INVESTIGATING THE APPLICATION

OF

BUILDING REGULATIONS AT LAMMAS

Leeds Metropolitan University

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By

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ABSTRACT

Ian McIver: Investigating the Application of Building Regulations at Lammas
(Under the direction of Dr. Bev West)

This dissertation focuses on the application of Building Regulations to low impact construction with particular emphasis on the relevance of the Approved Documents to assist in the assessment of unconventional building techniques against schedule 1 of the Building Act 1984.

Following an initial investigation into a litigious dispute between Pembrokeshire County Council's Building Control department and the residents of a Lammas, a low impact development in Wales, concern was raised that the Approved Documents were being misapplied to low impact construction. This concern was echoed within relevant government documentation analysed as part of the literature review.

The aim of the dissertation is to ascertain to what extent these claims and concerns are valid in order to establish if it was the approach to applying Building Regulations that is the cause of this dispute or whether a more fundamental incompatibility between the Building Regulations and low impact development exists.

A desktop study was undertaken to provide background information and context to the dispute. The primary data was gathered through fieldwork and this formed the core of the research data. By means of a qualitative exploratory approach, interviews were conducted with the Lammas residents and the Building Control department. Using open ended questions, information was gathered and analysed on an intellectual rather than statistical basis. The approach taken by both parties was analysed for a causal relation that may have led to the dispute.

The evidence showed that the Building Control department lacked experience of low impact construction and initially placed too much emphasis on the Approved Documents. The evidence showed that, although potentially exacerbated by the council's approach, significant resistance already existed amongst some Lammas residents to the application of Building Regulations. The research demonstrated that the low impact buildings under assessment were from outset, largely compliant with schedule 1 of the Building Regulations.

It was concluded that the dispute predominantly arose not only due to a lack of appropriate knowledge and experience amongst Lammas residents and the council but also due to the fundamentally different approaches adopted by these parties. The research showed that it was the approach both parties took to the application of the Building Regulations which gave rise to the conflict rather than any fundamental schism between low impact construction techniques and the Building Regulations.

It is recommended:

- That a guidance document is produced aimed at both the developers and the building regulations inspectors regarding Building Regulations and low impact development to aid understanding and cooperation between the parties.
- That funding is sought for the creation of a technical document, comparable to the Approved Documents but aimed specifically at low impact construction techniques and their compliance with the Building Regulations.
- That consideration is given to Building Regulations during the initial planning stage of a new One Planet Development proposal including whether obligations to fulfil statutory requirements are embedded into the legal framework of the development.

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CONTENTS

Chapter 1 – Research Proposal

This chapter will define the issue to be investigated and identify the research aims. It will provide a concise review of the relevant literature and outline the research methodology.

Problem Specification

In the UK, the majority of developments that could be termed “low impact” exist outside the planning system and are rarely subject to Building Regulations (UWE/LUC, 2002). The Welsh Assembly Government conducted research into the environmental benefits of low impact development and have since implemented One Planet Development, a planning policy designed to facilitate low impact development in Wales. The rest of the UK has no similar policy. One feature of low impact development is the construction of low impact and sustainable buildings for both residential and small scale commercial/agricultural purposes. These buildings and their compliance with the Building Regulations is the focus of this study.

The Welsh Assembly Government’s research and legislation describes the nature of low impact buildings both in terms of structure and services. They illustrate how they can vary significantly from conventional buildings, for example, the installation of an external composting toilet or the use of ungraded timber in structural elements. These buildings must, nevertheless, comply with the Building Regulations (Welsh Assembly Government, 2010). In practice this requires the developer to satisfy the local authority (or approved inspector) that all relevant aspects of construction, provision of services and related items comply with Schedule 1 of the Building Act 1984. Typically, on conventional builds, this is achieved by using accepted methods outlined in the Approved Documents (Tricker & Alford, 2012). The Welsh Government’s research drew attention to the limitations of the Approved Documents and considered them an inappropriate tool to assess low impact development (UWE/LUC, 2002). Initial findings, detailed later in this proposal, indicate this concern may have been borne out in practice.

Lammas, in Pembrokeshire south Wales, is a low impact development that received planning permission under a formative planning policy that preceded and inspired One Planet

Development. The residential buildings at Lammas and their journey to attain Building Regulations approval will form the core of this study.

Pembrokeshire County Council took three Lammas residents to court for non compliance with Building Regulations. A primary concern for residents, raised by Dale and Saville (2011) and supported by anecdotal evidence gathered by Ian McIver, is their claim that the local authority would only assess against the Approved Documents and were either unable, or unwilling, to assess compliance against Schedule 1. Prior to the research commencing, Pembrokeshire County Council had not been given the opportunity to respond to these assertions and it is was not, therefore, possible to judge their validity or accuracy. Pembrokeshire County Council did release a statement recognising that a back to "first principles" approach may be required when contemplating unorthodox building methods (Pembrokeshire County Council, 2011, quoted in Dale & Saville, 2011, p. 8). The experience of Lammas residents, Pembrokeshire County Council's statement and litigious action, together with concerns raised by the Welsh Government, point to a potential problem that requires further investigation.

The Building Act 1984 allows for prescribed classes of buildings to be exempted from Building Regulations, however, this would require legislative amendments and is beyond the scope of this study. The Building Act 1984 also enables developers to apply for a relaxation or dispensation of the Building Regulations. This would typically be argued on the basis that the regulations were unreasonable in relation to the type of work being undertaken. The local authority has the power to relax or dispense a Building Regulation or seek advice from the Secretary of State in complex circumstances (Tricker & Alford, 2012). Based on available information it is understood that no such relaxation has ever been approved in the case of low impact development.

Demonstrating compliance using the Approved Documents may raise concerns specific to low impact development. For instance, purchasing an approved composting toilet or taking timber to be graded may help gain approval but it could be an inappropriate solution for a low impact development. Common sense dictates that the embodied energy present in a manufactured composting toilet is likely to be higher than a more basic 'home made' system built with locally sourced timber and recycled materials. The transportation of goods to site or materials off site for testing creates tension with the low impact development approach of "a light touch" (LUC/PDT, 2012, p.2). To have unconventional methods approved the developer must satisfy the inspector of their compliance by providing sufficient evidence. This can be time consuming and require both financial and technical resources that developer may not possess.

Historically many low impact dwellings have been 'self built' by individuals (the developer) with limited financial resources often assisted by a voluntary labour force with diverse skill levels (Fairlie, 1996). Under One Planet Development, planning restrictions necessitate close monitoring of the resident's carbon footprint, the successful establishment of a land based livelihood together with a high degree of self-sufficiency in relation to basic needs including food production (Welsh Assembly Government, 2010). These planning requirements impose deliberate lifestyle and financial constraints. The relatively low income expectations of a land based livelihood links directly to the need for low infrastructure costs. Limited resources and a doctrine of sustainability may, therefore, restrict the low impact developer's options. The solutions outlined in the previous paragraph and their associated costs may place the fundamental viability of low impact development into question.

If the One Planet Development policy is to flourish, a compromise needs to be found between the needs of low impact development and the need to provide buildings that reach adequate standards in terms of health, safety and performance.

The aim of this study is to document the experiences of Lammas residents and Pembrokeshire County Council respectively in their efforts to build low impact dwellings and find solutions to Building Regulations compliance. This information is gathered and analysed with the intention of establishing the nature of the conflict and any tension between low impact development (policies and principles) and the application of the Building Regulations. This process is undertaken in order to clarify obstacles, propose solutions and identify topics for further investigation and research.

Literature Review

The Welsh Government has implemented a policy to approve low impact development in the open countryside. Low impact development, both through historical tradition and legislative constraints and guidance, requires the use of unorthodox building techniques. These values and policy constraints appear to have led to conflict with the local authority building inspectors and the application of Building Regulations. Some low impact buildings have been granted Building Regulations approval indicating that some compromises have been found. No long term solutions have been reached that would benefit future constructions but one local authority has acknowledged a return to "first principles" is necessary when assessing this type of building.

It is reasonable to assume that more low impact developments will be permitted under the One Planet Development policy and, therefore, more local authorities in Wales will need to address this issue. Further research to fully understand the problems and potential solutions could ease the burden on both parties and allow the realisation of the One Planet Development vision.

In 1996 Simon Fairlie published, **Low Impact Development, Planning and People in a Sustainable Countryside**. This book outlined the history behind low impact development and its expansion in the UK below the radar of the planning system. Developments of this kind can draw significant public support. An unapproved low impact dwelling in Wales has attracted over 90,000 supporting signatures to petition Pembrokeshire County Council via change.org (n.d) to grant retrospective planning permission. Fairlie (1996, p.xiii) states "a low impact development is one that, through its low negative environmental impact, either enhances or does not significantly diminish environmental quality"; this definition has been used throughout the Welsh Government's pursuit of low impact development policies.

