

Annex C

Response form

The purpose of this form is to help consultees marshal their thoughts and to assist collation and analysis of the many responses that are expected. The large number of questions is a reflection of the scale of this consultation exercise and the issues that need to be addressed.

To help consultees the form is divided into sections that match the structure of the consultation document. Consultees may respond to each question in strategic terms or in depth, as they choose.

In answer to each question consultees can choose to tick boxes and/or to provide suggestions and observations in more detail. In particular, if you disagree with any proposal, please add comments and provide practical alternatives. It is not essential to form a view against every question – respond only where you wish.

The list of questions is not exhaustive, and there is no intention to discourage consultees from expressing views “outside the box”. The last question is completely open to enable consultees to make suggestions or observations that do not fit into the preceding format.

We would prefer replies by email. To this end, an electronic version of the consultation questionnaire can be downloaded from:

www.communities.gov.uk/publications/planningandbuilding/part1f2010consultation

Alternatively, please return hard copies of the completed questionnaire along with any material that you feel would support your response.

Proposals for amending Part L and Part F of the Building Regulations:
consultation

Respondent Details:	
Name: Dr Hywel Davies	Please return Please return by: 17 September 2009 Responses should preferably be submitted by email to: PartLF2010.Consultation@communities.gsi.gov.uk Alternatively, hard copy responses should be sent to: Gerald McInerney Sustainable Buildings Division Department for Communities and Local Government 5th Floor Eland House Bressenden Place London SW1E 5DU
Organisation: The Chartered Institution of Building Services Engineers	
Address: 222 Balham High Road London SW12 9BS	
Telephone: 020 8772 3611	
Fax:	
e-mail: hdavies@cibse.org	

Are you responding as an individual?

Or are you representing the views of an organisation?

If you are responding on behalf of an organisation, please say who the organisation represents and, if applicable, how the views of members have been assembled.

CIBSE is a professional institution with a membership of 13149 in England & Wales. All members were asked for their views and CIBSE set up an email address, discussion forum and website poll to facilitate participation. In addition specific questions were referred to our Specialist Interest Groups in Combined Heat & Power, Facades, Energy Performance, Schools Design, Natural Ventilation, Lifts, Facilities Management and Building Simulation. CIBSE members attended specially organised events in London, Leeds, Manchester and Bristol to discuss the proposals.

Is your response confidential? If so please explain why.
(See disclaimer on page 18.)

Yes	<input type="checkbox"/> <input checked="" type="checkbox"/>
No	
Comments	

Provision is made throughout this questionnaire for you to make additional comments. If, however,

you wish to provide more detailed comments on any aspect of the consultation then please feel free to append additional materials and supplementary documents, clearly marked and cross referenced to the relevant questions, as necessary.

Organisation type (tick one box only)			
House or property developer	<input type="checkbox"/>	Local authority – Planning	<input type="checkbox"/>
Commercial developer	<input type="checkbox"/>	Local authority – Other (please specify)	<input type="checkbox"/>
Housing association (registered social landlord)	<input type="checkbox"/>	Approved Inspector	<input type="checkbox"/>
Property management:		Professional body or institution	<input checked="" type="checkbox"/>
Residential	<input type="checkbox"/>		
Commercial	<input type="checkbox"/>		
Public sector	<input type="checkbox"/>		
Builder – Main contractor (commercial/volume house builder)	<input type="checkbox"/>	Trade body or association	<input type="checkbox"/>
Builder – Small builder (repairs/ maintenance, etc)	<input type="checkbox"/>	Householder:	
		Homeowner	<input type="checkbox"/>
		Tenant	<input type="checkbox"/>
Builder – Specialist sub-contractor	<input type="checkbox"/>	Energy sector:	
		Generation	<input type="checkbox"/>
		Transmission	<input type="checkbox"/>
		Distribution	<input type="checkbox"/>
		Supplier	<input type="checkbox"/>
		Energy service company	<input type="checkbox"/>
Manufacturer	<input type="checkbox"/>	Other non-governmental organisation	<input type="checkbox"/>
Architect	<input type="checkbox"/>	Specific interest or lobby group	<input type="checkbox"/>
Civil/structural engineer	<input type="checkbox"/>	Research/academic organisation	<input type="checkbox"/>
Consultancy	<input type="checkbox"/>	Journalist/media	<input type="checkbox"/>
Individual in practice, trade	<input type="checkbox"/>	Development funder	<input type="checkbox"/>

or profession			
Local authority – Building control	<input type="checkbox"/>	Other (please specify):	<input type="checkbox"/>

Geographical Location			
England	<input type="checkbox"/>	Wales	<input type="checkbox"/>
England and Wales	<input checked="" type="checkbox"/>	Other (please specify): [Redacted]	<input type="checkbox"/>

Volume 1

Proposals for amending Part L and Part F of the Building Regulations

Chapter 1 Introduction

- 1 Two approaches have been presented for determining the target emission rate (TER) in 2010 for new dwellings: the “Aggregate 25%” and “Flat 25%”. The Government preferred option is “Flat 25%”.

Which approach do you prefer?

