

	PLYMOUTH 2016	LONDON	2016
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Week 1

Fundamentals of Passivhaus	8th Feb	9th May
Science of Passivhaus	9-10th Feb	10th-11th May
Construction of Passivhaus	11th Feb	12th May
Additional modules (optional)	12th Feb	13 th May

Week 2

Building Services of Passivhaus	22nd-23rd Feb	23rd-24th May
PHPP	24th-25th Feb	25th-26th May
Revision	26th Feb	27th May
Exam	12th Mar	3rd Jun

Cost: full course including exam and manuals: £2,000 + VAT for AECB members and from £300 + VAT for individual modules. See <http://www.aecb.net/carbonlite/carbonlite-programme/training-courses/> for more details.

Terms and Conditions apply.

Online Therm course

How bad are your thermal bridges? Thermal bridges are one of the key ways that buildings lose much more heat than expected. Understanding them is critical to designing low energy buildings. Learn how to use the (free) software “THERM” with the experts from the AECB CarbonLite team. The new online Therm course allows people to learn at their own speed and in their own time.

Watch our 2 min promotional video here: www.carbonlitetraining.co.uk

To sample the course you can log in as a guest and use the set up instructions “Setting up THERM for Use in Thermal Bridge Calculations” that will guide you step by step to install Therm on your computer. The initial set up of Therm can be a bit tricky and as part of the course we offer assistance if you get stuck.

The on-line course cost is £200+VAT for one year’s access to the Moodle course and a nominal 2 hours support by email. Contact training@peterwarm.co.uk for more details.

CoRE Retrofit Coordinator Courses with AECB Discounts



Each Masterclass cost – £200 + vat

AECB Member discount 25% – £150 + vat

Early Bird Booking Discount 30% – £140 + vat (must be 4 weeks before date of course)

For a full list of dates and trainers, please click here - <http://www.aecb.net/retrofit-coordinator-courses-with-aecb-discounts/>

AECB Member News

'Solarsense' win 'UK Installation Company of the Year' at the National Solar Power Portal Awards

Solarsense have been awarded 'UK Installation Company of the Year' at the 2015 National Solar Power Portal Awards. Focusing on all areas of the solar industry, the purpose of the awards is to recognise and celebrate professionalism, quality, safety and innovation, with the aim of being a marker of the brightest and best that UK solar has to offer.

The prestigious awards were judged by a panel of industry experts who followed a rigorous assessment process and considered a range of key criteria in order to narrow down the hundreds of national nominations to five finalists, before naming Solarsense as the overall winner.

The judges considered company credentials, a range of recent and impressive Solar PV installations, general customer feedback and overall business performance. Solarsense impressed the panel with their cutting-edge projects and first class delivery and support. The company was also acknowledged for going above and beyond in terms of their business approach and educating the wider audience around sustainability and renewable energy.

Projects

Keynsham Council Building & Town Hall



The Keynsham Council Building & Town Hall installation for Bath and North East Somerset Council is one of the largest Local Authority owned single-site PV installations in the UK. The system will power the new Town Hall and Council Building, saving more than £27,500 in energy bills in the first year as well as generating over £25,000 from the Feed-in Tariff.

"Not only will this benefit the environment, it will also save the Council and local taxpayer's money which can be used to support essential frontline services. Councillor David Bellotti (LibDem, Lyncombe), the Council's Cabinet Member for Community Resources.

Renishaw



The installation for Renishaw consists of two parts, the 241.25kWp roof array and the additional 49.89kWp brise soleil installation creating a total system capable of producing an annual output of 202,154kWh and reducing CO2 emissions by 136 tonnes per year. The additional brise soleil not only allowed Renishaw to increase their overall annual output but also helps to demonstrate their commitment to sustainability and prove that solar can create great results aesthetically as well as financially and environmentally.

LOCAL GROUP NEWS

Full details of all Local Group events can be found at www.aecb.net/events/

Please email gill@aecb.net to request that your name be added to a Local Group mailing list.

