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Abstract

Eco-minimalism is an emerging approach to building design, construction and retrofitting. The approach is exemplified by the work of architect Howard Liddell and sustainable water management consultant Nick Grant. The fundamental tenet of this approach is an opposition to the use of inappropriate, unnecessary and ostentatious eco-technology – or 'eco-bling' – where the main emphasis is on being seen to be green. The adoption of the principles of the eco-minimalist approach offers, they argue, a significant opportunity to improve sustainability in construction. This paper critically examines eco-minimalism and concludes that the incommensurability of its twin goals of minimising environmental impact and maximising human benefit cannot be resolved from the principles Liddell and Grant have articulated. The paper goes on to argue that the eco-minimalist approach requires the widespread cultivation on the part of those who design, construct and use buildings of a corresponding virtue of eco-minimalism. This argument is framed from within the normative ethical theory of virtue ethics, which places a strong emphasis on the role of practical wisdom and (we will argue) this is exactly what is required when challenging decisions regarding the incommensurable goals of minimising environmental impact and maximising human welfare are encountered.

Introduction

Eco-minimalism is an emerging approach to building design, construction and retrofitting championed by Howard Liddell and Nick Grant. This paper gives "philosophical expression" to the ideas in Liddell and Grant's work, in particular to the expressed goals of eco-minimalism. These are minimisation of environmental impact, and maximisation of

human wellbeing and economic benefit. Following an analysis of eco-minimalism we argue that if the design principles of eco-minimalism are to be successful, then changes in the behaviour and attitude of designers, builders and users of buildings are required that can best be described by a corresponding virtue of eco-minimalism. We proceed to articulate what this virtue might look like. We further argue that the three goals of eco-minimalism are incommensurable and that (in difficult cases) a judgment of practical wisdom is required in determining the outcome to be pursued. We take practical wisdom to be an essential element of virtue ethics and show how an articulation of practical wisdom as applied in eco-minimalism goes beyond Liddell and Grant's commitment to common sense and scientific thinking and provides a basis for judgment involving the three incommensurable goals of eco-minimalism.

Liddell's inspiration for eco-minimalism originated in a TV series he was asked to contribute to, where projects to 'green' a house were shown over a 13-week series. His initial assessment was that simply adding effective insulation would adequately achieve the required benefits. As the series went on more and more green technologies were added to the house (one suspects partly to make an interesting TV series). Liddell came to see this approach as being indicative of the unsupported assumptions made of green technologies. It is these unsupported assumptions of the effectiveness of much green technology that eco-minimalism is critical of. A year later tests showed that indeed the insulation would have done the job and that most of the other technology was effectively redundant. His insight from this experience was that eco-minimalism should be the starting point for sustainable building[1]. Put another way, eco-minimalism is a reaction to the temptation to buy eco-gadgets without critical assessment of their actual contribution to the realisation of green building goals.

This paper will argue that to succeed eco-minimalism requires a change in the attitudes and behaviours of both building designers and building users. Behaviours sympathetic to eco-

minimalism must be consistently displayed over time. In other words they must be(come) part of the agent's character. This change in character requires that the agents possess (or develop) the relevant virtues. What are the virtues the agents must posses? We will suggest that the corresponding virtue is the virtue of eco-minimalism; the virtue of designing, building, using and decommissioning constructions (in the broadest sense of the term) in a way that accords with the three essential elements of the eco-minimalist approach. While it may be possible to articulate this virtue in terms of a cluster of existing environmental virtues, for the purposes of this paper the points we wish to draw out can be most simply articulated by taking eco-minimalism to be a single (hitherto unspecified) virtue and avoiding this discussion. In identifying the design principles of eco-minimalism Liddell and Grant have implicitly (and importantly) identified the need for a new virtue. To succeed their design principle needs long-term changes in attitude and behaviour. In virtue terms these must be settled dispositions.

There are a number of further questions implicit in Liddell and Grant's work that require analysis that we explore. The most important of these is the question of how economic, environmental and wellbeing goals are to be balanced in making practical decisions. Secondly, there is the question concerning the role(s) of science and common sense in the decision process. We will argue that virtue ethics has an important contribution to make in addressing these questions that cannot be resolved by a simple formulaic approach. Practical wisdom is often cited as the response to these situations, however little description of what it actually consists of is given. By exploring what practical wisdom consists of when applied to eco-minimalism we are able to develop a more detailed account than is generally given.

Eco-minimalism: The Design Approach

The three essential elements of eco-minimalism are (i) opposition to 'inappropriate and unnecessary technology'[2]; (ii) commitment to the goals of economic and environmental performance; and (iii) commitment to 'common sense' underpinned by 'good quality scientific thinking'[3]. We will present these three elements in turn.