The Countryside Council for Wales and the Welsh Assembly Government commissioned a report to consider whether the planning system should be changed. The report concluded that "national and local planning policies [should] be developed for low impact development in rural Wales" (UWE/LUC, 2002, p.vii). The proposed framework for this is based upon what Fairlie (1996) would describe as a 'social contract'; effectively a bargain struck with the right to live in open countryside being exchanged for environmental benefits. In practice this means that planning consent is subject to a prescriptive set of conditions to ensure the 'environmental benefits' are realised. Fairlie (p.xi) observes that the "mechanisms to strike such a bargain are...already written into...the...planning system".

Following on from the UWE/LUC (2002) report further research into low impact development was commissioned by Pembrokeshire Coast National Park Authority. This set out to determine the practicalities of how low impact development might be incorporated into the planning system (Baker Associates, 2004). In 2006, following on from the Baker report, Pembrokeshire County Council approved **Supplementary Planning Guidance, Low Impact Development, Making a positive Contribution,** generally referred to as Policy 52, which detailed specific criteria for the approval of low impact development in rural locations "as an exception to normal planning policy" (Pembrokeshire County Council, 2006, p.5).

In 2010 the Welsh Assembly Government revised **Technical Advice Note 6, Planning for Sustainable Rural Communities**. Section 4.15 outlines a new low impact development planning policy known as One Planet Development. This essentially encapsulates, modifies and implements Policy 52 on a national basis. One Planet Development is now enshrined in **Planning Policy Wales, Edition 6** (Welsh Assembly Government, 2014). Technical Advice Note 6 is now supplemented by, **Practice Guidance, One Planet Development, Technical Advice Note 6, Planning for Sustainable Rural Communities** (LUC/PDT, 2012) which details how compliance with the One Planet Development policy can be achieved.

There is no single way to construct low impact development buildings but there are guiding principles referred to throughout both the research and policy provision leading up to and including the establishment of the One Planet Development policy. The Baker Associates report (2004) includes within its definition of low impact development "the use of building materials which are reused and/or locally derived".

Planning Policy Wales requires One Planet Development buildings to "be zero carbon in both construction and use" (Welsh Government, 2014, p135). One Planet Development practise guidance recognises the requirement for "residents...to live quite differently" from that of mainstream society. This 'difference' affects the built environment in terms of construction techniques, materials used and the provision of services. Residents are required to provide all their energy needs and to assimilate all bio-degradable waste (LUC/PDT, 2012, p.2).

The Welsh Government acknowledges that different building techniques are, not only incorporated into the principles of low impact development, but are essential to achieve low impact living and in turn meet the policy ambitions. Guidance provides examples of methods and technologies they would expect to be used. These include, "lack of certification of construction materials, use of external toilets, use of unprocessed timber and earthen walls" (LUC/PDT, 2012, p.45). It is for this reason that the Welsh Government has concluded that One Planet Development is not suitable for assessment under the code for sustainable homes; noting that the methods used to create a low carbon buildings (under One Planet Development) may differ from those employed in a "more conventional development" and often utilise "low tech" principles (LUC/PDT, 2012, p.41).

One Planet Development recognises the inadequacies of the buildings regulations guidance documents and their potential lack of suitability to judge compliance with the Building

Regulations for low impact development. It asserts that compliance must still be 'addressed' but offers no practical advice on how this may be achieved (LUC/PDT, 2012, p.43, s. 3.94). This acknowledgement is not new and was highlighted by the first report into low impact development ten years previously which noted the requirement for "improved Building Regulations" in regard to low impact development (UWE/LUC, 2002, p.14).

Access to affordable housing in Wales has been acknowledged as a serious social problem by a number of reports, including the **Inquiry into the provision of affordable housing in Wales** (2012, National Assembly for Wales). Low impact development should offer some individuals the opportunity to provide housing for themselves "when they are excluded by cost and availability from doing so by conventional means" (Baker Associates, 2004, p.6). UWE/LUC (2002, p.12) states that one of the principles of low impact development is to "provide[s] affordable access to land and/or housing to people in need". While the Baker report accepts that low impact development is not a solution to the affordable housing requirements for Wales (due to scale of the problem and limited scope of low impact development to address it) they do nevertheless state that low impact development should provide affordable housing via reduced land costs and "low cost building techniques" (Baker Associates, 2004, p.6).

Paul Wimbush, (2012, p.5) who spearheaded the Lammas project, one of the first low impact development in Wales to gain approval, and acted as a key advisor to the government in the formulation of the One Planet Development policy, maintains that for any low impact development project to be viable it is essential to "establish households at a fraction of the normal market values".

The Building Regulations are the statutory instruments that detail the base level of performance for the construction and design of buildings. Schedule 1 of Part 5 of the Building Act 1984 provides general terms for the administration of the Building Regulations, approved construction methods and materials. All non exempted buildings must comply with Schedule 1. The Building Regulations are supported by Approved Documents which provide guidance on how to achieve compliance. The Approved Documents are not binding and there is "no obligation to adopt any particular solution in an Approved Document" should an alternative method be preferred (Tricker & Alford, 2012, p.34). However, if alternatives methods are used the designer or applicant will need to provide evidence of compliance with the regulations (Chudley & Greeno, 2010).

Anecdotal evidence gathered by Ian McIver during discussions with Lammas residents indicates there are areas of conflict between the objectives of the One Planet Development policy and achieving Building Regulations approval for low impact buildings. Some of this may be attributable to the nature of non-professionals undertaking construction projects without the necessary experience or knowledge. However, other conflicts may indicate a lack of flexibility to accommodate the reintroduction of tradition building methods and the use of low impact methods to provide services, such as unconventional water supply and waste disposal.

Lammas received planning permission in 2009 for 9 households and currently contains a number of residential buildings, built to low impact development standards, which have obtained Building Regulations compliance. Lammas was approved under Policy 52, the precursor to One Planet Development. Other than a restriction prohibiting the connection to mains electrical power the earlier policy differs little from the One Planet Development. Under One Planet Development mains electrical connection is only permitted subject to the overall development achieving a net export to the national grid; the practicality of connecting will be dependent on the location and associated infrastructure costs (Wimbush, 2012a). There is no other significant difference between Policy 52 and One Planet Development that would affect low impact buildings and their approval under Building Regulations. Lammas, therefore, provides an excellent case study into the treatment of low impact building techniques and their assessment against Building Regulations.

Dale & Saville (2011), two of the Lammas residents produced a paper outlining their experiences and concerns regarding low impact development and its compatibility with the Building Regulations. Examples quoted that have placed them in breach include, carrying water to their house as a means of supply, heating water on a stove as a means of hot water, using an outdoor composting toilet, failing to connect their fire warning and ventilation system to the mains electricity supply (even though the provision of mains electricity is prohibited by their planning consent) and the use of minimal foundations and superstructure.

Pembrokeshire County Council issued a statement in relation to Dale and Saville's property. This acknowledges that the Building Regulations were "ultimately assessed against the Schedule 1 requirements" and that "when considering unconventional building techniques this work may require an assessment of the issue from first principles" (Pembrokeshire County Council, 2011, quoted in Dale & Saville, 2011, p.8). Dale and Saville outline three obstacles they believe are fundamental to the viability of assessment against Schedule 1. The first two

relate to the regulators ability and willingness to adopt this approach and the third criteria relates to the level of evidence required, to provide proof of compliance, and the associated costs/time to obtain this.

The government's research and legislation anticipated that over reliance on the Approved Documents would lead to difficulties when assessing low impact development against the Building Regulations and they failed to provide guidance or to address this issue in any other meaningful way. The legislation relating to low impact development, sometimes presents an incoherent message. It suggests that materials, such as ungraded timber, are utilised in construction in the full knowledge these conflict with the conventional approach to assessing Building Regulations. At the same time the legislation insists on full compliance with the Building Regulations but fails to address how these inconsistencies are to be bridged. The vast majority of low impact buildings to date have been erected without planning permission and have not been tested by the Building Regulations system. There is, therefore, a dearth of practical experience relating to these alternative building techniques and their assessment under Building Regulations. While the information provided in the Dale and Saville (2011) paper is valuable it is not impartial and therefore open to questions of bias or accuracy as it is, by its nature, one-sided. A closer independent examination of the facts surrounding the application of Building Regulations at Lammas would be beneficial to furthering the discussion and identifying ways forward.

This review of the literature raises the following research question:

To what extent was a fundamental difference in approach between low impact developers and building regulations officers responsible for difficulties in applying Building Regulations at Lammas?

Methodology

Unless indicated otherwise this section (including page references) draws heavily on the work of Naoum (2007), **Dissertation Research & Writing for Construction Students**.