AECB Group Visit to Ecofab Constructions Site in Cornwall



The Cornwall Group made the most of the autumn sunshine to visit 2 construction sites this month.

Barnaby Shepperd invited the group to his retrofit in Falmouth to see the graphite EPS external wall insulation being applied. There were plenty of awkward details that the installer (Home Green Home) had to overcome and it was also interesting to hear his views on the types of EWI system and how the current state of government funding for retrofit has affected his business. His preferred EWI system is supplied by JUB Systems UK Ltd. Chips and beer were enjoyed in the Waterfront afterwards.

At the end of September ECOFAB Ltd invited Cornwall AECB members to its Dental Precision project in St Agnes Cornwall. This 300sq.m new-build dental surgery uses Ecofab's pre-insulated panel and glulam frame system to achieve very low environmental impact and cost at around £1600/sq.m. The system upcycles straw and sheepswool as insulants, it's membrane free, has a suspended timber floor structure with small pad foundations and achieves excellent levels of airtightness and thermal performance.

Director Martin Penk cited Walter Segal as the early inspiration for the 10yr old system which still possesses the simplicity and buildability of the post and beam method. Alan Hughes then took the group through the design and production process which uses a customised Sketchup BIM model as a source for all factory production information and on-site construction documents. This was a really popular visit and a great opportunity to see low tech materials being be used with great accuracy and efficiency.

Further info on the Ecofab system at www.eco-fab.co.uk.



3 Counties Local Group News

A round up of events thanks to 3 Counties Local Group Co-ordinators Ruth Busbridge and Neill Lewis



The season kicked off in May with a visit to Deb Turnbull's house in Colwall. The project is a deep retrofit towards Enerphit standard. A work very much in progress, including a SIP extension with timber cladding, triple glazing, a loft conversion, hemp-lime, cork and expanded glass insulations. This was the best-attended event of the year so far with 35 members, which gave us the opportunity of gathering ideas for the future programme of visits.



Pontrilas

A balmy evening in July found Group members on the English/Welsh border at the Pontrilas Wetland, designed and constructed by Biologic Design Ltd. A 2 acre constructed wetland for rainwater runoff attenuation plus a new 5 acre constructed wetland to mitigate the loss of up to 14 acres of 'prime Herefordshire agricultural land' by covering it with a slab of concrete, more precisely additional storage space and car parking for Pontrilas Sawmills. The visit started with a walkabout, followed by a presentation on the scheme plus Wetland Ecosystem Treatment, including Biologic Design's current Whole Site Water Reticulation and Functional Landscape work. So absorbed were we that we didn't notice the pub staff cleaning up around us at 11.00pm, hoping we would leave soon!



Living Green

A month later we were at Living Green, Bourton-on-the-Water. This is a project open to the public, based on deep thinking about sustainability principles that has hoped to inspire the general public about the existing housing stock. A town-centre Cotswold stone house has been up-graded with a menu of ideas for retrofitting as well as some new-build in the hope that people would see something they could relate to their own home and garden. Features include an extension with a grass roof, underfloor heating, solar thermal and solar pv, rainwater harvesting, organically managed garden full of wildlife, climate change awareness measures, natural paints and wood treatments to minimise toxic load in the house, clever re-using of all kinds of things (with humour), water saving measures, sheep's wool insulation etc. etc. Following a sumptuous meal of organic, locally produced food, the Group fell into discussion on possible changes in direction to make the scheme financially viable and left Diana [the owner] with some ideas to mull over.



Applewood

In September, Group members were fortunate to make an un-scheduled visit to architect Sandy Hickey's earth sheltered house, Applewood, in the Cotswold village of Burford. A stepped design on four levels allows the house and garden to take full advantage of the south-facing slope for light and heat. The house is of concrete construction, covered with an insulating waterproofing 'umbrella' that is laid over and beyond the house creating a large dry underground inter-seasonal heat store around it. Including an indoor swimming pool heated by a ground source heat pump which also provides some of the domestic hot water and under floor heating. An MVHR unit serves both the house and the swimming pool.