Firstly, eco-minimalism opposes 'inappropriate and unnecessary technology'[4] to solve the problems of energy consumption, wastewater and materials choice. This technology may be either 'eco-clichéd' gimmicks[5], such as roof-mounted micro wind turbines, photovoltaic arrays, heat pumps and turf roofs, or 'old products and technologies…[rhetorically] re-sprayed green'[6], such as condensing boilers. Such 'off-the-peg, one-size-fits-all'[7] technologies are 'thoughtlessly applied' irrespective of context[8], becoming merely ineffective 'green' badges' or 'eco-bling'[9]. Photovoltaic arrays have an unacceptably long payback time; roof-mounted wind turbines result in negligible generation; turf roofs require substantially more construction materials to support the weight; condensing boilers often cease to condense long before the end of their lives; heat pumps are ineffective in most UK contexts; reed beds, and grey water recycling and rain filtration systems are costly and require high levels of maintenance. Rather, Liddell and Grant champion such solutions as insulation; the reduction of 'phantom' electrical loads; double glazing; structural air tightness; locating new buildings so as to maximise solar gain and minimise heat loss; designs with reduced surface area to volume ratio; and choosing renewable tariffs from energy generation companies who enjoy economies of scale and incur the maintenance burden. The reason for this opposition to the temptation to buy eco-gadgets without critical assessment of their actual contribution to the realisation of green building goals can be further clarified by considering the second element of eco-minimalism, namely, its two goals.

Grant characterises eco-minimalism as a 'means to the end'[10]. Liddell and Grant present, in fact, two ends (or goals) that eco-minimalism may serve. One end is economic; the 'eco-clichéd' approach tends to be expensive, both in terms of the initial installation (e.g. photovoltaic arrays) and in terms of on-going maintenance (e.g. reed bed wastewater treatment), whereas the eco-minimalist approach tends to be less expensive (e.g. installing insulation) and, eventually, money-saving. The other goal of eco-minimalism is environmental, that is, 'improving the environmental performance of buildings' with respect to climate change in particular and 'all aspects of environmental impact' in general[11]. For the purposes of assessing environmental performance with respect to climate change, the appropriate measure is a building's energy consumption and, thereby, its direct and indirect carbon emissions[12]. For other aspects of environmental performance (say, toxicity or water efficiency), other measures would be appropriate.

While we will focus on the two explicitly stated goals of eco-minimalism as detailed above, there are allusions in Liddell and Grant's work to a third end that it may serve: the wellbeing of the inhabitants or users of the buildings that are created according to eco-minimalist principles. The fact that this appears to be only implicit may be because concern for the users of the buildings is so ingrained in their thinking as to be obvious.

The third main element of eco-minimalism as presented by Liddell and Grant is its commitment to 'common sense'[13], 'rigor'[14], 'clear, efficient and realistic analysis'[15], 'sound science'[16], 'good quality scientific thinking' [17]and 'a good understanding of scientific principles'[18]. The application of these standards to eco-clichéd technologies such as heat pumps, it is argued, would result in their rejection in favour of eco-minimalist alternatives based on the criteria of economic and environmental performance. The relation of these standards appears to be the following: first a rigorous analysis of the problem (e.g. the design of a house or the retrofitting of an existing building) must be undertaken, followed by the application of common sense underpinned and guided by knowledge and understanding

of scientific principles to the problem. As Grant[19] notes, 'intuition is a great way to get the initial idea, but an unreliable way to judge its merit.' Crucially, the solution must not be pre-empted by either client or consultant[20]), as this is likely to lead to the inappropriate selection of 'eco-bling'. There are two sources of the tendency on the part of clients to pre-empt the solution. Firstly, 'the populace is still insufficiently knowledgeable'[21] regarding the environmental performance of the currently offered 'bolt-on, eco-bling technology'[22]. Secondly, Liddell implies that clients find the high visibility nature of much of this technology (e.g. photovoltaic arrays and roof mounted micro wind turbines) attractive[23]. The tendency on the part of consultants and designers to favour the 'dubious and expensive technologies' that eco-minimalism questions can be traced to regulations such as the Code for Sustainable Homes – 'a standard for key elements of design and construction which affect the sustainability of a new home' (*Code for Sustainable Homes: A Step-change In Sustainable Home Building Practice*, Department for Communities and Local Government, 2006) – that tie grants and subsidies to the incorporation of such technologies in new developments[24].

It is important to be clear on what the minimalism in eco-minimalism should be taken to mean. There are three candidates:

1. Minimalism as a style;
2. Environmental minimalism;
3. Technological minimalism;

Liddell explicitly dismisses the possibility that eco-minimalism is a style:

"The term 'eco-minimalism' as I see it, incorporates a combination of simple common sense with a sharp, uncluttered design. …. Eco-minimalism is purely and simply an approach, a philosophy if you like, it is not a style."[25]

The second possibility of an environmental minimalism – that is, for the eco-minimalist approach to be guided by the goal of minimising environmental impact – is also consistent with the nature of the designs the approach results in. Further, even if the minimalism of eco-minimalism were a style, according to Grant the degree to which it exemplified this style is not a criteria of its success: 'an eco-minimalist design must be judged on how successfully it minimises environmental impacts and maximises human benefits – not by how minimal it is.'[26] The third possibility, that the minimalism of eco-minimalism is a technological minimalism, is consistent with the tendency of eco-minimalist solutions to the problems of energy consumption, wastewater and materials choice to be technologically minimal. Technological minimalism should be read as implying an avoidance of over engineered and unnecessarily complex solutions, rather than avoidance of using technology per se. Although Liddell and Grant are somewhat ambiguous on the subject, we will assume an understanding of eco-minimalism that is inclusive of the second and third interpretations of minimalism i.e. environmental and technological minimalism.