The legal system provided the primary disciplinary/theoretical framework under which this study was conducted. It explored the legal requirements of Building Regulations law and the

relevant legislative framework. This was observed through the eyes of the local authority whose role it was to enforce the regulations (through the application of approved guidance, assessment of evidence or professional judgement and experience) and the developers to whom the law applied. It drew on secondary disciplines, including building surveying, economics, philosophical, historical and sociological interpretations, to provide clarity and depth of understanding.

The research was subjective and suited a qualitative approach of data gathering rather than the more objectively (statistically) based quantitative method. Qualitative research can be further broken down into 'exploratory' and 'attitudinal' research. Attitudinal research would not have delivered the depth of understanding required due to the typical closed nature of research questions. Conversely, 'exploratory research' utilises open-ended questions which may "evolve and change during the study" (p.41). Drawing on Zikmund (1997) Naoum (p.41) notes that exploratory researcher is conducted for three interconnected reasons: "diagnosing a situation, screening alternatives and to discover new ideas".

There were two main sources of data collection, namely, fieldwork (primary data collection) and desktop (secondary data collection). Fieldwork can be further broken down into the survey, the case study and the problem solving approach. The survey approach was not appropriate for this study as it used to collect more generalised results from a comparatively large sample or populace. The problem solving approach, where the researcher becomes actively involved in deriving solutions from the research, would necessitate a larger piece of work than the remit here. Naoum (p.45) considers the case study appropriate where "the researcher intends to support his/her argument by an in-depth analysis of a person, a group of persons, an organisation or a particular project" such as the Lammas project.

This research, therefore, took the form of a case study which focused on residents of the Lammas project and their dealings with Pembrokeshire County Council's Building Control department. A qualitative research strategy was employed using primary and secondary data. The primary data or 'fieldwork' was gathered from exploratory, unstructured face to face interviews. As such completeness and absence of bias cannot be guaranteed, this is reflected in the analysis that follows. The secondary data was readily available from the public domain in the form of academic text books and government/statutory body's research and legislation.

The primary data source for this study was the participants in the Lammas project who were taken to court by Pembrokeshire county council for non-compliance with the Building Regulations together with the head of Building Control at Pembrokeshire County Council. This took the form of an "explanatory case study" where the study gathered facts and examined the "relationship of one set of facts to another". The aim of this was to find some "causal relationship" that could be explored within the study (p.46). Naoum notes that this relationship, for a small sample needs to be appraised 'intellectually' rather than statistically. The interviews were unstructured, an appropriate method, according to Naoum, for qualitative research, where open questions are posed. The case study was small but achieved 100% involvement from the target audience.

In chapter 3 the results were initially analysed using Naoum's "descriptive method". The question was restated followed firstly by a results section highlighting the main findings and secondly by a comments section where the findings were interpreted and interconnecting themes highlighted. By interpreting Naoum's explanations of variables, the methods in which the Building Regulations are applied are the independent variable and low impact development building are the dependent variable. As the study developed these variables were split and defined in more detail which helped "construct a ...conceptual framework" which was used to examine the data (p.46). This took the form of a "self designed framework" and was used to summarise the findings and is detailed in the first section of chapter 4, 'Synthesis' (p.48).

The primary data formed the body of the evidence for analysis and the secondary data provided some background data and was used to define certain terminologies. Chapter 2 supplements the information provided in chapter 1 providing, for example, information on climate change, the history of low impact development and some key facts regarding Building Regulations in order gain a clear understanding of the principles and conventions used in the research. Chapter 3 explores, through direct experience, the lessons that could be learnt from analysing the communication between the developers and the local authority. It links the principles of low impact development to the assessment used to adjudicate compliance with the Building Regulations and to gauge their compatibility. The final chapter drew on the evidence and observations of the previous three chapters to provide conclusions, recommendations and identification of areas for further research.

Chapter 2 – Background Data

This chapter provides a link between the introductory chapter and the main research chapter. It briefly introduces the concept of climate change and the impact of the UK construction industry in this context. It provides some background information relating to low impact development, Lammas and the Building Regulations to help contextual the subject matter and to provide clarification of certain terminology, such as 'approved inspector' used throughout the research.

Climate Change and the Impact of the Construction Industry

The United Nations (1992, p.3), defines climate change as: "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods." In April 2014 the United Nations Intergovernmental Panel on Climate Change published its latest report. According to the Department of Energy & Climate Change (2014, no page no.) this reinforced earlier findings that climate change is occurring now and that the principal reason is the emission of greenhouse gases from human activity. They conclude that the impacts of climate change are "severe, pervasive and irreversible" and the UK government describes the thoroughness of their research to be "without parallel in terms of scope, rigour, transparency". According to Friends of the Earth (n.d) some of the impacts of climate change include drought, mass extinction of species, chaotic weather and rising sea levels.

The UK construction industry has a significant impact on the causal activities related to climate change both in terms of the construction process and the energy performance of buildings. The following statistics are taken from Construction and Sustainable Development (Constructing Excellence, 2008) and provide some insight into the extent of this impact.

- Nearly half of the U.K.'s carbon dioxide emissions stem from fossil fuel consumption linked directly to the construction and operation of buildings.

- Residential buildings account for 27% of the U.K.'s carbon dioxide emissions, of which over two thirds is utilised for water and space heating.
- In the region of 10% of the U.K.'s carbon dioxide emissions are linked to the manufacture and transportation of materials used in construction or in the construction process.
- The UK construction industry accounts for a quarter of all waste produced, triple the combined waste of all UK households. It is estimated that around 50% of construction waste is recycled or reused however in the region of 36,000,000 tonnes of waste is sent to landfill on an annual basis.
- Practically all non-energy materials (over 90%) extracted in the UK are utilised within the construction industry and account for 6 tonnes of materials per person per year for every UK resident.

Low Impact Development

The focus of this dissertation means that, in the main, the only element of low impact development under consideration is the built environment. As was noted in chapter 1, low impact philosophy relates much more broadly to mitigating overall environmental impact and its focuses on enhanced outcomes. In chapter 3 one of the developers highlights this fact by seeking ways to minimise the outlay of time and energy relating to the construction element.

Chapter 1 and 3 draw attention to an approach within the low impact development movement to establish settlements outside of regulatory constraints. Simon Fairlie (1996) believes that for those wishing to adopt a simple sustainable lifestyle the costs and restrictions of the planning system make this difficult to achieve within the conventional system. Fairlie interprets this decision to act outside of the system as stemming less from any rights based conviction and more from the “observation that ‘everyone has got to be somewhere’” (Fairlie, 1996, p.47).

Fairlie notes that as well as providing low impact buildings, developments need to focus on creating a positive environmental impact through; sustainable land use, encouraging wildlife and biodiversity, through holistic horticulture and limiting resource consumption and transportation emissions. As noted in chapter 1 these elements form part of the social contract between developers and the local authority with regard to planning permission.

Background to Lammas

The following draws heavily on Paul Wimbush's (2012a) book The Birth of an Ecovillage which recounts the story behind Lammas and its journey to realisation. After securing land in 2006, rumour and local gossip created fear and a local, organised opposition to Lammas was formed. The Lammas planning application was submitted on 1st June 2007 and despite having been given positive assurances by the council it was rejected by an overwhelming majority. A revised application was submitted in March 2008 to the council and the Design Commission for Wales. The latter described the project as 'inspiring'. In September 2008 the plans were rejected again and Wimbush noted that one councillor who spoke in their support was 'openly ridiculed' (p.129). An appeal to the Welsh assembly was prevented by the council on a technical error for which they held Lammas liable and enforced a re-submission at local level. Following the initiation of High Court action against the council they accepted responsibility for the error and refunded Lammas their planning fee. When the third application was submitted the council failed to meet its statutory deadlines providing Lammas with the opportunity to appeal to the Welsh Assembly. In July 2008 the appeal was successful and planning permission was granted. It is against this backdrop (the local council losing its long battle to stop the Lammas project) that subsequent events between Lammas and Building Control are set.

Lammas is a registered cooperative; it owns land and offers plots to residents on 999 year agricultural leasehold basis. There are two key reasons this approach was adopted, one was to establish a concept of "land stewardship rather than land ownership" and the second was to enable Lammas to "keep the project in line with low-impact principles" (p.119).

One Planet Council

The One Planet Council is a working committee and advocacy group formed in 2013. It is made up of low impact developers, politicians, authors, academics and other interested parties and its remit is to support and promote the One Planet Development policy throughout Wales.

Building Regulations

Unless otherwise stated the following section draws from the work of Stephenson (2000) who notes that the history of Building Control in the United Kingdom dates back as far as 1189 when the first regulations were introduced in London. The most significant historical event was the great fire of London which spawned the first Building Act, consolidated in 1774 and in operation until the London Building Act of 1845. The Public Health Act of 1875 provided local

authorities with the power to enact bylaws to control construction. Legislation was further strengthened by the Public Health Act 1936 and 1961. Further acts were consolidated into the Building Act 1984 which still forms the backbone of Building Regulations today.