The Group's visit planned for 15th October will take us to Cirencester to see the conversion of a theatre into a Youth Hostel, to Passivhaus "Enerphit" standard, designed by Potter & Holmes Architects. It is the first Youth Hostel in the country built to the Passive House Standard and the largest Passive House certified building of its type in Gloucestershire. To minimize condensation, the external walls are being insulated from the inside with a build up of wood fibre insulation products, which allow the building to "breathe" and thus reduce the possibility of the build up of water vapour. The existing roof coverings are retained, and rigid insulation boards are applied between and under the existing rafters to meet the required levels. The existing lower ground floor is being filled and the new ground floor slab will "float" on a thick layer of insulation board, which will be turned up at the edge of the perimeter of the slab. The internal layout is of a generous entrance hall with a top lit winding oak staircase lined with ash boarding with a common lounge and kitchen to one side at ground floor level, and to the other services, disabled persons adapted bedroom and other bedrooms with 30 bed spaces at first floor level.

To keep the Group warm and dry in November, there will be a social evening with a show-and- tell followed by a meal and drinks.

Hereford PedalHaus – a Great Success!



Following on from last years inaugural Hereford PedalHaus, the 2015 event, coinciding with hEnergy week, was another success. Approximately 15 professionals and green building enthusiasts (including the youngest ever PedalHauser at 3 years old and a 14 year old) turned up on their bikes to visit three projects local to Hereford.



The first project was a new build passivhaus in central Hereford. It was useful to see this super-insulated, Bauhaus-inspired house under construction. George Mikurcik from local architectural practice Architype explained the basic principles of the design, including thermal bridge free construction, orientation, shading and airtightness. The owners Claire and Huw happily answered questions on a whole range of subjects.



The second project was another private house in central Hereford. Completed approximately 7 years ago, it did not quite achieve passivhaus levels of insulation or airtightness, but still provided a very comfortable environment and low energy bills for its residents. Cake and hot drinks were very welcome after a cold morning start – thanks Giles!



Cycling the final leg of the tour took the participants across the new pedestrian bridge to Rotherwas, home of the new Hereford passivhaus archive. PedalHaus-ers first visited the archive a year ago, just before it was completed, so it was nice to re-visit the

facility now that it's been occupied for almost a year. The group was split in two and was given a tour by Liz and Elizabeth, both working at the facility. The public/ office part of the building was very comfortable and flooded with daylight. Nick Grant from Elemental Solution explained that the repository, an insulated concrete box for storage of documents and artifacts, has been monitored for humidity and temperature. Evidence of the monitoring showed that the building performs well within the strict PD:5454 temperature and humidity requirements, whilst using minimum amount of energy. This is great news for the long-term viability of the facility.

All in all this was an enjoyable day out, which will hopefully be repeated again.



News

Brighton's Iconic Earthship Appeal for New Lease of Life



Brighton's iconic "building of the future" is turning to people power to give it a new lease of life.

The internationally known Earthship has delighted and educated thousands of visitors for over nine years but now the much loved eco-building needs to revamp its energy and water systems.

The Earthship was designed and built by the Low Carbon Trust in 2006 as a model low carbon community centre for courses and school visits.

One of Brighton's most iconic buildings, the Earthship was the first of its kind to be built in England and is one of only two Earthships in the UK (the other is in Fife, Scotland). Stanmer Park, one of Brighton's most visited green spaces, is home to the award-winning building.

[The Low Carbon Trust](#) is launching a crowdfunding campaign, **Earthship Brighton: Plugged into Nature** to upgrade its vital energy and water systems.



Earthships are made using waste car tyres and other recycled materials. Not relying on mains water or energy from big companies, Earthships are self-contained living vessels. Earthships use natural systems to provide all their own utilities — solar energy for heat and power, and rain for water — they heat and cool themselves, and use plants, both inside and outside, to treat 'grey water'.