It should be noted that although eco-minimalism as initially presented here is an approach to building design, construction and retrofitting, as Grant points out[27], its scope need not be limited to buildings or products in general; one could also apply eco-minimalist principles to a broad range of sustainability concerns. For example the principles of eco-minimalism could be applied to decisions concerning technology design, manufacturing, transport and agriculture.[28]

Eco-minimalism: The Virtue

Having outlined Liddell and Grant's presentation of eco-minimalism, we now wish to argue that, important as it undoubtedly is to have the principles of the eco-minimalist approach articulated, several human factors will inhibit the adoption and adherence to eco-minimalist principles. Firstly, eco-minimalist designs, though not aiming at a particular style *for the*

sake of that style, may nonetheless be unattractive to many architects with different aesthetic tastes. Secondly, it may be that some architects are lured – for the sake of prestige or recognition – by the ostentatious display of eco-credentials in their designs that eco-minimalism is opposed to. Thirdly, such is the commercial environment of the construction industry that companies will always want to cut costs where they can, which may often mean abandoning the eco-minimalist elements of a design. This will also apply at the decommissioning and demolition phase of a building's life. Fourthly, individual clients of architects who commission buildings may also, like the architects themselves, be desirous of their house or their new headquarters to be seen to be green and, in so desiring, eschew the discreteness of eco-minimalist proposals. Lastly, individual users of eco-minimalist buildings may fail to fully utilise or to employ correctly the measures put in place and so fail to realise the environmental and economic benefits. For the above reasons, even with a well-developed set of eco-minimalist principles available, there are institutional, cultural, attitudinal and behavioural barriers to their adoption.

We suggest that there is a pattern of values, attitudes and behaviours on the part of architects and designers, those in the construction industry, clients and building users which must be cultivated if eco-minimalist principles are to be adopted and adhered to. Architects and designers, as well as clients, must be prepared to adhere to these principles even if their creations and commissions are less frequently recognised as meeting the environmental and economic standards they aspire to. Building firms and individual builders must adhere to the specifications of eco-minimalist designs in recognition of their benefits. Building users must take the trouble to learn how to maintain and use their dwelling or workplace such that its economic and environmental capabilities are fully realised. Though expressed in different ways depending on the role inhabited by the agent, the commonalities between these patterns of value, attitude and behaviour are clear; it is a disposition to be concerned about minimising environmental impact and maximising human benefit in this particular sphere of

human activity. This disposition, or character trait, can usefully be understood as a virtue, and we think this virtue is best, and not coincidentally, called 'eco-minimalism'.

Henceforth, it will be important to keep in mind the distinction between eco-minimalism as design principle and eco-minimalism as virtue. To maintain this clarity we have introduced the terms EM(D) and EM(V) to mean eco-minimalism as design approach and eco-minimalism as virtue respectively.

There are two main approaches to identifying character traits as virtues: (i) the exemplar approach, by which the virtuous character traits are identified by examination of lives and characters of individuals we take to be virtuous; and (ii) the virtue theory approach, by which the virtues are identified by assessing traits against a general theory of what makes a character trait a virtue[29]. We will be pursuing a version of the exemplar approach, which will proceed by way of an examination of the practices of architects, builders and building users.

Virtue ethicists often see virtue as being something that we need to practice, or gain from experience, or learn by watching an exemplar. On this view practice can be taken a starting point for the identification of a virtue. How would we know someone who had the virtue of eco-minimalism? It is clear from Liddell and Grant's articulation of EM(D) that it is strongly rooted in what they take to be good architectural and building practice (a minority of the total realisation of these practices); we will therefore consider the activities from design and construction of a building[30] through use and (eventually) decommissioning. Liddell and Grant focus on the initial stages of design and build. While they do also mention clients – mainly in order to criticise them for, at best, assuming that eco-bling is economically and environmentally effective, and at worst for desiring eco-bling even in the face of the knowledge of its economic and environmental ineffectiveness - they do not consider that clients may also approach their own decisions eco-minimally. Our view is that the virtue of eco-minimalism is required at all stages. While the design and construction

may establish the limits within which the building can perform, the activities of the users of the building can significantly impact on the realisation of the potential of the building to achieve the goals of EM(D)[31]. End of life activities have a further capacity to impact these goals.

The virtue of eco-minimalism will manifest in different ways for the architect (designer), builder, purchaser/client, users and decommissioner since the roles require different dispositions on the part of the agent; in Sandler's terms, the *bases* of responsiveness for the virtue will be the same, namely, the concern the minimise environmental impact and maximise human benefit, but the *forms* of responsiveness – the types of reactions and activities that will be called for – will differ from role to role[32]. Taking these roles in turn:

1. The architect (designer) would: take the environmental impact of the building they were designing into consideration – this would include the full lifecycle of the building i.e. construction, use and decommissioning. They would balance the environmental impact against: a) construction and operational costs; and b) human wellbeing and welfare. They would display practical wisdom (and common sense) in reaching an optimal design. Note that by talking of 'an optimal solution' we are recognising that more than one outcome would still result in having shown the virtue of eco-minimalism. The term 'optimal' is used to avoid saying it has to be a minimum (in environmental impact or cost) or maximum (in terms of human wellbeing) – in many instances a compromise between these goals is likely to be needed. Taking human wellbeing into account means considering a wide range of variables that contribute to the building being 'good to use'. The architect would have awareness of a wide range of materials, fittings and construction techniques. They would avoid using (eco-) technology for its own sake.