The final responsibility to enforce Building Regulations lies with the local authority and where possible will be achieved by informal means. Under section 35 of the Building Act 1984 the local authority may choose to issue a summons to the magistrate's court which has the power to impose a daily fine while the contravention of regulations persist. These proceedings must be commenced within two years of the completion of the works. Under section 36 of the act the local authority may also issue an enforcement notice compelling the owner to remove or modify any work that breaks the regulations.

The Secretary of State possesses the power to dispense with or relax building regulation. Since the Building Act of 1984 this power (appealable to the Secretary of State) resides with the local authority. The local authority's power in this regard is quite restricted. The guidance for compliance with Building Regulations is designed to ensure an adequate standard is achieved and, therefore, to approve any relaxation involves accepting that the outcome will be less than adequate. Only the local authority has the jurisdiction to grant approval or to reject an application for relaxation. The approved inspector does not have this right.

Until the Building Act of 1984 the supervision of construction was the sole responsibility of the local council. Provisions contained in the 1984 Act allowed the monitoring of the Building Regulations to be conducted by construction professionals other than local authorities. These 'approved inspectors' come from a range of construction professions and are controlled and regulated by designated professional bodies such as the Royal Institute of Chartered Surveyors.

A developer carrying out construction work can choose to appoint an approved inspector instead of the local council to carry out inspections of the work. Both the developer and the approved inspector must notify the local council by completing an initial notice form. The local authority can only reject the initial notice if it fails to meet the requirements detailed in the regulations. These include; a scaled plan containing locations and boundaries, details of sewerage connections or other means of disposal in the absence of sewers, a description of the work and the use to which the building will be put.

Where construction work has been overseen by an approved inspector the local authority cannot exercise its enforcement powers. When the approved inspector is satisfied that the works are complete he must supply a final certificate to the local authority. The local authority may reject the certificate within 10 days if it is not in the correct form or fails to contain the necessary information as stipulated in the regulations.

Approved inspectors do not possess enforcement powers. If an approved inspector believes there is a failure to comply with Building Regulations they will cancel the initial notice and decline to issue a final certificate. At this stage it may be possible to appoint a second approved inspector although failing this the local authority will automatically take on the role of Building Control.

Chapter 3 – Interviews and Analysis

This Chapter introduces the interviews, states the research question and presents the primary research data. It provides initial analysis of the primary data which is used in the final chapter to aid the synthesis, conclusions and recommendations.

Introduction

Lammas is a group of 9 small holdings which were granted planning permission in 2009. The planning permission is dependent on the residents achieving a collective level of self sufficiency measured against their individual/family's carbon footprint. Their ability to remain on the land long term is dependent not only on their own efforts but on their collective lifestyles and the combined success of their land-based livelihoods.

Requirements for planning permission also include the need to build in a low impact manner. This research examines the application of Building Regulations to self build developers using low impact construction techniques. It was known before commencement of this research that some residents had been taken to court by Pembrokeshire County Council for non compliance with the Building Regulations and it was these plot holders that were approached to participate. It is understood that some other developers who had also commenced building agreed not to use these structures for residential purposes and thus avoided enforcement action. It is important to note therefore that when the interviewees refer to other developers they are generally not referring to each other unless specifically indicated. The 3 plot holders are referred to as developer 1, 2 and 3, the head of Building Control is referred to as the council officer or officer and the local authority building inspector is referred to as inspector (note inspector 1 refers to a different individual from when developer 2 was relaying his experience prior to Lammas).

The interviews took place over the course of 5th and 6th of March 2014 at the developers' homes and at the council offices in Haverfordwest. The interviews were recorded for accuracy.

It is worth noting the general atmosphere of warmth and goodwill that was apparent between the interviewees, both between the developers and between the council officer and the developers. This is important because the written word removes the tone and humour from what was said and while frustration between parties was expressed, this was generally not without empathy and understanding.

Question 1

To developers - What experience of construction did you have before building at Lammas?

To the council - What experience did you, or other members of your department, have of low impact construction techniques of the type you have encountered at Lammas?

Purpose

To ascertain the level of knowledge that both parties had in the field that was most relevant to their role:

- The developers experience of construction, and;
- Building Control's experience of assessing low impact construction techniques.

Results

Developer 1 holds a degree in architecture and worked as a carpenter for 3 to 4 years specialising in the repair and construction of residential timber framed buildings. Developer 2 has eight years practical experience of refurbishing existing small buildings and constructing new buildings which included two dwelling homes. Developer 3 took a one week house building course 10 years prior to building at Lammas. The inspector noted that the Building Regulations department had little direct experience of low impact construction techniques.

Comments

The developers had varying degrees of practical experience and formal training. As will be shown, the more experienced developers worked collaboratively sharing their knowledge and experience. The construction work would be assessed by a Building Control department with limited experience of the low impact techniques being deployed on-site and, therefore, of how these techniques could be assessed for compliance with Building Regulations.

Question 2

To developers --What knowledge or experience of Building Regulations did you have?

To the council -- Did you approach the task of Building Control at Lammas any differently to that of a more conventional build?

Purpose

- To assess the developers prior knowledge of Building Regulations and how this may affect their approach to construction, and
- To ascertain what changes, if any, Building Control would apply to the assessment of unfamiliar construction techniques.

Results

Developer 1 and 2 had previously operated outside the regulatory framework and neither had any significant experience of Building Regulations. Developer 2 described one relevant encounter. This occurred on a site containing a decade's worth of ad hoc refurbishment and new build work. It was the developer's only prior experience of Building Regulations and it relates to a request by a local authority building inspector (inspector 1) to retrofit a compliant handrail and balustrade to an existing staircase. Developer 2 adopted a low impact methodology using locally collected hazel branches to make spindles. Developer 2 describes how he approached aspects of compliance seriously, for example, by ensuring there were no gaps greater than 100 mm. Because staircase looked unconventional (with naturally curved branch spindles) inspector 1 would not take it seriously and thought that developer 2 had constructed it to be deliberately obstructive. Developer 2 recounted how inspector 1 spoke to a number of different people in the community regarding various Building Regulations issues before eventually abandoned his pursuit of compliance.

Developer 3 had no previous knowledge of Building Regulations but had experience of working with a local council in a regulatory environment. Developer 3 stated that developer 1 had informed them they were exempt from Building Regulations and developer 2 had indicated that Building Regulations were optional. Developer 3 noted that they took this advice on face value and did not pursue their own enquiries, acknowledging that they effectively abdicated responsibility to others. Developer 3 believed had they been pursuing the project in isolation they would have contacted the council for advice regarding Building Regulations. However, because they were part of a community of eight other developers they did not want to be responsible for alerting Building Control. Developer 3 recognised that they were caught up in a "gung ho" communal attitude which had little time for the inconveniences of Building Regulations.

The council officer maintained that the developers at Lammas were treated the same "in that they had to meet the same requirements". The officer clarified the statement noting that it is the Building Regulations and not the Approved Documents that compliance is ultimately assessed against. He explained that the inspector was "stuck in his ways" and required education and guidance to become less reliant on the methods prescribed in the Approved Documents.

Comments

When first presented with a request to comply with Building Regulations developer 2 researched the Approved Documents and applied low impact principles (in the form of non-standard timber materials) to produce what he believed was a compliant installation. This atypical approach seemed to challenge inspector 1's duty to assess the work based on its functionality and to see past its aesthetic appearance. As will be shown later, developer 2's approach to Building Regulations at Lammas was informed by his earlier experience. Developer 2 had witnessed a local authority inspector abandoning a site and his attempts to regulate the work, which could be why developer 2 advised developer 3 that Building Regulations were optional. It is probable that inspector 1 did not have the appetite or option to pursue enforcement through the courts and therefore lacked the resources to continue his pursuit of compliance. Developer 3 provided evidence of how being part of a community had modified their usual approach to handling regulatory matters. The council officer, while maintaining parity of treatment, was clear that nonconventional building techniques require a flexible approach to assessment that is not overly reliant on the Approved Documents. He implied this was not the approach the inspector was taking at Lammas.

Question 3

To developers -- What was your first contact with the local building inspector and what issues arose from this?

To the council -- What was your first contact with the Lammas residents/developers and what issues arose from this?

Purpose

To assess the approach both parties took at the point of first contact.

Results

Developer 1 said they were initially contacted by letter, followed by a site visit and followed by a report which went to four plot holders. Developer 1 explained he had misinterpreted Building Control's definition of a temporary building and had believed they were exempt from Building Regulations. Their property was complete prior to the involvement of Building Regulations.