Working as a demonstration site the Earthship is not a home. It illustrates how — with smart design and careful planning — the buildings we live and occupy can have a low impact on the planet whilst being both beautiful and comfortable.

The Low Carbon Trust need to raise £20,000 to acquire a new ultraviolet water filtration system to purify rainwater for use inside the building, purchase new batteries to store electricity generated by the solar panels, and to build a straw bale unit to securely house the new batteries.



Earthship Bottle Wall by Jo D'Ambra

With these new systems in place the building will be able to host many more events and courses and open the building up to the local community to use it for their own projects and events whilst continuing to demonstrate cutting edge renewable technologies alongside elegant ecological building design.

The crowdfunding campaign launched on Tuesday 13th of October 2015 on Buzzbnk, the UK's first crowdfunding platform and **will last for 30 days only**.

Please click [here](#) for more information.

Government to cut tax relief for community green energy schemes

The government plans to cut tax reliefs for community energy schemes to build new renewable power capacity such as solar and wind in a move that will deal a further blow to the UK's embattled renewables sector, green campaigners have warned.

The Treasury is to remove tax reliefs of 30% or more for community energy schemes that reduced the risk for investors and encouraged private capital to help build new energy capacity.

The move, which emerged this week during the finance bill's third reading, had not been expected. It means that investors in community energy projects will not be able to benefit from the so-called Enterprise Investment Schemes, the Seed Enterprise Investment Scheme or the Social Investment Tax Relief, making such investments much less attractive. It comes on top of previous subsidy cuts and proposals by the government to cut subsidies for domestic solar installations - so called feed-in tariffs - by 87%.

Mongoose Energy, to be chaired next month by Ed Davey, the former energy secretary, with a confirmed pipeline of 100MW of renewable energy, has a £110m portfolio of projects to bring into community ownership such as ground-mounted solar rays in farms, roof-mounted solar panels at schools as well as a hydropower mill. Some of the projects are still under construction or in the process of being funded.

A survey earlier this month of 80 community energy groups with membership totalling 11,000 people, revealed 90% of groups said their developing projects were completely or partially at risk due to the proposed cuts. The industry has warned the cuts to subsidies would lead to the loss of 27,000 jobs, with 1,000 jobs already lost as solar firms go out of business. The new research suggests it would also threaten approximately £127m in investment.

The report found 38 [Community Energy England](#) (CEE) groups had received £7.4m in feed-in tariff subsidies since the scheme began in 2010, which had brought in £50m of private investment and generated £45m for local economies. Projects at risk from the cuts include community solar and hydro projects in Cumbria, which will lead to the county losing at least £750,000 in investment.

Full story at: <http://www.edie.net/news/6/Government-to-cut-tax-relief-for-community-green-energy-schemes/>

FiT cuts would 'cripple' 70% of solar industry, survey finds

A new survey launched on the back of the Government's controversial feed-in tariff (FIT) consultation has found that 70% of solar installers are concerned that the anticipated cuts to subsidies could 'cripple' their financial stability.

The survey, conducted by the NAPIT Trade Association, which represents tradespeople and installers within the building services sector, also found that almost three quarters of registered PV installers and electrical contractors (70%) would leave the solar PV sector if the FIT cuts go ahead, while 80% of respondents believe that the subsidy changes would reduce annual installation capacity by up to 80%.

The controversial plans to cut FIT preliminary accreditation were, according to the Government, aimed at providing a better control over spending and ensure bill payers get the best possible deal as we continue to move to a low-carbon economy.

The Renewable Energy Association (REA) has warned that the FIT review would kill deployment of many smaller industries such as community renewables and anaerobic digestion (AD). London Mayor Boris Johnson then added his voice, recommending a 'gentler' approach from Government.

Earlier this month, the Solar Trade Association (STA) released a scheme to 'save the solar industry', which would result in just £1 being added to annual utility bills. The plan has since received backing from over 30 MPs across a variety of parties.