2. The builder would: execute the design with care and awareness of the principles of eco-minimalism. There is still quite a lot of latitude in terms of a) materials used, b) the care with which construction is executed (for example failing to fit doors and windows well will result in drafts and increased energy usage) and c) details such as where power switches etc. go (which can affect whether devices are left switched on). Also there is likely to be some modification to design when snags are found. Last (but not least) construction typically generates quite a lot of waste and the eco-minimalist builder would seek to a) minimise this and b) dispose of the waste that does arise in a sustainable way. Reducing specifications to save construction cost at the expense of greater environmental impact and operational cost would count as a vice. There is obviously a lot of skill (*techne*) to building as well as virtue, and the builder would need to display excellence in this.

3. The client (or purchaser) would: a) give due importance to lifetime operating costs and environmental impact if commissioning the building from scratch; or b) consider these factors (possibly after carrying out changes to the building) if selecting from existing stock. They would give consideration to the wellbeing of the users of the building (which might not be themselves). They would not be overly driven by construction cost (rather than lifetime impacts), or attracted to the conspicuous consumption of environmental technologies that Liddell terms eco-bling (rather than actual environmental performance).

4. The user would: live in the building in a way that balanced their wellbeing, and the wellbeing of others, with consideration for economic and environmental impact (for commercial buildings the term operate might be preferred to 'live in'). Typically this would mean using the building in the way it was designed to be used, and seeking opportunities to exceed the performance of the design specification. Note that during the life of the building changes in both use and structure can be anticipated.

Depending on the scale of these changes there may be a need to return to the design or building stages of the lifecycle. There are many ways in which the user can influence the environmental impact associated with use of the building and costs. For example choosing the times when heating or air conditioning are on, choosing the target temperature, and choosing to operate equipment at times when utility tariffs are lower.

5. The de-commissioner would: balance the goals of environmental impact, cost and human wellbeing in planning and executing the demolition. This would typically mean attempting to minimise waste going to landfill by recycling and reusing material where possible; disposing of hazardous materials in a way that did not harm humans or nature and, where they exist, following the architect's decommissioning instructions.

From the consideration of how the virtue of eco-minimalism would manifest for the inhabitants of these different roles, we propose the following definition of EM(V): 'the disposition to use the minimum resource we need to live within the community consistent with personal wellbeing and the wellbeing of others'. We understand the virtue of eco-minimalism to be an environmental, as well as a personal and interpersonal, virtue. It is an environmental virtue because it is environmentally productive (it promotes and maintains environmental goods and values) and environmentally justified (it is justified by environmental considerations) (Sandler 2008: 42-3).

The Goals of Eco-minimalism

The goals of EM(D) can be stated as: minimisation of environmental impact and maximisation of human benefit, where maximisation of human benefit includes both

economic and well-being goals. These goals are incommensurable[33], as there is no guarantee that a solution that optimises one will optimise the others and there is no obvious way to make a trade-off between the goals. Even within one of these goals it is not clear that different scenarios can be effectively compared: for example is a solution that utilises a scare raw material but uses minimal energy preferable to one that uses only commonly available resource but contributes more to global warming? This section explores the issue as present in the conception of Liddell and Grant in depth and assesses the extent to which it is resolvable from within the guidelines they offer. We will suggest that making decisions of this nature involving incommensurable values requires a judgement of practical wisdom. Whether practical wisdom comes as part of a particular virtue, or is a separate capability is much debated in virtue theory. We will return to the nature and role of practical wisdom in EM(V) below and show how this supports the view that possession of EM(V) by the agents responsible for EM(D) is necessary if EM(D) is to succeed.

Grant states that:

"[A]n eco-minimalist design must be judged on how successfully it minimises environmental impacts and maximises human benefits – not by how minimal it is."[34]

From the above quote we can say that eco-minimalism as an approach to building design, construction and retrofitting is guided by two goals: (i) the minimisation of environmental impact, and (ii) the maximisation of human benefit. However, we cannot reasonably expect these two goals to always coincide upon the same, or even similar, designs and materials. That is, it is reasonable to expect these two goals to sometimes conflict.

Consider a case in which, during the course of designing a building according to eco-minimalist principles, a choice is called for between two materials. The first material has a high environmental impact and a low contribution to human benefit. The second material

has a low environmental impact and a high contribution to human benefit. Given the two goals of eco-minimalism, we can see how they would guide a choice between these two materials; the two goals of eco-minimalism would, of course, guide the designer toward the second material, which minimises environmental impact and maximises human benefit.