Developer 2 acknowledged resisting the involvement of Building Control at Lammas. He anticipated a biased approach based on his past experience of the planning department and his previous experience of Building Regulations (described above). His previous choice to act outside the regulatory framework, which he described as "traditional" for low impact development, also informed this decision as did his determination that bureaucracy should not slow him down in building a quick temporary dwelling to shelter his family during the forthcoming winter. Developer 2 had been resident for over a year when his property came to the attention of Building Control who notified the developers that they needed to apply for Building Regulations and subsequently provided a list of queried items. From discovering a breach in regulations the council had six months in which to commence enforcement proceedings. Prior to this deadline the council issued an enforcement notice due to lack of progress and dialogue. Developer 2 believed there was shared responsibility for the lack of dialogue and concluded that they spoke "such different languages to each other". Developer 2 had also been working on the basis that under the Building Regulations enforcement proceedings were prohibited once a building had been occupied for 12 months or more and that this debate had inhibited communication. Latterly, developer 2's Solicitor advised against resisting the enforcement (based on the 12 month rule) as he wanted all the developers involved in the action to seek to build bridges between the council and Lammas, an approach which developer 2 supported.

Developer 3 referred to a feeling of superiority and dismissiveness by some Lammas developers towards the Building Regulations and how this attitude hampered communications. Developer 3 noted that Building Control wanted to deal with Lammas as an organisation and not as individual developers and described the head of Building Regulations enthusiastic reaction to his enquiry to submit of a joint application for Building Regulations. The joint application did not gain sufficient support at Lammas. Developer 3 believed they clearly demonstrated that they intended to comply with the Building Regulations. When they received the summons for enforcement they felt they had been misled by Building Control

who had reassured them matters were progressing satisfactorily. Developer 3 states "there's no doubt that had we been acting on our own we would not have been enforced against" and "I think they were just fearful and decided it was going to be zero tolerance". Developer 3 was informed, by a member of the planning department, that Lammas had been classified as a “problem site” akin to a travellers’ site and that the (previous) head of Building Control was being pressured to take control of the situation. Developer 3 noted that, based upon subsequent conversations with other council officials, that the council are now "a little bit calmer about the situation" and realise that Lammas developers "are all quite decent people really".

The council officer had replaced previous head of Building Regulations after the enforcement proceedings had commenced. The officer’s first task was to assess developer 1's and developer 2's applications for relaxation of the Building Regulations. These revealed, in his opinion, the developers lack of understanding of the Building Regulations as they had based their argument for relaxation on the unsuitability of the Approved Documents. He described his preferred approach where developers would speak to Building Control before implementing solutions so that between them they could establish a workable solution. The officer cited what he considered a design flaw that had caused interstitial condensation and the rotting of the straw bale installation, forming mould and giving rise to a number of associated health implications.

Comments

The evidence so far suggests that, whether due to peer pressure or the misinterpretation of regulations, there was a reluctance to contact Building Regulations to clarify the position. Developer 2 infers that low impact development traditionally operates outside the regulatory framework. However, Lammas is not an example of this type of undisclosed development as they struggled for a number of years to gain the planning permission that would grant the project legitimacy. There are a number of different issues cited including the council's wish to be deal with Lammas as a group rather than individuals and the diversity of different approaches taken by Lammas developers. It is notable that when the officer is evaluating the applications for relaxation and by deduction the developers’ knowledge, he does not seem to take account of his predecessor's approach which appears markedly different from his own. The officer has acknowledged the inspectors earlier overreliance on the Approved Documents and it is set against this background that the Lammas developers challenged the appropriateness of Building Regulations. As will be shown, it was the officer’s predecessor who

recommended the developers pursue applications for relaxation and that the developers now believe this was inappropriate advice.

Question 4

To developers -- Can you provide some examples where Building Control granted approval to aspects of the build based on your initial design or construction?

To the council -- Can you provide some examples where you granted approval to aspects of the build based on developers' initial design or construction work?

Purpose

To clarify the council's initial approach and to compare how this was interpreted by the parties.

Results

Developer 1's structure is raised off the ground thus eliminating radon risk. Developer 1 noted that Building Control expressed confidence in its structural integrity but this needed to be substantiated by a structural engineer's report. The engineer's report was initially rejected by Building Control and developer 1's engineer indicated this was highly irregular and unique in his personal experience. This led developer 1 to query Building Control's impartiality in the matter.

Developer 2's house was complete and the focus was on elements of non-compliance. Based on the size of the building, the absence of stairs and the inclusion of rendered walls the structure was deemed adequate in relation to fire safety.

Developer 3 identified the U values of the straw bale walls, means to escape in the event of a fire, the timber framed structure (subject to verification by engineer's report), the detailing (although these were not yet installed) and the size, shape and spacing of the floor joists and the damp proof course in the stem wall.

The council officer noted that a large proportion of the buildings were either complete or partially complete and they needed "to step back and look at what they've done and get justification". He observed that normally they would inspect at regular intervals as the build progressed and this had not been possible. He also stated that he felt the developers did not want his department's presence on site as they would "very rarely get asked to do

inspections". Because, in some cases, they couldn't assess during the construction process they needed to ask for evidence of what had been done in order to assess it.

The council officer was asked about the circumstances surrounding the rejection of developer 1's engineer's report. The officer clearly did not doubt the structural integrity of developer 1's timber frame describing it at one point as a "fabulous building". He spent some time detailing why he asked the engineer for further information. Developer 1 had used locally sourced timber that was milled on site and was not strength graded. Because the building was complete (and most of the structural members were no longer exposed for inspection) it would have been highly disruptive and expensive to expose these timbers in order to estimate their strength. The size of the timbers was known and it was therefore possible to produce a structural report using assumed timber strengths. The officer asserted that to provide a margin of safety, a relatively low strength should be assumed. The officer maintains that the original report assumed a relatively high strength for the timber and that this was why he requested figures to be reassessed on a lower grade of timber.

Comments

Developer 1 believes that Building Control did not acting impartially and his engineer's reaction to the rejected report seems to support this view. The council officer outlined a thorough and logical reason why he requested amended figures. An individual's motivations and prejudices may be difficult to interpret, however, based on the officer's explanation, it would seem reasonable to conclude his decision to refer the report was based on professional assessment. Developer 1's structural engineer's response may have been in part to divert responsibility and may not have taken account of the unusual circumstances, possibly also unique in his experience, of assessing a completed structure built using ungraded timber.

Question 5

To developers -- Can you provide some examples of where the Building Control did not grant approval to aspects of the build based your initial design or construction work, and how did you overcome these issues?

To the council -- Can you provide some examples of where you refused approval to aspects of the build based on a developer's initial design or construction work and how these issues were overcome?

Purpose

To assess the level of non-compliance and investigate whether either party's approach impacted on the level of cooperation and subsequent resolutions.

Results

Developer 1 noted there were issues with fire safety (early warning system, escape in the event of a fire and flu safety) and the staircase access to the first floor mezzanine. Developer 1 said there were many other small items, all of which were resolved by analysing the original Building Regulations (schedule 1) and providing justifications to demonstrate compliance.

Developer 2 was sent an extensive list of details that the council believed did not comply with the Building Regulations or required justification. To overcome these problems developer 2 embarked on a "massive self-education about how the system worked, what it meant, what it was trying to achieve and how it did it". Developer 2 estimated that around 80% of the queries were resolved through the provision of explanations and justifications. There were two major works to be undertaken; introducing an air gap into the roof structure and relaying the drainage system.

Developer 3 was prosecuted on part A (structure) and part C (contaminants and moisture) of the Building Regulations. They were required to provide evidence of the integrity of their structural framework and they commissioned an engineer's report. Their engineer, aware that the head of Building Control was also an engineer, was keen to ensure his figures were as robust as possible. Prior to presenting his report to Building Control he wanted to include a structural change to introduce four additional supporting columns. He was dissuaded from this action by developer 1 and their solicitor. The original report was submitted and approved by Building Control.

Under part C developer 3 was required to install a damp proof membrane/radon barrier. As with developer 2 they were also asked to introduce an air gap to reduce the risk of interstitial condensation in their roof construction. Developer 3 noted this process taught them the significance of condensation and the necessity to ensure correct design to minimise risk. They witnessed the deterioration of their straw bales which were described as black and smelly as a result of the rubber membrane having been applied directly to the bales. Developer 3 also accepted that despite their walls being signed off they did not believe that they were truly compliant. Due to their exposed position, wind driven rain was penetrating the render and the internal walls were starting to discolour. Developer 3 compared their design to developer 2's

building, also in an exposed position, and noted how developer 2's was wrapped by a greenhouse and earthen wall to protect it from the elements. Developer 3 clearly felt that the knowledge and experience gained through building this temporary shelter would prove invaluable when embarking on their main build.