Full story at: <http://www.edie.net/news/6/FIT-cuts-would-cripple-70--of-the-solar-PV-industry/>

Collaboration and innovation vital to solve 'forgotten problems' of water scarcity

Both the public and private sectors need to realise there is no 'silver bullet' to deal with the rising yet largely ignored water scarcity crisis, a panel of industry experts has concluded. Representatives of NGOs and large corporations including the World Water Council, the World Bank, General Mills, SAB Miller and EDF all voiced their concerns during the FT Water Summit in London on the 27th October.

One panel discussion highlighted the need for businesses to take the initiative and collaborate with one another to find solutions to the growing water scarcity problems, with panelists agreeing that the private sector "is no longer viewed as the evil" but as "part of the solution" to climate change.

As the world's second-largest brewer, SABMiller recently set itself the target of improving water efficiency to three litres of water per litre of beer and 1.8 litres of water per soft drink. The brewer's previous water achievements include a 25% reduction in water use against a 2008 baseline. Yet the company has realised that, while it can continue improving its own operations, an industry-wide collaboration is needed.

Another key discussion point at the Water Summit was the adverse yet unpredictable effects that climate change is beginning to have on the world's water supplies. The droughts in California, for example, have wreaked havoc for companies submerged in the agricultural sector, such as General Mills. The US food giant had previously pledged to reduce GHG emissions by 28% by 2025 and be 'fully sustainable' by 2050, but the California drought has seen the firm's supply costs rise significantly.

To mitigate the problem, General Mills is currently working on ways to improve water efficiency in these water-stressed areas. Plans are being drawn up to allow almond fields in California to be flooded so that the soil would work as storage for water as well as crop fields, while in Western China, General Mills has implemented storage systems so that farmers can spend more time on crops than travelling miles to collect water from local sources.

The event also pointed to the lack of awareness and urgency over the water crisis. In the latest draft text for the upcoming climate change talks in Paris, water isn't mentioned once.

Back in August, the World Resources Institute published data that suggested that by 2040 nearly a fifth of the world's countries - with the majority located in the Middle East - would be exposed to 'extreme water stress'. Another recent report, which mapped 500 large cities to determine how global urbanisation is affecting water supplies, concluded that London has emerged as one of the most water-stressed cities in the world.

Full story at: <http://www.edie.net/news/4/Collaboration-and-innovation-vital-to-solve-the-forgotten-problem-of-water-scarcity/>

World set to use more energy for cooling than heating

The world faces a looming and potentially calamitous "cold crunch", with demand for air conditioning and refrigeration growing so fast that it threatens to smash pledges and targets for global warming. Worldwide power consumption for air conditioning alone is forecast to surge 33-fold by 2100 as developing world incomes rise and urbanisation advances. Already, the US uses as much electricity to keep buildings cool as the whole of Africa uses on everything; China and India are fast catching up. By mid-century people will use more energy for cooling than heating.

And since cold is still overwhelmingly produced by burning fossil fuels, emission targets agreed at next month's international climate summit in Paris risk being blown away as governments and scientists struggle with a cruel climate-change irony: cooling makes the planet hotter. Artificial cold is a recent phenomenon: the first domestic air-conditioning unit appeared in 1914, the first home fridges in 1930. As late as 1965, only a third of UK homes had one.

But cold has quietly become a part of 21st-century life, certainly in advanced economies: people expect air conditioning to make homes, offices and cars comfortable (and many cities habitable); most food in the developed world is chilled or frozen; medicines, including vaccines, need refrigeration; industries such as steel, chemicals and plastics depend on cooling; deprived of cold, data centres – and the internet – would collapse in minutes. Demand for cold is rising exponentially. Driven by a warming planet and a rapidly expanding middle class in the developing economies – and warmer climes – of south and south-east Asia, air conditioning in particular is surging.

