

# A Young Person's Guide to Ecological Studios

*A round-the-houses primer on the nuts and bolts of possible fusions between Ecodesign, Green Architectures and the sound studio. Featuring Real World's Box studios, self-build timber frame DIY, and Greenpeace's mobile solar powered recording studio*

## 1 Introduction: cousin paths

Maybe it is naive to dream of an alternative to conspicuous consumption, but if everything is to be remade sustainable and even vaguely eco-friendly, this includes the music business – a notorious agent of profligate energy use and eco complacency. And if so, any possible eco-music sphere will need to face a remaking of music activity which constitutes a revolution in the myriad processes of its livelihood. Given that the business of music is premised on consumption, the notion that much will need to change, rather than business as usual, seems self-evident.

In the space between the music world and the green world there are various divergent strands which represent the beginnings of a dialogue between the two worlds. A first point to get straight is related to the technologisation (indeed some would say industrialisation) of the practice of music. One consequence of this technologisation has been, of course, a considerable increase in energy required. Electricity is used for the running of studios, recording music for almost every Western household's listening pleasure. It extends further: the making of equipment for performance and concert, and the complex interlinked world servicing the music industry – from CD factories, printers of record sleeves – to the makers of recording equipment. Energy, although only one of a series of points the green world is concerned with, is the one primarily concentrated on here.

For the thorough-going and traditional wing of ecologists, nature conservationists and culturally hued greens, it is contemporary avant-art activity as well as the multitude of species of popular entertainment which engenders the problem, and which such green cultural conservatives hope to remedy. It is as if in their art-statements the media of modern Art won't exist in the eco-utopian futures they see somewhere over the

vista. Magazines such as Resurgence, and in the USA, Orion, whilst not directly engaging with the issue, seem to imply an aesthetic future without electric or electronically mediated entertainment.

A rejection of the industrialisation of music (as in this instance) is a kind of watertight approach: you don't engage the possible problems that ensue as consequences of that industrialisation. The traditional greens would argue, you could imagine, for the continuation of wooden music, be it classical, or folk in form. They would shy away from electrical amplification, and privilege live music over electronic reproduction through hi-fis and other mediums, (witness years gone by, the man who shouted 'Judas' at the Albert Hall when Bob Dylan went electric). Wooden music, perhaps with some very basic elaboration from electric amplification may be viewed as an 'ideal' future. The energy use would be completely sustainable, the complex of inter-linked supporting services non-existent. A radical conclusion from this scenario is a music world without a music business.

It is a scenario that most people today would find dauntingly unrealistic in Western cultures. The facts are that mainstream Western society, and the vast majority of ecological supporters, have accepted or bought into a culture which takes for granted a significant degree of technologisation of music. Eco-adherents are often as equally involved in the music sphere through the mediation of records, CDs, hi-fi, and the circus of concert going, as any other segment of the community. A most poignant rejoinder to 'nuclear power? no thanks' is: 'so, would you abandon your energy eating CD player?'. To disinvent this technology, which presently brings music to so many, so that a future world feels no need for such technology, appears to be an extremely tall order.

Feilden Deeg



The Control Room at Real World Studios, Box

It's controllable at least, that the 'energies' which generated the green movements of the last forty years are partially entwined with the waves of creative energy which have brought each generation its musical innovation and experimentation. Many have seen the musical ferment of the sixties and since, and the 'return of nature', as parallel, cousin paths – the one mutually supporting the other. 'What have they done to the earth?' Jim Morrison sang, again way back. Similarly there's a crossover between the music-buying public and the supporters of Greenpeace, Friends of the Earth, and the like. The longevity of the idea of the outdoor Festival, closer to and ideally in partial celebration of nature, is symbolised by the Glastonbury Festival, where the two fuse most visibly. Indeed for a while the one-time futurism of music and hi-fi technology was linked, in perception at least, to the faltering steps of the seventies Radical Technology movement, which fed and allied itself with the greens, as similar sister communities.