Aggregate 25%	<input type="checkbox"/>
Flat 25%	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>
Please give the reason for your answer There is less variety in design and occupancy patterns in dwellings than there is in non-dwellings so the flat approach will keep design and compliance/enforcement simpler. An aggregate approach works better in more complex buildings and these are typically in the non-dwelling sector. In the future (for 2013 and after) there may be scope for applying aggregate and flat TERs to the complexity of a building as opposed to the rather artificial split between dwelling and non-dwelling (given that there are some very large complex dwellings as well as blocks of apartments and that many small businesses occupy small and relatively simple units). In addition however, there should be a list of features that will help designers demonstrate how the figure is reached.	

- 2 Two approaches have been presented for determining the target emission rate (TER) in 2010 for new non-domestic buildings: the “Aggregate 25%” and “Flat 25%”. The Government preferred option is “Aggregate 25%”.

Which approach do you prefer?

Aggregate 25%	<input checked="" type="checkbox"/>
Flat 25%	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
The aggregate approach is the most reasonable way to approach the CO ₂ reduction as the cost will be similar across all sectors even though the CO ₂ reduction will not. However the aggregate approach could hinder development incorporating district heating CHP	

where different building types that have different targets are being supplied. Some may exceed their target whilst others might fall short. There will therefore be a need to address the complexity in the allocation of the savings from one community heating scheme across different users who may all be under different pressures to achieve varying reductions.

3 Do you agree that a 25% reduction target for new non-domestic buildings is an appropriate and practical target for 2010?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>

25% is a reasonable stepping stone towards zero carbon as an aspiration but in reality it is a challenging target. It will be difficult to achieve by the industry in practical terms as the specifications stated as necessary for 2010 compliance in Table 10 of Annex B are not substantially different to what industry is using currently to get buildings to pass Part L 2006.

There is a wide range of complexity on non-domestic buildings from simple warehouses to highly complex office or retail buildings as well as public buildings such as hospitals. It will be easier to achieve the targets for the less complex buildings (and demonstrate that achievement).

The 25% reduction target is likely to be ineffective without a serious commitment towards enforcement.

4 Do you agree with the proposal for changes to come into force in October 2010?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

This is the earliest realistic date given the size of the consultation and amount of work required from government to address the issues that are being raised.

Transitional arrangements will be crucial however. There is currently a significant amount of design work on hold due to the recession – having already progressed through the design stage. If the work is resumed during the implementation stages of Part L 2010 it will be costly to require re-design on projects designed to Part L 2006 standards. If the transitional arrangements are well thought out they could provide a much needed stimulus to the construction industry with designs coming off hold to be completed before the deadline.

Competent person schemes can potentially come in slowly after the Oct 2010 date as they get set up. If CLG wishes to expand the number and scope of schemes then very specific guidelines should be given to potential scheme operators early.

5 If you have any other comments on the Introduction, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number.

Paragraph number	Comment
	The omission of the question of consequential improvements has relegated it to the 'any other comments' section in the consultation questionnaire. The last time

CLG consulted on requirements consequential improvements, 80% of respondents were in favour of their introduction.

Some bodies have expressed deep regret and certainly one organisation has considered making this the subject of a call for a Judicial Review. Sections 5.23 to 5.25 of the DECC/CLG Heating and Energy Strategy Consultation April 2008 p.85 state that "The Building Regulations in England and Wales currently require consequential improvements during some types of building work to buildings above 1000 m2. This means that certain improvements to the energy efficiency of the building have to be made alongside the other work, helping to offset the carbon footprint of an extension, and helping to seize opportunities to make practical and cost effective energy improvements. Installing measures at this time is efficient as it minimises disruption and reduces the cost of the energy efficiency installation, compared to having it installed separately" and go on to say "In April 2008, the Communities and Local Government Committee of the House of Commons recommended that consequential improvements be made a condition of planning permission, as demonstrated by Uttlesford District Council. In response, the Department for Communities and Local Government has committed to look again at consequential improvements in the context of potential changes to Part L of the Building Regulations in 2010".

CIBSE also regrets that this commitment seems not to have been fulfilled in the Part L 2010 consultation and would question whether this is in the spirit of the Cabinet Office guidelines for consultations. We are also disappointed that after the CLG committee had spent time and taken evidence from a wide range of organisations a newly appointed minister seems to have dropped the issue from the consultation without taking any account of the prior undertakings of Ministers or the considered view of his own Department's Select Committee. As a contributor of written and oral evidence to the Inquiry we will be writing to the Chair of the Select Committee to make her aware of our response to Q5, and to seek a meeting with her to discuss it further.

We offer the following comments in support of consequential improvements:

Consequential improvements do not necessarily come with a big price tag. It must make sense to encourage low cost improvements such as loft and cavity wall insulation, and draught proofing doors and windows which can have short payback periods when people are spending money on other home improvements – it is not automatically a large bill for no benefit. A few hundred pounds on this type of measure, often covered by the energy efficiency commitment scheme, can have a significant impact on energy performance. If someone plans a new boiler in a really leaky home they might find that they need a smaller boiler as a result of some simple low cost insulation measures. The consultation should have contained some very specific questions about whether the environmental case could offset the cost and complexity.