However, consider a choice between two materials with the following profiles: the first material has a low environmental impact and a middling contribution to human benefit, where the second material has a high environmental impact and a high contribution to human benefit. We might ask what, if any, principles or resources EM(D) contains for decision-making regarding such conflicts between its two goals, i.e. scenarios in which reference to the goals does not provide guidance.

If the two goals were commensurable then decision-making might prove straightforward. However, we do not believe they are. The values of environmental health and human benefit, though entwined in many ways, are not comparable in such a way that we can rank or measure outcomes in a manner amenable to calculation for the purposes of decision-making.

Moreover, inter-incommensurability between the different goals is not the only problem for practical decision-making. There is also intra-incommensurability; even within the individual goals there will be cases where it is difficult to compare one potential benefit with another. For example a reduction in the lifetime carbon footprint of a building may come at the expense of significant consumption of a scarce resource. Minimising environmental impact or maximising human welfare are complex goals in their own right.

In the discussion of the goals above we have assumed that they are independent. This is not necessarily the case. Living in a flourishing environment can contribute to human wellbeing, reduced environmental impact can have significant economic benefits and

economic decisions may be linked to a preference for wellbeing over cost. This interlinking does not make the goals commensurable. In the extreme it would be possible to argue that: "any deterioration of natural environment necessarily results in a deterioration of human well-being … even if we don't know about it", however for the purposes of this paper we have (following Liddell and Grant) taken the goals to be distinct.

Science, Common Sense and Practical Wisdom

Architects, builders and building users who follow EM(D) principles will inevitably be faced with faced with difficult decisions since it adopts two incommensurable goals; the maximisation of human benefit and minimisation of environmental impact. What resources does EM(D) turn to for aid decision-making in these difficult cases? Liddell and Grant propose the following two resources: science and common sense. In this section we distinguish two roles that common sense and scientific analysis might play in decision making; (i) assessment of a building's economic and environmental performance and (ii) judgement between competing designs and proposals. We suggest that scientific analysis is apt for playing the former of these roles and common sense the latter. However, we continue by arguing that way in which Liddell and Grant understand common sense can be philosophically enriched by understanding it as practical wisdom – a concept with a long history in the virtue ethics tradition. We explain this concept and consider what the possession of practical wisdom might look like in the context of building design, retrofitting and decommissioning, and building use.

The first role that science and common sense might play in making difficult decisions is that of assessing a building's economic and environmental performance. It is clear that Liddell and Grant consider the proper assessment of a building's economic and environmental performance – and the potential impact of different design decisions upon that performance – to be crucial. It is, after all, the thoughtlessness, or, worse, the wilful disregard, with which

the merits of eco-minimalist solutions are overlooked that is at the heart of their critique of the eco-bling trend. With regard to the building design-stage, proper assessment is required when determining the relative merits of different design options with respect to the building's lifetime economic and environmental performance. With regard to the retrofitting of existing buildings, there are three stages where assessment is required. Firstly, there is the analysis of the current economic and environmental performance of the building. Secondly, (assuming there is room for improvement in that performance) there is the choice of methods and materials to implement the improvement in the performance. Thirdly, there is the monitoring of the performance after the changes have been made.

Common sense and scientific analysis are two candidates for the manner in which the economic and environmental performance of designs and existing buildings may be assessed. In some contexts common sense will be a legitimate way to arrive at a performance assessment. For example, presented with two buildings (or designs of buildings) similar in all respects except that one is well insulated and the other poorly insulated, common sense will tell us that the environmental and economic performance of the former will exceed that of the latter. However, in most cases more rigorous, scientific assessment will be necessary. With regard to the assessment of the relative merits of proposals to improve the environmental and economic performance of a design or an existing building, again, in some simple cases with only a few variables common sense may be adequate. However, in the majority of cases where many factors are involved or the proposals appear similar in the expected delivery of benefits, scientific analysis will be necessary. We might therefore ask whether common sense as a way of arriving at a performance assessment is made redundant in the articulation of the principles of EM(D). For example, if the results of scientific analysis and common sense conflict, which should be deferred to? We suggest that, in all but the clearest cases, scientific analysis rather than common sense should be employed. Firstly, such common sense that there is in this field seems to consist in an imperfect knowledge of the results of scientific analysis, such that

scientific analysis is more apt for the performance assessment role within EM(D). Secondly, if we accept that common sense is more fallible than scientific analysis such that it should always concede this role, then it is difficult to see why it should ever fulfil that role. Grant, at least, appears to cede this point. While on the one hand lauding common sense – if only clients and designers applied common sense thinking to the problem of improving a building's economic and environmental performance then eco-clichéd technology would be rejected and eco-minimalist alternatives adopted – Grant also says 'intuition is a great way to get the initial idea, but an unreliable way to judge its merit' (Grant 2008: 33). Now there could be debate about whether Grant's 'intuition' is the same as the 'common sense' used in the other articles, but let us take it for the moment that it is. Grant's statement seems to imply that while common sense/intuition has some initial role to play, only scientific analysis can be relied upon to determine the facts pertaining to the available options. If scientific analysis is more apt to result in the most reliable assessment of economic and environmental performance, then a statement of a robust and credible EM(D) requires no reference to common sense in the performance assessment role in difficult decision-making contexts.