If there is an inextricable intertwining between the green community and the commercial consumption of hi-energy requirement musical infrastructure, the notion that the future will voluntarily resolve itself without electrically resourced music technology, in all the spheres, and all that that involves, seems very unlikely.

There are of course other possibilities, a 'partial greening' (in the green depth spectrum) of the music business. There's the sustainable business-as-usual route, which is the obvious techno-fix that the industry, if pushed into a corner about requirements to be greener, will most likely choose: the equivalent of green soap in supermarkets. In all likelihood an essentially industrial-urban technical ethos will be maintained.

Such probable dabbling moves would be graphic reflections of the extent to which the mainstream is going to take on board (or not) the more thorough-going approaches of a green outlook. Does green and sustainable consumption actually have a long term, mutually compatible future? If it does, is it an attractive future? Is the 'star' system about anything other than consumption? And if so, is the 'star' system which the music and all the entertainment businesses need for their efficient running ecologically ruinous? Is a hi-tech future possible, yet at the same time, by some definition, deep with greenness? These are a few questions which issue forth when considering the distance between the green and music business worlds, and the difficulties any form of meeting might generate.

Where will the 'energy', so to speak, and the will to effect a transformation, originate from? The music community could do much if it was interested enough, beyond fitting long lasting light bulbs in their accountants' offices. The music business could explore the

variety of green initiatives in industry to 'green' aspects of itself. Though, in a way this piece is focussed on the fringes of the music world – those in bands, small-time, indy or otherwise, the grass roots of the music scene – it's here the energies of do-it-ourselves are in many ways the most fertile. Do-it-ourselves energies could radically remake the fringes and could well feed into the mainstream of the business.

The rest of this piece thus assumes a version of recording, hi-fi and recorded music will be part of the future. It tries to set this in a 'wild' rather than domestic music industry where music can be made for the inherent value of music rather than the priorities of the market. It picks up and extends where the 'Indy' labels intuitively caught the 'small is beautiful' green ethos, though making of it something rather different to what the balanced Buddhist and Ecological economics envisage. In the Indy music world, there's a spectrum of practice from relatively thorough-going ecologically conscientious business, through to the mainstream hip capitalism as epitomised by Virgin.

## 2

So beyond the above intro, this piece explores a microexample of the music industry: the sustainability dimension of recording studios, and the possibilities of how they might be transformed. This occasional series will look at other aspects of Info-Eco futures. Here it's assumed music isn't only of a business based world 'canning' creativity, but could become an ecological web: part of a music ecology. Of course the pragmatics of the making and promotion of the musical moment is caught within a complex network of allied media and support services. Part of any green scenarios might be to simplify that, and maybe make it less dependent on those other factors. Take the close symbiotic relation with the electronic and magazine media for instance – how much is that actually needed if the source of information is provided in completely different ways, assuming a culture is not a culture of info-junkies?

Architecture isn't an obvious place to begin considering relations between these two spheres. Buildings, however, are a crucial element of the contemporary process of music making. Such making often happens inside numerous varieties of buildings. From one person learning an instrument, to vast ensembles, these invariably occur in the regulated conditions of interiors, with a roof or ceiling over the music, and a number of walls around it.

The growth of green architecture over the last thirty years has accompanied the gradual realisation that many ecologically suitable and practical features could be incorporated into buildings. These could be designed, and in new ways to particular aesthetic requirements whilst working with nature. The

principle aim of green architecture is energy conservation. Materials are fully sustainable both in the way they are made, (which has brought about the re-introduction of wood into much green building design) and how they will last, (that they are potentially recyclable). Another element to the sustainability theme is that the building can run, energywise, as much as possible on renewable energy using solar, photovoltaic, wind, water or a combination of these energy sources. Considerable advances have been made over the last two decades in practical and design terms integrating these into the design of buildings, and generally many conversions of buildings could occur relatively easily, completely rebalancing the housing energy budget.