The council officer identified similar areas, namely, the correct installation of combustion appliances, roof design, the omission of damp proof courses, non-compliant waste pipe's and radon risk. He noted that the site was designated as an at-risk area for radon but not all locations would be at risk. Normally it is not possible to test for the presence of radon at a specific location for a new dwelling, as there is no enclosed space in which the gas could be captured. As developer 2's house was finished he says he encouraged developer 2 to obtain a radon meter and test for its presence. This was carried out and no radon was found to be present. The officer was keen to emphasise that their primary role is to ensure good health and safety practices and pointed to the fact that testing for radon was to ensure the safety of the occupants. The officer indicated that he felt there was a general lack of appreciation for health and safety and quoted an example of a bath being heated by an open fire. He reiterated his emphasis on ensuring safety for everybody and that the Building Regulations apply to everybody. The council officer was asked his opinion regarding the quantity of issues raised that were eventually resolved through communication rather than any structural change. He said that when he came into post he instigated a change of emphasis; rather than stipulating that an element did not comply and needed correction he proposed "an information gathering process" suggesting for example "if you haven't got one, why have you not got one, and how have you detailed it so it is not needed?".

Comments

Developer 3 was required to provide evidence of the structural integrity of their timber framed Roundhouse. This is constructed from locally sourced ungraded timber used in the round (i.e. not milled into uniform sizes) and formed into a reciprocal frame roof supported by posts. Developer 3 had rejected their engineer's desire to include additional timber posts to further strengthen the structure and their report was accepted without the requirement for any amendments. This evidence would appear to support the proposition that developer 1's structural report was fairly assessed. It is worth highlighting that the council officer again drew attention to the change of emphasis and approach he instigated upon taking over management of Building Control.

Question 6

To developers -- did the inspector assist in finding solutions to non-compliance?

To the council -- were you able to assist the developer in finding solutions to non-compliance?

Results

Developer 1, referring to the inspector, stated that he occasionally dropped hints but there was never an open discussion and that he believed he was "on the whole... useless." Developer 1 found this frustrating as it placed the onus on him, to research and understand the Building Regulations in order to provide a valid argument that supported the course of action being queried.

Developer 2 considered that Building Control gave very little help in finding solutions. He particularly singled out their inspector and the previous head of Building Control for their lack of assistance; he thought that for the inspector, this was "outside his imagination, his scope, his familiarity". He did reflect however, that the new head of Building Control was "a lot more constructive than his predecessor".

Developer 3 did not add anything further at this point.

The council officer noted the importance of speaking to them first before taking action; he said they were here to help and not to enforce. He said the level of communication between developers and Building Control had been poor, he did however accept that there were exceptions to this generalisation and he believed that more developers were coming round to the idea. He accepted that developer 1 had probably made a genuine error of judgement rather than deliberately attempting to avoid Building Regulations. He was adamant this was not the case with other developers and pointed to the fact that developer 2 had a website which advocated avoidance of the planning system. He believes this latter approach is particularly problematic as it is far more complex to grant regularisation on an existing building than to deal with any ongoing issues during a build. The officer thought that the key to enabling a more straightforward process would be to compile a document of standard specifications that have been implemented, tried and approved by Building Control. He noted that resourcing such a project was critical to its success.

Comments

By acknowledging in previous questions, the lack of appropriate guidance to inspectors and the need for Building Control to adapt their approach when assessing low impact development, the council officer gives credence to the strong feelings expressed by developer 1 and 2. It is reasonable to conclude that Building Control's initial approach had a negative impact in terms of promoting harmonious negotiations with Lammas developers.

Question 7

To developers -- What do you believe triggered the council into litigious enforcement action?

To the council -- what do you believe triggered the council into litigious enforcement action? (It was acknowledged that the council officer was not in post when enforcement was issued).

Purpose

To ascertain the reasons behind the council's decision to pursue legal action and what can be learned from this.

Results

Developer 1 initially states that he felt this was a "knee-jerk reaction", however he later acknowledges that the council perhaps had few other options. He refers to what he believes was an intimidatory approach by the council, who brought legal representation into their meetings at a very early stage, but also acknowledges that some developers were "unwilling to play ball".

Referring back to previous comments developer 2 considered in all probability the action was just procedural based on timescales. He notes that a number of people whom he describes as being "more involved in that world" perceived the action as being more vindictive than that, but he acknowledges that that is just conjecture.

Developer 3 believes it was a fundamental issue of poor communication and that all the developers were individually responsible. They highlighted again the difficulty of being part of a community and particularly of challenging those in a leadership role. Developer 3 stated that when he first arrived he felt that he did not have the authority "to almost speak to developer 1 or even question him, or developer 2 ". Developer 3 observed that the parties (the developers and the council) had demonised each other and this was a serious block to communications. Developer 3 referred to his previous experience of working with local councils and how the

individuals were generally ethically motivated and "just like people, like you and me". He also observed how easy it is to create perceptions of people, noting that the planning enforcement officer who has now left the council went back to his previous occupation as a youth worker but when he turned up on site in his suit "he's the enforcement officer, and he looks like an enforcement officer!". Developer 3 explained that they met the council officer at a school performance, both supporting their respective children, and described this as "a great leveller".

The council officer acknowledged that the legal process must have been very unpleasant and stressful for the developers. He also noted that on assuming post his “direction” from his superiors was that the enforcement had "got to be seen through". The officer regards the primary reason for taking legal action to have been the lack information received from the developers linked with the department’s six-month window of opportunity in which they could take enforcement action. He believes the enforcement action forces the developers to "look seriously at the building regs" and he indicates that before this there was a prevailing attitude among developers that they were in some way exempt from Building Regulations. The officer was asked why developer 1 was included in the enforcement action as he had indicated previously that their building had only minor issues to sort. His response was that he believed developer 1 had also provided insufficient information prior to enforcement. He indicated that he thought the developers had been misinformed regarding the erection of temporary buildings and considered it would have been better to have built their primary home from the offset (this observation relates particularly to the amount of stress the developers had incurred for a small temporary building).

Comments

Nobody seriously doubts that the enforcement proceedings were taken because the council had run out of time and options to proceed in any other way. The area for analysis therefore must be why there was so little progress made in the preceding six months. An ability to communicate at a level which both parties could engage seemed to be absent. Examples of this range from the mistrust that had developed between the council and Lammas during the planning process, the initial written communications from Building Control which the council officer has acknowledged were perhaps not drafted in a particularly helpful or flexible format, the pressures of operating within the community and the pursuance of avoidance tactics. It also appears that both parties took early entrenched stances, with some developers refusing to cooperate and Building Control brandishing the threat of enforcement.

The council officer believed the developers were misguided in constructing these temporary dwellings. However, developer 2 pointed out the urgent need to provide warm and safe shelter for his family which would not have been possible on a longer and more complex build and developer 3 believes they have learned invaluable knowledge prior to building their main home. Many low impact developers have limited building experience and are operating to minimal budgets by conventional standards. The need for economic shelter and the opportunity to learn on the job may therefore be an essential requirement. While the officer's comments appeared to be well-meaning they perhaps also illustrate a lack of understanding about the fundamental process of low impact development.

Question 8

To developers -- How would you (or are you) approaching this element of the building process for future builds?

To the Council -- Do you think low impact construction methods and materials have a role to play in sustainability and the future of construction in the UK?

Purpose

To ascertain what affect the developers' experience has had with regard to Building Regulations and how they might comply with future construction projects and to draw out any additional technical aspects pertinent to low impact development and examine how the parties approach impacted on the resolution.

Results

Developer 1 was clear that he would only use an approved inspector in future. This was based upon his experience building the hub (Lammas' community building) where he concluded that the flexibility and openness of the dialogue was in stark contrast to what he experienced with the council and that the approved inspector was also knowledgeable regarding low impact construction techniques. Developer 1 stressed that this improved relationship did not undermine Building Regulations compliance and that the approved inspector was equally as able to "hold a line" as the council. Developer 1 believed, due to the controversial nature of Lammas and the fact that the council is a "political animal", that some political bias was inevitable when dealing with the council. Developer 1 cited an example that illustrated his concerns regarding the council's approach to Building Control. Developer 1 explained that his building is erected on hardstanding, raised off the ground on concrete stilts (with integral

damp proof membrane) and a breather gap within the wall construction. The inspector requested that developer 1 install a groundsheet beneath his building extending out by 1 m on every side to avoid the risk of any future vegetation growth creating a moisture carrying vehicle that would bridge the earth to the structure. Although Developer 1 did not dismiss political bias here he predominantly believed this request stemmed from the inspector "naïvely applying" conventional methodology to a construction technique he had not previously encountered because, the "conventional response to damp is to cover the entire underside of the building in plastic". Following extended negotiations Building Control subsequently withdrew this stipulation. Developer 1 highlighted that overall, the changes made to their building were relatively minor and could, in principle, have been negotiated and implemented using minimal resources. Developer 1 acknowledges they represented enhancements and were worth implementing but he believes these "tiny improvements" are disproportionate to the amount of time lost for both parties and the disproportionate cost to the public purse.