As Stan Cox notes in *Losing Our Cool*, it took 15 years for the number of air-conditioned homes in the US to grow from 64m to 100m – but 50m new domestic AC units were bought in China in 2010 alone. The proportion of Chinese homes with refrigerators also soared, from 7% in 1995 to 95% in 2007. But there is a problem. Almost all cold is still produced by what is known as vapour-compression refrigeration, 100-year-old technology that uses refrigerants – fluids, now usually hydrofluorocarbons or HFCs, that absorb and release heat – plus large amounts of electricity.

Air conditioning already accounts for about 40% of power use in Mumbai, India. More than half of Saudi Arabia's peak summer power consumption – generated by burning 1bn barrels of oil a year – also goes on air conditioning. Even in Britain, air conditioning and refrigeration account for almost 20% of total electricity use. Most projections suggest that figure will rise sharply. Over the next 15 years, according to the EU, the energy used to cool buildings across Europe is likely to increase by 72%, while the energy used for heating them will fall by 30%.

About 87% of US buildings are now air conditioned, and trends in the developing world suggest it is advancing fast down the same route. The Intergovernmental Panel on Climate Change estimates that demand for residential air conditioning alone will rise from 300 terawatt hours a year in 2000 to 4,000 in 2050 and 10,000 by 2100. New sources of demand are expanding fast, too: according to *Computer Weekly*, global data centre power consumption quadrupled from 2007 to 2013, and is set to nearly double again over the next 15 years.

Research by the Netherlands Environmental Assessment Agency predicts that by about 2060, the amount of energy used worldwide in cooling will overtake that used in heating. But air conditioning and refrigeration are doubly polluting: not only are they produced from climate-warming fossil fuels, but the HFCs and other refrigerants cooling systems use produce greenhouse gases that can be up to 4,000 times more potent than carbon dioxide.

If fossil fuel-generated energy still accounts for about 75% of all cooling emissions, these refrigerant leaks could cumulatively increase the warming effect of manmade CO₂ emissions by up to 25% by the middle of the century, according to the National Institute for Public Health and the Environment in the Netherlands. Altogether refrigerant leaks and energy use in cooling account for "around 10% of global CO₂ emissions. Already."

Some refrigeration units are far more harmful. According to a report by the energy consultancy E4tech, the small diesel-powered fridges on food trailers emit nearly 30 times more harmful particulate matter and six times more nitrogen oxides than the engine that powers the trucks. That matters, because the world needs an awful lot more refrigerated food trailers. With the world's population forecast to reach 9 billion by 2050, cold's role in food security will be key. According to the UN Food and Agriculture Organisation, global food demand is set to grow by 50% in that time.

But the FAO also reckons as much as a third of all food is lost or wasted between harvest and home, mostly in the developing world. Halving food waste would feed 800 million of the 1 billion chronically undernourished people in the world, research by the International Institute of Refrigeration suggests.

Full story at: <http://www.edie.net/news/6/World-set-to-use-more-energy-for-cooling-than-heating/>

Events

The CoRE Retrofit Summit - 19th November 2015

CoRE is hosting an exclusive event with BRE Chief Executive Peter Bonfield to support the review he is undertaking of the energy efficiency sector.

For the full conference programme, please click [here](#).

Andy Simmonds, CEO of AECB is one of the speakers.

[Tickets to this special conference are priced at £99 plus VAT per person](#), including lunch, refreshments and parking. Places are strictly limited and are available on a first-come, first-served basis.

To register your interest, please call **01782 792900** or email louise.williams@core-skills.com

Routes to Retrofit – Free Seminars in Manchester

Free householder seminars in procuring energy efficient retrofit works

Date: Sat 14th and 28th November 2015

Time: 9.30 – midday

Location: MadLab, 38 Edge Street, Manchester M4 1HN

This November, Carbon Co-op are running another set of the ever popular Routes to Retrofit seminars in Manchester.

These practical, in depth sessions are essential for householders planning energy efficient retrofit works. NB they always sell out so book soon!