The second role that science and common sense might play in difficult decision making contexts is within the *process* of decision-making itself and the judgment between competing designs and proposals. While science is more apt for the first role – that of determining the performance standards – we argue that common sense (suitably understood) is more apt for the second. Liddell and Grant use common sense when they are looking at decisions that involve more than one of the goals of EM(D). When applying the principles of EM(D) there are times when the agent cannot just read off 'the most eco-minimal solution' from the facts when there are trade-offs between the different goals of EM(D) that require some sort of judgment call. As we have seen these goals are incommensurable – no amount of facts will allow a formulaic decision. For example does a slight improvement in environmental performance justify a significant increase in cost or a minor reduction in

human wellbeing? Even within the bounds of one of the goals decisions cannot necessarily just be 'read-off'. For example the cost of good insulation and effective draft exclusion will in all probability exceed the cost of a less effective construction. For the purchaser they represent an initial cost saving, even though there is a significant longer term cost penalty. Common sense says that its worth paying the extra upfront, but large companies often struggle with just these decisions as the capital cost of construction is held in a different budget from operational revenue costs – and these budgets are typically managed by different departments.

It is possible to understand common sense as similar to scientific knowledge in being a body of propositional knowledge. For example, someone might say 'It's just common sense *that* reducing the amount of heat escaping from a building is going to be cheaper/better for the environment than trying to generate energy to heat a draughty one.' That propositional knowledge can then be considered to be 'common sense', let us say, if it is widely shared, that is, if a reasonably educated and informed person could be expected to be in possession of it. Scientific knowledge may also be considered as a body of propositional knowledge, but whereas common sense understood in this way would be a limited body of general propositions of the relative merits of reducing the amount of energy a building requires to be inhabitable and functional by, say, insulation and double glazing versus on-site generation of the energy required, scientific knowledge would be a comprehensive body of propositions. But we suggest that there is an alternative way of understanding the nature of common sense in this context that is not only philosophically richer but also better captures the role we think that Liddell and Grant assign it. This understanding is common sense as practical wisdom.

We will continue by exploring the contribution of practical wisdom to EM(V) and suggest that this strongly supports our thesis that EM(D) needs EM(V) to succeed. Practical wisdom forms an essential element of virtue ethics[35]. Any consideration of specific virtues also

assumes that practical wisdom is required: it is not expected the particular virtue will show us an immediate answer to all situations, rather the agent must think for themselves. Experience and training (e.g. teaching children rules such as "don't lie" etc.) mean that many situations can be dealt with 'on automatic', however the harder the cases are the less the answer comes from rules and the more practical wisdom is required. Application of practical wisdom *does not* necessarily lead everyone to the same answer; situations that require a judgement of practical wisdom typically have more than one virtuous outcome. The kinds of situations described in the preceding paragraph in which EM(D) requires a difficult judgement that balances the different goals are just those that virtue ethics characterises as requiring a judgement of practical wisdom. In these cases there is likely to be more than one 'eco-minimal' solution to the situation.

For a person committed to eco-minimalism the decision should a) minimise the environmental impact of the proposed action; b) provide value for money (we have deliberately not said 'be the cheapest option); and, c) maximise human wellbeing / welfare. For instance, features that make a commercial building more 'user friendly' may require additional resources that have both additional initial financial cost and increased environmental impact. Making the building more 'user friendly' clearly contributes to the wellbeing of the occupiers of the building; it may also improve their productivity (an unquantifiable financial benefit) and make them more likely to (for example) recycle their waste.

Many accounts of virtue ethics give prominence to practical wisdom, yet the description given of how it works is often brief and inadequate. What follows is based on various accounts of what practical wisdom entails. The implications for EM(V) are described with each. Note that first and second points below need reconciliation; this reflects the lack of agreement in the literature as to what practical wisdom entails[36]. Practical wisdom on the various accounts requires one or more of the following:

i. Impartial reasoning: the capacity to act in a reasoned and impartial way with regard to the things which are good or bad in the field of moral concern. This accords well with Liddell and Grant's appeal to scientific analysis to establish the facts, and to base decisions on these facts. We take 'act in a reasoned and impartial way' to mean that the implications for the different goals of EM(D) are established and considered in the decision making process, and that a rational justification for the eventual decision is available upon request once it has been made. It is important that the weighting given to achieving the different goals can be logically supported, and that none of the goals is preferenced by the personal bias of those making the decision.[37]

ii. Intuitive judgement. The 'mean' of virtue is 'seen' in the here and now, without reference to rules. Judgement does not reason about virtue, but intuits it. So practical wisdom is more than a general faculty to be able to reason or apply rules. While we may afterwards show how the judgement can be supported by reason, it is not reason that makes the judgement; there is more to practical wisdom than following rules, or criteria. Possessing practical wisdom means having the ability to perceive what is important in a situation and make a judgement of how to act on it. Grant says that intuition is a great starting place but needs to be supported by scientific facts; we suggest that (in difficult cases) a further intuitive judgement is required once the facts have been established – consideration of incommensurable scientific and economic facts does not automatically give us the answer. As it pertains to EM(V) practical wisdom requires the agent to perceive what is important to a particular building design and intuitively be aware of (say) the impact of changes to the design without needing to refer to detailed scientific analysis. For example the architect will intuitively understand whether the builders proposed changes make the building less 'user friendly' or more expensive to operate as well understanding why they make the design easier or cheaper to construct.