The effects of design and building decisions can be divided into three main headings: the already mentioned energy, then resources, and finally, health.

With energy, buildings should ideally be designed using materials which need the least amount of energy to make and construct, and be built using low energy methods. Materials such as metals and plastics use considerably more energy to make than timber and stone, particularly if these latter natural materials are from local sources. Bricks need four times the energy to make compared to timber, and a steel beam nine times that of a wooden beam. The building of a brick house is said to use twelve times as much energy compared to a light weight self-built timber house. Once built, the building can be designed to use as little energy as possible for the energy requirements, principally, heating; lighting; ventilating, etc. Renewable energy would be the obvious ideal source of energy, and design could take advantage of buffer rooms and lobbies to protect inner rooms.

Resource issues are clearly important. Using renewable materials is usually the primary aim. The renewable dilemma around rainforest woods is common Western knowledge. Less well known are the issues around home grown temperate forest woods, e.g. half the softwood used in Britain derives from non-sustainable temperate sources. Buildings themselves can also be designed to be green resources themselves, recycling their own waste and water, for instance.

Health of buildings, the last of the three, is probably the field the public is least aware of. Although it clearly makes sense that materials are as non-polluting as possible, few look either at the toxic and other polluting effects that occur whilst building materials are themselves being produced. There are also health risks of any possible site for building: toxic wastes and high voltage electricity lines. Within any building there are the further issues of whether the building can 'breathe' thus helping to avoid 'sick building syndrome'; the health choices of either synthetic or natural 'gentle' materials, paints, stains and other finishes; and the effects of electromagnetic fields.

All these issues are clearly as relevant to the music world as for any other section of society which uses buildings, which leaves really very few these days, except maybe tipi communities. The attractions of green architectural practice being incorporated in music industry buildings is, if one is committed to a non-nuclear future, primarily that one is helping to solve the problem of lessening energy use and contributing to sustainability. It seems bizarre that the likes of U2 and Kraftwerk get involved in supporting Greenpeace campaigns against the Windscale Power plant, yet demonstrate no commitment to designing alternative music-making energy interfaces beyond Kraftwerk's Ralf and Florian's laudable obsession with cycling. It's also not difficult to imagine, maybe if you are of an apocalyptic turn of mind, alternative energy studios being off the grid and self-sufficient, or indeed part of a self-sufficient community.

It's also easy to imagine this design practice and technology being utilised across the board in buildings in which the making of music happens. Budgets, of course, are usually limited, so buildings, including studios, don't get the energy attentions which could make the difference. Although I have not researched examples conclusively (i.e., phoning every recording studio in the country, or further afield) I haven't come across any studio which is publicising itself as using, in part, a green remit. However, two high visibility examples provide the beginnings of a path into the greening of the recording studio, and by implication many other elements of the musicmaking process.

The first of these, the Box recording studios of Peter Gabriel's Real World/Womad complex in the Wiltshire village of Box, near Bath, is a considerable experiment in the fusion of elements of green design practice with the musical world of recording studios and rehearsal facilities and other electronic media studios. It does not, however, utilise renewable energy and it's a dream made possible by someone who has made considerable money, which the average group of people wouldn't have to develop a small or medium sized, financially affordable studio.

The other relatively high visibility project is Greenpeace's mobile Solar recording studio 'Cyrus'. Pulled around by a tractor running on vegetable-based fuel, 'Cyrus' has already been used to power the Glastonbury Festival, as well as a variety of others, but the drawback is that it can't be used in conventional recording situations (though don't ask me why).

These examples will be returned to, but to begin with, what of the basic scenario of greening the small time studio for people musicing around at home and in small or modest studios – the grassroots of the recording world where the do-it-yourself ethos is at its most dynamic?