Developer 2 noted that he has "a lot more familiarity and understanding of the system" which will help him with future builds and in terms of advising other people. He also noted that their current build is closer in nature to more conventional structure in terms of robustness and facilities. Developer 2 has appointed an approved inspector for this build. Developer 2 is aware that his approach to operating outside of the legislative process is an issue for the Council. The council's lawyer made it clear that the enforcement action's primary driver was an attempt to ensure that current and future low impact developers took Building Regulations seriously and became aware of the consequences of avoidance. Developer 2 notes that he would still advise somebody to act outside the system if that was possible. He makes it clear that he does not want to "incite people" or to "cause trouble" but he does want to see "change happening in the world [and this] becomes hard when you get near to the edges of what is legal and allowable".

Developer 3 said they have appointed an approved inspector; he oversaw the hub and has previous low impact construction experience. They are seeking a fresh start and a better relationship. Developer 3 noted that the design for their first building took no account of Building Regulations. However this is now being factored into their current design without compromising sustainability. They want a functional, condensation and mould free building for which they are willing to accept minor compromises, for example using concrete pad foundations. Developer 3 noted that creating the infrastructure is only a small part of what they are trying to achieve on-site and they did not wish it to be "all consuming of time and

energy". Developer 3 considered that the Building Regulations can be useful in providing exact specifications in order to deliver the desired function or performance. They felt that most Building Regulations inspectors have little knowledge of low impact development and that they should be required to learn more about this.

The council officer can see a future for low impact development but is keen for these to be compliant. He observed that because low impact development often reuses existing building materials it can be difficult to design in advance as the materials may not have been procured. His solution to this was to encourage dialogue with Building Control at all stages. The council officer has spoken many times about his desire to instigate a more flexible approach but doubts he will have the opportunity to try this at Lammas because all new applications have been with approved inspectors. The council officer clarified the position regarding developer 2's resolution of part L requirements; he said this was due to the removal of their heating appliance at the time of regularisation which effectively removing the obligation for energy preservation. The officer stipulated that low impact buildings are not exempt part L compliance. The office also observed that developer 1 gained compliance under part L based on change of use provisions which are our less onerous than the compliance requirements for new build.

Comments

All 3 developers were clear they would be using approved inspectors in future and shared similar reasons for this decision, namely, the lack of experience and knowledge the local council inspector demonstrated regarding low impact development, the perceived political bias of the council and what was considered to be a much more flexible and discussion-based approach to compliance on the part of approved inspectors. Two of the 3 developers positively stated that improvements can be achieved through the Building Regulations process. The council officer was clear that he believed his department could provide a flexible approach however it would not be the officer, but his inspector that will be providing a direct service to Lammas developers. It is notable, in this regard, that since the officer took over management of Building Control and instigated his new approach not one of the developers have reported a change in approach from the inspector.

Question 9

To developers -- Did the local building inspector consider alternative ways to comply with the Building Regulations other than guidance from the Approved Documents? Please provide specific examples.

To the Council -- Did the local building inspector consider alternative ways to comply with the Building Regulations other than guidance from the Approved Documents? Please provide specific examples.

Purpose

To prompt the developers and the officer to consider if there were any specific examples not mentioned to date where Building Control assisted in finding substitute methods to achieve Building Regulations compliance.

Results

Developer 2 stated that when Building Control highlighted a contravention they requested implementation of the first, most prescriptive solution from the relevant approved document. Developer 2 noted that he wasted many months pursuing relaxations or dispensations of Building Regulations, as recommended by Building Control, that he now realises they did not have justification for and this was never an appropriate route to take. Through self-education developer 2 is now aware that there are many alternatives described in the Approved Documents and considerable leeway outside of the Approved Documents in order to find another appropriate solution. Developer 2 has engaged an approved inspector for his main house, to remove the perceived political link, in the hope of a more helpful and creative interpretation of the Building Regulations and because he still felt "traumatised" by the enforcement action and was keen on a change of personnel. Developer 2 noted that with the local authority there was always "the underlying threat of violence" that with an approved inspector is simply not there.

Developer 3, having studied the duties of a Building Control inspector, concluded that their role is one of inspection and not guidance. They observed that other developers at Lammas considered the lack of proactive guidance from the council as an act of deliberate sabotage and develop 3 felt this attitude amounted to "passing the buck back to the council" for matters that were not the council's responsibility. Developer 3 noted that the inspector did try to offer some guidance prior to the enforcement proceedings. However, developer 3 are expecting

more guidance from their approved inspector (partly as a reflection of the higher fee) and stated that getting away from the council's dual role of inspecting and enforcing was also a key motivator to go private.

Neither The council officer nor Developer 1 had anything further to add to their previous comments at this stage.

Comments

Developer 2 builds on previous comments and here directly criticised the inspector's competence. Earlier evidence provided by the council officer and the subsequent non-interventionist resolutions to the majority of compliance issues supports developer 2's view that relaxation applications were not an appropriate route.

Question 10

To developers -- How do you believe people within Building Control view individuals involved in the Lammas project?

To the Council -- How do you believe people involved in the Lammas project view individuals within Building Control?

Purpose

To prompt both parties to consider the relationship from each other's point of view and to see what light it sheds on each party's approach to the other.

Results

Developer 1 considers that no one individual is to blame for how matters progressed between Lammas and Building Control. He considers that it was the meeting of two cultures that led to miscommunication and misunderstanding. He does not agree with those who refuse to work with Building Control but he does understand their position particularly in relation to their previous experience with planning department and also in what he considers the very "heavy-handed" initial approach by Building Control. He states "they'd turned up one day, invaded our privacy, taken loads and loads of pictures and sent a report which, on first reading, looked like you're going to have to tear the thing down and rebuild it". He believes the council could have taken a far more enlightened approach resulting in a significantly different outcome but considers that, as a body, the council lacks the culture and resources to achieve this. Developer 1 considered the councils choice to appoint their inspector based on geographical boundaries

illustrated this inflexibility as he considered their inspector to be particularly conventional and possibly the least appropriate for the job. Developer 1 considered the enforcement action against them was due to the unwillingness of other developers to comply rather than themselves. He thought this inequity was even more pertinent in the case of developer 3.

Developer 2 believes the inspector bears them no malice, but that low impact development is "outside of his comfort zone" and something that he would prefer not be involved in. Conversely he describes the council officer as interested and engaged in the process, of valuing a dialogue and appreciating the aspirations of low impact development. Developer 2 believes the most potent opposition came from the elected councillors, where an inability to grasp their motivations led to distrust and suspicions of "ulterior motives". Developer 2 believes "this is not done explicitly and personally..[but] subtly and systematically in little bits and pieces [and is] just what we have to endure if you want to change the paradigm".

Developer 3 suggested that ultimately the council found Lammas frustrating and time-consuming and that they were probably initially fearful not knowing what to expect. They noted that some individuals, both in planning and Building Control, understood what they were trying to achieve at Lammas whereas others, notably the inspector, could not grasp their aspirations and that this was another reason for using an approved inspector.

The council officer believed the relationship between Building Control and Lammas remained civil and he did not consider there was "a huge resentment there". He did not see any significant advantages offered by approved inspector and noted that the council could offer more regular inspections due to the presence of inspectors.

Comments

The intractable position of some of the developers together with the constraints of institutional structures combined to obstruct progress. Some of the developers believed the council applied a broad brush approach to enforcement which led to an inequality of treatment between the developers. The developers clearly thought the inspector was the wrong person for the job and that his approach exacerbated the situation. However nobody blamed the inspector personally, accepting he was out of his depth and struggling to deal with a new situation. The council officer was considered a more enlightened and flexible person to deal with but he was not the inspector and he came in after enforcement proceedings had been enacted. It is notable, despite the problems, that such goodwill and respect still exists between the parties and this may indicate that given better communication and

understanding, a much more satisfactory outcome could have been achieved. The council office's observations about the lack of advantages offered by an approved inspector may have just been a diplomatic response but it could equally illustrate his inability to consider the matter from the developers' perspective.

Final Observations

All participants were asked if they had anything further to add.

Purpose

To capture any key points missed during the interviews.

Results

Developer 2 talked more about his idea for a paper-based or online technical manual of low impact methodology that could be used, in a similar way to the Approved Documents, to gain approval under the Building Regulations for low impact construction. Developer 2 is passionate and enthusiastic about this idea, he says he has a "fairly well laid out idea about how it will happen" and has already spoken to one Welsh university who are potentially open to securing academic funding to support it.

Developer 3 stated their belief that the Building Regulations come from a good place. They illustrated the importance with an example where one of their neighbours fell down a ladder which was being used to access a sleeping space. This resulted in significant injury to the person which put them "out of action for weeks". Developer 3 believes the access ladder would never have met Building Regulations and that there are many other similar health and safety issues across Lammas. Developer 3 noted the disadvantage they are at as self builders, commenting on the complexity of some of the language used and the cost of accessing British standard documents and other technical information as they lack the resources of a mainstream construction firm.

Developer 1 and the council officer had nothing further to add.