iii. Balancing the demands of conflicting interests: what should we do after considering conflicting interests, especially if the options may involve harm? On this account practical wisdom requires that the agent identifies the interests of all who will be affected by a proposed decision and understand the demands that these place on the decision making process. This articulation of practical wisdom is clearly pertinent to the question of how to balance the different goals of EM(D) when they are in conflict; and as we have seen, the potential conflict between these goals is insufficiently emphasised in Liddell and Grant's account. Expressed in this way practical wisdom asks us to identify the interests of all who are, or will, be users of the building being designed or occupied; but further it asks us to consider those who are impacted by the activities that go into constructing and using the building. Humans are (at least in principle) able to express their demands, however any expression of the interests of nature and the environment requires human mediation.

iv. Experience: practical wisdom is typically seen as being gained through experience, teaching and the formation of appropriate habits. Aristotle states that experience is best understood by observing the persons we credit with practical wisdom[38]. For example Liddell and Grant can be taken as exemplars of eco-minimalism and as such role models for others. Building design is a well-established practice with an established body of knowledge and experience; a subset of this practice is in delivery of design in an eco-minimal way, and is this that must be drawn on. Liddell is active in promoting and teaching the eco-minimal approach. Changing the habits of building users is important if buildings are to operate eco-minimally; the availability of training and information, together with the visibility of exemplary role models, can bring about significant change in the level of eco-minimal practical wisdom, enabling agents to act with insight and judgment rather than simply follow rules. It is

important that the development of experience and habit is accompanied by the development of the disposition to behave in an eco-minimal way.

v. Knowledge: appropriate knowledge is a pre-requisite of practical wisdom, but in itself it does not constitute practical wisdom. There is a body of professional knowledge that architects, designers and builders must acquire if they are to achieve the goals of EM(D). One of Liddell and Grant's concerns is that lack of this knowledge leads to the pursuit of eco-bling. However, possession of (theoretical) knowledge of building design and material is only a starting point. Without the other aspects of practical wisdom described here stupid decisions can be made even in the presence of sufficient knowledge; it is possible to be very knowledgeable without being wise. This is an important consideration given Liddell and Grant's emphasis on science. Simply knowing all the facts about environmental performance does not guarantee good decisions unless the knowledge is accompanied by intuition, judgement and experience - what Liddell and Grant might term common sense.

vi. Creativity: creativity is often key to solving the sorts of difficult multi-faceted situations where practical wisdom is required. Swanton states: "… the problem of linking creativity with virtue relies on the tried and tested glue of phronesis or practical wisdom. Creative *virtue*, it would seem, is wise creativity, and wise creativity is creativity that is also responsible, temperate, cooperative and so forth."[39] Creativity makes an important contribution to EM(V). Eco-minimalism can require a high degree of creativity to come up with novel solutions that both deliver reduced environmental impact and improved well-being. There are lots of solutions that do one or the other – the trick is in finding solutions that do both. What is required is *wise* creativity that creates practical alternatives. This can be contrasted with

creativity for its own sake that (for example) introduces a solution that is more complex than is necessary.

vii. Particularity: practical wisdom is applied in particular circumstances - *this* decision about *this* building – it is not concerned with the development of general rules and principles (though these may result from reflection on particular cases).

Aristotle held that there are two kinds of virtues: virtues of character (which we take EM(V) to be) and intellectual virtues. Considering practical wisdom (as applied to eco-minimalism) to be an intellectual virtue places our account of eco-minimalism strongly within the tradition of (green) eudaimonism. There are important insights to bring out concerning eco-minimalism and the virtue of practical wisdom. Aristotle distinguishes between two intellectual virtues: *sophia* and *phronesis*. Sophia is concerned with establishing universal truths, while phronesis is concerned with judgment in particular situations. One way to read Liddell and Grant is that, implicitly, they recognise the need for these two intellectual virtues. Their emphasis on science can be taken as including *sophia*; common sense can be seen as (grasping at) *phronesis*. We say 'grasping at' in recognition of the fact that their use of the term common sense lacks the depth that the articulation of practical wisdom given here contains.

Judgements about eco-minimalist design are focussed on something along the lines of the fitness of means to ends. The Aristotelian virtue of practical wisdom (*phronesis*) is concerned with 'that which is towards' an end or goal. This notion is richer than that of means – that which is towards a goal can be a means, but it can also be one of the constituents of an end, or again it can be matter of the manner in which an end is achieved.[40] So, at the level of this central intellectual virtue, there seems to be compatibility between the

account we have given of practical wisdom as it applies to eco-minimalism and Aristotle's account of *phronesis*. Our description of practical wisdom as realised in the practice of eco-minimalism is concerned precisely with applying principles in the real world in new situations that require a focus on the particulars of the situation. Our sense of this may be reinforced to some extent by the way that Aristotle takes care to distinguish practical wisdom from mere cleverness and the fact that this seems to chime with Liddell's use of Schumacher's aphorism: 'man is too clever to be able to survive without wisdom'.[41]