## 3

One view expressed about green studios is that energy use concerning studios isn't really the problem. It isn't people who are the problem, rather, big companies like ICI who are seen as the principle guilty parties, polluting rivers, etc. By this line of thinking, studios consume negligible amounts of energy compared to electricity used for heating or moving things around. Here, average studios if 'average' studios exist, use about the same amount as a medium-sized house, the heaviest consumer of units being lights, whilst the real culprits are big factories which use, exponentially, vastly more quantities of power resources than the joe average studio household. Such a view appears completely to ignore the green architecture and design dimension, including development in the field. Green architecture is fashionable and many initiatives are unfolding. There is also the sustainable dimension of using sustainable and natural products, if possible, obtained from ecological materials outlets. Local materials can be used, which is orthodox greenthink, thus fitting into the regional economy and acting locally. As can the use of various green support materials such as ecologically-sound non-toxic paints and lightbulbs, etc. and refraining from using various unhelpful materials: limiting use of concrete and steel. If you're building from scratch you could build in wood, rather than brick, or if you live in a stone-producing area, stone. Next there is the apparently controversial area of linking the electricity supply to an alternative source of power. This could be solar panelling on roofs, although it may be a problem in maintaining constant temperatures for acoustic considerations. The roofs don't have to be those of studios in windy areas: wind power is completely feasible. And if a river (or rivulet) runs through it, or near to hand, mill or water power becomes a serious option. Photo-voltaic battery sources are another alternative energy option to consider. If needs be, and it probably would be, any of these options could be backed up by being connected to the main grid.

Another area, already mentioned, is that of electromagnetic radiation and fields. There could be systems to shut off the current to the walls, because they create residual electromagnetic radiation. These include fuse-box systems and detectors to work with the flows and fluxes of electricity. The air quality of the studio is important because often it's a sealed and enclosed space. Also using any non-toxic materials where possible: paints; adhesives; carpeting, and if wood is stained, as low toxicity as possible. If plywood is being used, press-wood makes sense ensuring it is formaldehyde free.

From a health point of view as well as the aesthetic angle, plenty of plants – particularly spider plants – are always good news. Spider plants improve air quality. Recording at night is beneficial because it keeps costs

down, and coming off the grid will reduce pollution with less people using it.

And again from an aesthetic point of view, and a creative one, making music in beautiful, maybe wild places, connected and close to nature, far from the world, deep within mountains or surrounded by old woodland or whatever you're into, is surely good for the creative juices. Rural studios, and the idea of the studio fitting into the rural economy could be a way to go. Urban studios, which are the majority it could be suggested, can be depressing, alienating experiences which bring little to the quality of recording.

That said, most people live in towns and many musicing people are urban creatures. Many build their own studios these days, within parts of their houses, or flats. If they're into the green ethos the above notes apply here as anywhere. Various methods could be taken from self-building for instance. 'Architype', a green South London architectural practice, suggested timber framing because it is a sustainable resource and it's user-friendly – it's much easier to handle, and doesn't need the expertise and experience of other materials. Self-building recording studios using timber seemed eminently sensible to the man at Architype, Tim Crosky, although he wasn't altogether certain it is a completely sound material, because timber building may not be acoustically viable. Crosky saw the use of solar power on the roof, as entirely possible, maybe photo-voltaic cells, so that the studio could be taken off the grid, which was the problem at Box (see below). Although he realised that at the level of the market Peter Gabriel is working in the 'thorough-going-ness' of the acoustic sound would be all, and the effects of the solar power could well tamper with the sound.

On a smaller scale, timber-framed self-build recording studios can make sense. Although the sound wouldn't be qualitatively as good, a compromise about the sound quality could be reached. There are also products such as wall insulation – made of recycled newspaper to deaden walls, which are available. And if timber framing proves a difficult material, another vernacular style to investigate could be Robert and Brenda Vale's Masonry house which recycles water in the basement, and uses photovoltaic cells on the roof as the energy source whilst providing an example of ecologically sustainable brickwork which works.

So for the small-scale music person without the rich man's resources of Peter Gabriel's Real World Complex – to begin with, bringing in Feilden Clegg as architects is a sign of money – do-it-yourself ecologically sustainable studios, or many of the steps towards them, are surely a possibility.