Comments

The council officer was critical of developer 2 for publicly advocating opportunities for people to circumvent the statutory system. However, developer 2's enthusiasm to create a technical manual that will facilitate compliance with the Building Regulations shows not only a willingness to work with the system but to actively engage with the regulations and support

the development of compliant low impact construction. The idea of a technical manual is in line with the council officer's own aspirations of a standard specifications document and while these two individuals may often seem to be speaking different languages they ultimately share some similar perspectives.

Chapter 4 – Synthesis, Conclusions and Recommendations

This Chapter unifies the data and research analysis presented over the previous three chapters. It presents the conclusions to the research question and sets out recommendations based upon the study aims as detailed below.

The aim of this study is to document the experiences of Lammas residents and Pembrokeshire County Council respectively in their efforts to build low impact dwellings and find solutions to Building Regulations compliance. This information is gathered and analysed with the intention of establishing the nature of the conflict and any tension between low impact development (policies and principles) and the application of the Building Regulations. This process is undertaken in order to clarify obstacles, propose solutions and identify topics for further investigation and research.

Research question:

To what extent was a fundamental difference in approach between low impact developers and building regulations officers responsible for difficulties in applying Building Regulations at Lammas?

Synthesis

In chapter 1 it is noted that a self designed framework would be adopted to help synthesise the data. This involved analysing the research question, identifying the meanings behind the terminology and assessing the evidence for congruency.

Oxford dictionaries define ‘approach’ as "a way of dealing with a situation or problem" and ‘fundamental’ as an element "so basic as to be hard to alter, resolve or overcome".

For the purposes of assessing the evidence against the research question factors considered beyond the control of the parties are identified and removed from consideration. For the council these include elements such as the six-month window in which to take enforcement action, their previous experience of low impact development, a change in leadership (i.e. the

resignation and replacement of an officer) their duty to ensure regulations are met and the requirement for them to provide an enforcement role.

Other facets were more ambiguous. For example, could Building Control's decision to advise the developers to apply for relaxation be analysed as an approach or was it professional advice (even if misguided) based upon their understanding of the situation? The inspector's competence in matters pertaining to low impact development or the level of knowledge the developers possessed regarding Building Regulations were governed by experience and knowledge rather than approach. As such they are not evaluated when assessing the difference in approach between the two parties. Further examples are the developers' experience and knowledge of construction and their ability to interpret regulations. There is no verifiable evidence of partiality by Building Control and, while this possibility cannot be dismissed, it is presumed that they acted in good faith when judging both the buildings compliance with regulations and when assessing evidence such as structural reports.

The local authority's function in providing an enforcement role was removed from consideration as detailed above. However, it is within the control of the local authority to decide how, why and when to apply enforcement and this is a matter of approach. Similarly an inspector may accurately identify a construction element that has been omitted or has been specified in an unfamiliar fashion, but it is a matter of approach as to how this is addressed. Does he impose a prescriptive solution or to seek the developer's thoughts and justifications, effecting a dictatorial or a collaborative approach. It was the former approach that the inspector instigated and the latter approach that the council officer aspired to.

This prescriptive approach, described as "heavy-handed" by developer 1, fundamentally influenced the future communications including how the developers would approach their request for relaxation of the Building Regulations. The council's decision to involve their lawyers and invoke the threat of enforcement at a very early stage also set the tone of negotiations. The council chose to take a narrow and authoritarian approach. This was not well received by the developers and may have contributed to some of the developers taking a defiant stance.

Developer 2's early decision to avoid Building Regulations is significant as it provides evidence of an approach uninfluenced by the council's later actions. After the council was alerted, Developer 2 continued to resist Building Regulations by challenging Building Control's authority to impose enforcement action. At various points throughout the interviews developer 1 and 3 and the council officer highlight the resistance and adversarial approach of

other Lammas developers to Building Control. Developer 1 acknowledged there were other developers actively resisting Building Regulations and develop 3 spoke of an attitude of "superiority and dismissiveness" towards Building Control. Both of these substantiate the council officer's own experience and his belief that Building Control was not welcome at Lammas.

Developer 3 indicated that the fact that a number of developers commenced building without applying for Building Regulations was influenced in various ways by the group dynamics. Two key areas were the overreliance on developer 1 and 2's perceived knowledge of Building Regulations and other developers' lack of confidence to challenge their influence or to approach the council for advice. The evidence given by developer 3 suggests these dynamics have shifted in recent years. However at the time the decision was taken to commence construction these limitations could be described as fundamental.

It is difficult to assess to what degree the long and acrimonious planning battle affected the difficulties with Building Regulations. Developer 3 noted that both parties had demonised each other during this period and it is hard to conceive this did not impact on the developers' subsequent dealings with the council and vice versa.

The council officer may have struggled to enact change through his colleagues but his more accommodating approach was felt directly at Lammas and was positively received. As the final arbitrator, the council officer's approach was undoubtedly helpful in ensuring that the estimated 75 to 80% of queries were resolved through justification. There was also evidence that over time the council approached softened and their fear and suspicion receded.

Conclusions

First, evidence shows that the decision by Lammas developers, whether by miscalculation or conscious evasion, to commence construction in the absence of Building Regulations compliance, was an approach that was fundamentally opposed to the council's.

Second, the research demonstrated that within Lammas it was difficult either to challenge this approach or to take alternative independent action.

Third, this approach subsequently exacerbated the difficulties in applying Building Regulations due to the added complications involved in assessing completed buildings.

Fourth, evidence shows that Building Control's initial approach at Lammas showed little understanding of what the developers were trying to achieve or evidence of how the

department could adapt its standard approach to conventional buildings in order to take account of low impact building methods and philosophy.

Fifth, the research established that the council's attempts to invoke compliance at Lammas, including the threat of legal action, were met with varying degrees of cooperation and resistance.

Sixth, it was demonstrated that these combined factors above resulted in insufficient progress during the preceding six months which led to the instigation of enforcement action against Lammas developers.

Seventh, the evidence shoes that the majority of concerns raised by Building Control were eventually resolved by negotiation and justification rather than material changes. This evidence demonstrates that the buildings were predominantly compliant under Schedule 1 of the Building Act 1984 prior to the involvement of Building Control.

Eighth, where modifications were requested, for example to the roof design, no evidence emerged to show this created a tension between compliance and low impact development.

The evidence cited above point to the fact that the difficulties lay with approach both parties took rather than any fundamental incompatibility with the Building Regulations. Points seven and eight are further reinforced by the fact that the three buildings under scrutiny were built by developers with different levels of knowledge, experience and style of construction.

Therefore, notwithstanding the more neutral areas such as level of knowledge, experience and matters controlled by legislation, it is concluded that a fundamental difference in approach was largely responsible for the initial difficulties encountered at Lammas in applying Building Regulations. However, it is also acknowledged that, following a change in management at the council, the development of an improved understanding between the parties was influential in achieving a resolution to the dispute.

Recommendations

In order to instigate change and foster a more cooperative approach in the future the recommendations must be capable of inspiring not only a change in approach but also of changing factors that can influence approach such as knowledge and experience. It is beyond the scope of this text to study the psychology driving human behaviour and how this may be altered. Therefore the recommendations need to focus on verifiable actions. It is anticipated that by sharing experience and improving knowledge, individuals and organisations will feel

empowered to challenge the status quo and cultivate an approach that promotes collaboration and understanding.

The recommendations are as follows:

- It is recommended that the Welsh Government work with the One Planet Council to produce an advisory document regarding the application of Building Regulations to low impact development. This document would explain the reasons and motivations behind Building Regulations and low impact development to promote understanding and cooperation. It would be distributed to all local authorities and approved inspectors, low impact developers and other interested parties.
- It is recommended that the Welsh Government and the One Planet Council jointly pursue funding to create a technical document comparable to the Approved Documents. This would contain, for example, low impact construction techniques, how they work, where they have been used and whether they have received Building Regulations sign off. By recording approved template designs this document could also help to reduce the need for expert reports and their associated costs to the developer. Consideration could be given to negotiating reduced fees for 'duplicate' engineers' reports based upon existing designs and calculations.
- It is recommended that future One Planet Development initiatives embrace the need for Building Regulations at an early stage in their planning. Firstly, this is to educate participants and enable them to include this element in their planning. Secondly this is to facilitate discussions to achieve a unified approach and agreement to fulfil legal obligations that may otherwise negatively impact on members of the group or the perception and success of One Planet Development in the wider community. It is also recommended that consideration should be given to whether any such commitment will be ratified within the legal structure of the development.

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APPENDIX 1

Below, typical Lammas round house, top left shows greenhouse extension and top right apex detail of reciprocal frame roof.

Below, typical Lammas plot showing vegetable patch, agricultural barn and timber framed residential dwelling.

Above, Lammas communal hub building.

Above, roof construction of hub building and below, scale model of Lammas.