To book go to: <https://routes-to-retrofit-2015.eventbrite.co.uk>

Led by industry experts, Marianne Heaslip and Bill Taylor, a detailed breakdown of course content can be found here:

<http://carbon.coop/news/2015-09-22/routes-retrofit-seminars-autumn-2015>

Bristol Green Capital Partnership Passivhaus Conference



“How can we build greener and better buildings? The case for Passivhaus development”

PLEASE NOTE UPDATED VENUE

Date: Tuesday 17th November 2015

Time: Conference 2-6pm, followed by a drinks reception and networking until 7pm

Location: Arup | 63 St Thomas Street, Bristol BS1 6JZ

‘How can we build greener and better buildings? The case for Passivhaus development’, is the title of the first Bristol Passivhaus Conference. The [Bristol Green Capital Partnership](#) invites you to join them and a panel of leading UK experts in designing, delivering and commissioning Passivhaus buildings for what promises to be a captivating afternoon. A limited number of tickets are available, for more information and to book your place, please click [here](#).

Passivhaus is the world’s leading fabric first approach to low energy building. Mainstream in many European countries, it is fast becoming one of the most exciting approaches in building design in the UK – ensuring that buildings are both exceptionally low energy in use and much healthier for occupants. In addition EU targets require the energy consumption of buildings to be nearly zero by 2020. This conference brings together many of the leading UK experts in designing, delivering and commissioning Passivhaus buildings. The event will include a series of UK case studies and the opportunity to hear from inspiring speakers such as Jonathan Hines of Architype and Emma Osmundsen of Exeter City Council, who are pioneering this approach in both the public and private sector, non-domestic and housing industries.

This is a not-for-profit event brought to you by volunteers from the [Bristol Green Capital Place Group](#).

Who should attend?: Built Environment Professionals in both private/public sectors – Architects, Planners, Sustainability Professionals, Surveyors, Construction Industry, Housing and Commercial Development Delivery sector.

Ticket cost: £10 per person plus booking fee (*including a glass of wine/light refreshments*)

Organiser: Bristol Green Capital Partnership Place Group

Contact e-mail address: piers.sadler@gmail.com

Decarbonising Buildings 8 Day Innovator Catalyst Birmingham 18th- 15th November

Organised by [Climate-KiC](#)

This is an interactive 8 day workshop looking at problems and barriers around decarbonising buildings with an emphasis on the participant's case studies and particular problems and linkage to transition thinking. Participants will bring their experiences from all over Europe and international speakers have been invited.

The first edition of this catalyst held last year was very successful.

Go to <http://www.innovationbham.com/2015/02/04/climate-kics-innovator-catalyst-a-reflection/>

For more details of the course see <http://www.climate-kic.org/programmes/innovator-catalyst/> or contact Dave Green (AECB member and lead coach on the catalyst), dave.green@climate-kic.org.

There is a fee of 2,000 Euros for the workshop but an early bird of 50% applies and discounts for SMEs.

The AECB have been a host on the Climate KIC Pioneers programme and Tim Martel who was a Pioneer in 2013 now works with Andy Simmonds.

Encraft Events in November and December

AECB Members, Encraft, are organising a number of events in November and December including the [Encraft Retrofit Seminar \(feat. Wilmcote House EnerPHit\)](#), [Encraft Building Performance Seminar](#) and [site visits to the Innovate-UK funded OWLS project](#) in Solihull."

Encraft Retrofit Seminar in Stoke on Trent on 17th November, for more information, click [here](#)

Encraft Building Performance Seminar in Birmingham on 3rd December, for more information, click [here](#) –

Grandy's Croft Retrofit Site Visit on 23rd and 24th November in Solihull, for more information, click [here](#) –

Another event that may be of interest is the Low Energy Know How event with Zero Carbon Hub on 13th November in Liverpool, for more information, click [here](#)

Vacancies

Design Engineer at Warm, Plymouth Office



Warm are looking for enthusiastic candidates to work with them in their low energy/passivhaus building consultancy.

For full details, [click here](#).

If you have any news, events or courses you would like to publicise in Network then please email details to network@aecb.net.