Slightly askance to these small-scale suggestions and serving as an example of what the midsized studio could investigate is the Sawmills studio sitting on a tributary of the river Fowey, in South Cornwall. It

appears to be unique, because you can't get to it except by foot or water, the dream of its founder, Tony Cox, who wanted to make music in a beautiful, spirited location. Most thought him nuts, and that it would never work, it did, however, and it's been a success. Bands and musicians like it because of its 'isolationist' character: you're separated off from the rest of the world, far from civilisation or at least the nearest Cornish A-road. It's also reputedly very beautiful and a good place to record because of that.

The studio is in a two-hundred-year-old mill, situated next to several other wooden buildings. Across the river is a half-wall with a sluice-gate which not so long ago, apparently, included an operative water wheel. So far it isn't seen as being economical for this to be re-initiated, as the energy generated by this tidal resource was quite small. Turbines were also too expensive and wouldn't pay for themselves. This seemed a pity, because such a studio building could demonstrate how a part (at least) of its energy needs could be met by natural power. This could be supplemented by the grid, or the mooted windmills, maybe, planned for the higher level land near by. This latter is another option, of course, – locate the studio in a neighbourhood which doesn't receive its energy from the grid, but a wind farm or some other natural source.

The example only goes a certain degree to meeting the idea of an ecological studio. However it broadens the landscape of the possible, and how to imagine the future evolution of the studio and studio design.

## 4

As does the aforementioned studios of Peter Gabriel's Box project. They are the furthest any established 'star' has committed themselves to the green dimension of recording practice. Indeed it is a perhaps – so far – unique project in the music world, particularly the popular music world. Feilden Clegg are big names in green architectural practices, one of the first to consider seriously the green design dimension. They have been involved in numerous ecologically orientated building projects for the last twenty years or longer. Their latest work is with the Eco-Theme Park presently underway near Doncaster for the millennium celebrations.

When I asked Peter Clegg of the practice to what extent the studios at Box were built to ecological specifications, and what were those specifications, Clegg replied that there wasn't an ecological brief as such, but that Gabriel and his colleagues and Feilden Clegg had a 'vague desire to do things properly'. Also, he mentions that to some extent it was the architectural practice leading the design, and at the same time it was Gabriel coming up with ideas which led the process.

Clegg lists four fields which he believes are crucial to the ecological elements at the Box studios. The first



three echo the fields described earlier: energy use, material issues, and the internal health of the building. Fourth, is the general feeling of the buildings, the 'ambience' as he calls it.

Energy, as already stated, is the obvious player in sustainable architecture. Whilst there were various attempts to cut down fossil fuel consumption, Clegg says he felt 'a bit guilty' that he didn't consider this more seriously. The two parties could have done a more detailed analysis of energy consumption, but didn't. Later in the conversation he talks of the enormous savings that can be made by low energy fluorescent lighting, a revolution that is reducing the energy running cost in domestic equipment. If the same technology could be applied to such studio equipment as the mixing desk, you could begin a comparable revolution. It could happen, says Clegg, 'if the desire was there'.

The materials issue comes down as quite ambivalent, and wouldn't please the minds of deeper and more purist greens. For the old mill building at Box, and the primary studio, the materials of the existing buildings or at least the stone/brick infill shell of the seventeenth through twentieth-century husk, was left as before. The new materials that were introduced were kept in as natural a state as possible. The floors for instance were second-hand oak wood. Steel, which Clegg included as a natural material as 'it didn't pretend to be anything else' was used for the wallways, (but which many in the Green design field wouldn't). In the new control room

building there was a concrete frame, steel again, and cork oak – as well as lead, with an oxidised coating, which actually, he said, prevents further degradation on the control rooms walls and roof.

The third section, the internal health of the buildings, centred on the pollutants in the air of the air conditioning. Also internal materials were usually as natural as possible, such as timber rather than formaldehyde panels – where, as he mentioned, the latter can have an adverse effect on some people.