Conclusion

In our introduction we stated that we wanted to give 'philosophical expression' to EM(D) as Liddell and Grant's usage of the term eco-minimalism contains a number of potentially problematic concerns. We have argued that these concerns can be addressed; our analysis of EM(D) shows that in order for eco-minimalism to achieve the outcomes Liddell and Grant aspire to consideration must be given not only to the practicalities of the design approach, but also (and we believe crucially) to the behaviours of the agents involved. We have argued that the required behaviours constitute a new virtue; the virtue of eco-minimalism. Liddell and Grant's work is thus important not only in it's own right within the field of building design, but also making clear the need for this new virtue. Further, establishing a strong link to the virtue ethics approach helps address one of the major concerns in Liddell and Grant's work; how to decide on the best possible course of action when the goals of minimising environmental damage and maximising human well-being are in conflict. We have further argued that practical wisdom, a key element of the virtue ethics approach, gives a rich basis for recognising and addressing this concern and overcoming the incommensurability of the different goals of EM(D).

Notes

[1] Howard Liddell 'Eco-minimalism - less is more' In: Hall (ed.) *The Green building bible.* (Llandysul: Green Building Press, 2008)

[2] Nick Grant, 'Eco-minimalism revisited', Green Building Magazine, 32-35. (2008), p33

[3] Howard Liddell and Nick Grant, 'Eco-minimalism: getting the priorities right', Building For a Future, 10-13. (2002), p10

[4] Nick Grant Op. Cit., p33

[5] Howard Liddell and Nick Grant Op. Cit., p10

[6] Ibid., p10, 13

[7] Ibid., p11

[8] Nick Grant Op. Cit., p32

[9] Howard Liddell Op. Cit.

[10] Nick Grant Op. Cit., p33

[11] Ibid., p32

[12] Ibid., p32

[13] Howard Liddell Op. Cit. , Howard Liddell and Nick Grant Op. Cit., pp10-13

[14] Howard Liddell and Nick Grant Op. Cit., p12

[15] Ibid., p12

[16] Howard Liddell 'Eco-minimalism (the antidote to ecotowns) ' At: CABE Urban Design Summer School, Bristol (2009).

[17] Howard Liddell and Nick Grant Op. Cit., p10

[18] Ibid., p12

[19] Nick Grant Op. Cit., p33

[20] Howard Liddell and Nick Grant Op. Cit., p10

[21] Ibid., p13

[22] Howard Liddell Op. Cit.

[23] Ibid.

[24] Nick Grant Op. Cit., p34

[25] Howard Liddell Op. Cit., p44

[26] Nick Grant Op. Cit., p32

[27] Ibid., p32

[28] For example the principles of Lean manufacturing share a significant amount of common ground with eco-minimalism and some supply chain consultancies have adapted Lean principles to include sustainability considerations.

[29] Ronald Sandler, *Character and Environment: A Virtue-Oriented Approach to Environmental Ethics* (New York: Columbia University Press, 2007), pp9-13

[30] During the discussion that follows the term 'building' is used to mean any building – the discussion is not limited to the design and use of housing.

[31] Liddell and Grant don't (often) reference building users – this is an omission we think is really important. However good the design is the subsequent stages of build and use have huge impact. Design sets 'parameters of the possible'; construction (can) reset these, and use determines what is actually achieved within the parameters of the construction.

[32] Ronald Sandler Op. Cit., pp40-1

[33] Values are incommensurable if they cannot be measured using a common standard.

[34] Nick Grant Op. Cit., p32

[35] Practical wisdom is sometimes also termed practical reason, moral wisdom, judgement, or phronesis.

[36] Further discussion of what practical wisdom entails can be found in Thiele, and Schwartz and Sharpe Roger;Sharpe Schwartz, Kenneth. *Practical Wisdom*, (City, Riverhead.2010), Leslie Paul Thiele. *The Heart of Judgement: Practical Wisdom, Neuroscience, and Narrative*, (City, Cambridge University Press.2006). Both these accounts include a review of the literature that supports inclusion of the various aspects of practical wisdom given here. The accounts given by Aristotle Aristotle, *Nicomachean Ethics* (Oxford: Oxford University Press., 1998) , who emphasises *phronesis*, and Kant Immanuel Kant, *Critique of Practical Reason* 1788) who emphasises impartial reason, feature in both surveys.

[37] It could be argued that this is in principle what a business case used to justify expenditure sets out to achieve; however in practice business cases typically preference a) the financial aspects of the decision and b) the benefits to the organisation writing the case. None the less business cases do aim to provide a logical basis for an investment decision precisely to ensure that the investment is not driven by personal bias.

[38] Aristotle Op. Cit., p142

[39] Christine Swanton, *Virtue Ethics: A Pluralistic View* Clarendon Press, 2005), p171

[40] Richard Sorabji 'Aristotle on the Role of Intellect in Virtue' In: Rorty (ed.) *Essays on Aristotle's Ethics*. (Berkeley and Los Angeles: University of California Press, 1980)

[41] Howard Liddell, *Ecominimalism: The Antidote to Eco-bling* (London: RIBA Publishing, 2008), p1