In fact, Gabriel had said that he felt ill and nauseous in many of the recording studios he'd been in. And although he had no proof, Gabriel's intuition was that it was the air conditioning, and the actual materials of the duct work of the air conditioning (particularly the negative ions). So as part of the brief there was an attempt by Feilden Clegg to use timber and clay, hardly the conventional materials, for the air conditioning, generated by Gabriel's request. Vitrified clay ducts were therefore used in the studio, timber glulam beams in the workroom, and sheet metal ductwork only where it was concealed from view. In all, the studio, stone room, workroom and mixing room were air-conditioned, whilst natural ventilation was adopted for non-acoustically sensitive parts of the buildings. Indeed, it's acknowledged that air conditioning exacerbates problems of sick building syndrome.

The last issue that the brief dealt with was the ambience. Plastic was reduced as much as possible as it was divorced from the experience of the outside world, and as much natural light was brought into the building as possible without affecting the balance of the air conditioning. This is unusual, as most studios are buildings within buildings designed without any connection with natural light. Although difficult, because of the effect on air conditioning, north-facing windows were built in, looking out at the mill, and providing a real connection with the outside world. As part of this, re-integrating the water of the Bybrook tributary and the watermill into the site added significantly to the aesthetics of the design. It brought the various qualities associated with water to the whole experience of the place, if not the practical application of a working watermill.

There's also the small timber-framed writing room which has proved popular with musicians. It isn't air-conditioned though, nor sound sealed from the outside. There were other problems, namely that it was a few yards from the main London to Bristol railway line (not named Box for nothing) and when 125 trains were passing, heading up Box hill, both engines in use, the sound was deafening. Musicians had tried to get round this by playing in between the trains: Nigel Kennedy had timed his quartet to play movements lasting just short of the interval between trains.

I asked Clegg about the use of local materials, such as Cotswold stone, or whether woods particular to the



The Wooden Room at Box

immediate environs had been used. Regionalism wasn't really part of the equation, he said. It wasn't a matter of conservation of style either, and the conservation of materials. This wasn't part of the practice's remit. They were quite happy to import cheap timber from Canada: global material is 'stunningly' cheap, and local materials excessively expensive. Almost all the architectural world, including the vast majority of ecologically motivated architecture and design, wouldn't be anywhere without the modern technology upon which global transport is predicated, Clegg claimed. Tell this to the permaculturists, I thought, but sympathised with the pragmatics of the example Clegg provided, the ubiquitous silicon in double-glazing. Which is of course a key method of reducing building energy usage. Still, I felt disappointed this green practice didn't give the other hidden costs of the great global transport jamboree much attention, and consider the virtues of the region even a possibility. The Gabriel people had talked about and possibly began to study the feasibility of solar and turbine power – turbine particularly as much of the studio is in the river-sited mill. But it was too expensive to install £30,000 turbines which would need regular cleaning and maintenance, so the project was dropped. As it is, the electrical supply is generated from a 300KVA substation at the ground's edge, supplying a main distribution board which in turn supplies lighting, small power and mechanical services, the control panel as well as offices, accommodation and store areas. I continue to wonder if there isn't any feasible possibility for Box to inaugurate and integrate a small field of solar panels or photo-voltaic cells to help with the energy required. As it was, one of the studio manager's at Box who said the electricity bill there was 'phenomenally expensive'.

The acoustics element was maybe the primary engineering and design problem set there. Various proposals were advanced to control the airborne and structure-borne sound, both from and to the studio complex in relation to the outside: acoustically suspended floors and walls, triple glazing, and silencing of inlet and exhaust ducts. As a result the main studio's

floor and mixing room was designed to include a secondary floor independent of the main structure, comprised from a 200mm reinforced concrete slab sitting on rubber anti-vibration mountings. This doesn't sound, with concrete, particularly green, and it may well be that acoustics will be a real problem which green design would have to sort out were it to take up the idea of Eco-Studios.

After Box, Feilden Clegg did some work for Dave Stewart of the Eurythmics in the South of France, and one of Box's studio engineers did some consultancy, but essentially this kind of league was, if you happened to be sceptical, a rich man's luxury. After this, the early recession seems to have put paid to the music industry world taking further notice of the exemplar which had arisen in their midst alongside an Avon tributary, care of the sales of Gabriel's 'So'. Box, therefore, is in a category of its own, a signal of sorts along the way of how the world of recording could complement the surrounding natural world rather than exist completely alienated from it. What's needed is the proliferation of the materials so that it is accessible to the individual and small-scale studio builder – without a formidable international recording career behind them. If a few record companies or 'star' bands could literally build upon and extend the notion of Box, with a green dimension, the beginnings of the green recording studio network would be here to stay. However placing the Real World studios in a comparatively rural setting seems to be a radical gesture, because it demonstrates how hi-tech music and media worlds can thrive far from the city, and in so doing sets up new futures for the country.

## 5

Feilden Clegg also designed the new Greenpeace building in London, and it is Greenpeace's particular experiment in solar-powered recording studio generator 'Cyrus' that concludes this piece. In a way, this Solar powered generator is about another connected question.

In essence, Cyrus is a sizeable portable electric generator receiving its energy direct from the sun's beams. It carries 40-one-foot-by-four-foot solar panels, and a four-ton bank of batteries. The panels charge the batteries with nearly 2000 watts when exposed completely to the sun. They can store 100,000 watt hours of electricity, allowing it to run an average British house for several days, although another less immediately impressive measurement is the powering of a hundred electric bar fires for one hour each. It can be hardwired into the distribution panel of any accessible building, and Greenpeace claim it is suited to amplification, video and recording, and computers, producing a particularly pure electricity. The Cyrus trailer is pulled

by a diesel tractor converted to run on 'Biodiesel' a soy-bean derived product.

So far, Greenpeace have used it to promote themselves and to promote the idea of mobile alternative energy. Cyrus was launched around an album 'Alternative NRG' in 1992, with many a famous rock hand contributing. It's since gone on to help power 1995's Glastonbury Festival and a host of other Festivals and events around Europe, and also the States. Cyrus has demonstrated that such mobile generators are possible, and can be used in a variety of energy-need situations, not only the rock context. Orbital recorded a recent album using the technology being fed into the studio, and it doesn't take a particularly imaginative leap to think of a fleet of several dozen of these being built and used for all sorts of purposes, in this country alone, such as television outside broadcasts. The Gabriel people at Box didn't seem to have heard of it and sounded interested. In fact Greenpeace have developed a smaller version incorporated onto a 7 tonnes Ford lorry, which because it has updated panels is slightly more efficient. You could imagine, if they've the interest and commitment, how any number of versions of this could take off. The limits are financial, as ever, £350 a panel at present which presents obvious limits, but with mass usage it would drop dramatically. You do, of course, need a cloudless sky for the best results, so, in the main, it's a summer or a sunny thing. It doesn't solve the problems of buildings and their energy requirements but it does certainly add to the repertoire of possibilities the alternative energy world can draw from.

## 6

Green design, architecture and building fusing with the music world, eco-studios and the like is only one particular small step towards sustainability. What's been outlined here are a few possibilities on the cusp of making such a new hybrid. And although not completely there quite yet, with developments in technology I think this cusp will be reached. Although these developments may face challenging teething troubles (as someone wrote to me 'I don't know any musicians who would trust a wind-powered mixing-desk') it seems a next logical step for the forward looking in the two domains to take and make. Many in the music world are into the green perspective, and similarly a fair degree in the green world are into whatever musics they're into. The exemplars and possibilities are in place. Surely it's a reasonable expectation to envisage such a form of fusion occurring. It'll be interesting (and instructive) to see if, actually, such a track begins to happen in the next few years, small scale or otherwise. *OL*