If it were made a legal requirement that when undertaking building work on existing homes, 10% of the bill must be spent on improving the energy efficiency of the home then people would not stop doing home improvements they would simply factor in the cost of the energy efficiency work, much as they factor in the cost of a burglar proof front door or Part L compliant windows. The DIY stores would soon see the benefit of providing advice on the type of consequential improvements that are possible for a percentage of the other improvements.

Percentage of value however is more difficult for Building Control to evaluate so another option would be to require a percentage improvement in energy efficiency rather than a flat percentage of the cost of improvements. What is needed is a robust way of quantifying improvements in terms of what will work

	<p>(and what did work – when revisited - we would like to see ultimately some provision for measuring performance in use).</p> <p>Building Control Officers, without the benefit of further training, would look for a simple methodology – a ‘tick-box’ approach or a calculation. Concentrating on energy efficiency makes it easier to assess as BCOs can influence what they can see on plans and the calculation would be more directly related to the engineering of the job. Applying an x% improvement in energy efficiency would make it easier for BCOs and also be ideal for self certification.</p> <p>There should be a list of low cost rapid payback higher impact measures (cavity and loft insulation, condensing boiler, draught-proofing) that could be expected as part of an extension or improvement project. This is analogous to Table 6 in ADL2B dealing with consequential for non domestic buildings. We also note the addition of an extra item in Table 6, which is to act on the recommendations of an EPC. This makes it even more important that recommendations reports are realistic and are based on a robust assessment by the energy assessor. For larger buildings this link to consequential improvements makes a site visit by the assessor even more important if the report may be used in this way.</p> <p>The fact that there are workable options for consequential improvements only goes to show that the issue should have been fully covered in the consultation. The client needs to know what opportunities for consequential improvements are available to enable a decision whatever the requirements are.</p> <p>Regulating to increase the scope of work that falls under the Building Regulations would also provide certainty to the building industry that there will be future demand for these services. This would provide a strong incentive to invest in training to develop these skills. This is an important opportunity for the industry – the industry has estimated the potential market for energy efficiency refurbishment to be worth £3.5 to £6.5 billion per annum.</p>
--	---

(The comment box will expand to accommodate any comments you wish to make)

Volume 1

Proposals for amending Part L and Part F of the Building Regulations

Chapter 2

Proposals for improving compliance and building performance

- 6 Please indicate on the scale below your view as to the likely effectiveness of the proposals in improving compliance and performance for Part L in 2010.

Very effective	Effective	Ineffective	Very ineffective
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) Which proposals do you consider would be most effective and why?

Comment

It is impossible to categorise (as requested above) the overall effectiveness of the proposals. Some would be extremely effective and are to be welcomed – others require further consideration. In addition the effectiveness of many of the proposals will be dependant on the detailed implementation, information which is not available at present.

Furthermore, the effectiveness of any of these proposals is completely dependent upon compliance with the Regulations and effective enforcement measures must be in place to ensure compliance.

The design stage TER calculation is particularly welcome as it raises the chance of compliance by making sure compliance is likely at an early stage rather than finding out too far through the process that the building is non-compliant.

Improving services testing and commissioning procedures will be particularly effective as this will provide a better basis for the building services to work as designed from day one.

Modifying and extending the Competent Persons Schemes where appropriate is welcomed (provided the standard is consistently high) as these schemes allow BCBs to accept declarations of compliance by suitably trained and accredited professionals. It is however vital that consistent standards between schemes are maintained and checked.

b) Which proposals do you consider would be least effective and why?

Comment

The proposal to remove exemptions from Historic Buildings and replace it with 'special considerations' needs to be carefully thought through in detail to ensure that a balance is kept between character and energy use.

The clarification of the guidance in the Approved Documents on the interpretation of the energy efficiency requirements. There is still further clarification that could be provided to reduce ambiguity E.g. for air conditioning, (Section 3.5a) we are concerned that the regulation could end up covering large industrial process loads for which the regulations were not designed for. A list of what is and is not included would be helpful.

c) Please provide below any general comments you have on these proposals

Comment

It would help if there were a proposal to make the code for SBEM and SAP public to remove the 'black box' approach. This would enable a greater understanding of what is needed for compliance.

There needs to be an effective training strategy for implementing the changes to Part L and F. CIBSE suggests that CLG adopt the 'train the trainer' approach as was done for Part L 2006 - i.e. provide approved training material to organisations that can then pass on the required training to their members/employees in a structured and auditable way. This will need to be across the whole construction industry.

- 7 Please indicate on the scale below your view as to the likely effectiveness of the proposals in improving compliance and performance for Part F in 2010.

Very effective	Effective	Ineffective	Very ineffective
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a) Which proposals do you consider would be most effective and why?

Comment

- b) Which proposals do you consider would be least effective and why?

Comment

- c) Please provide below any general comments you have on these proposals

Comment

Success depends on the effectiveness of educating the end user to use and maintain ventilation systems correctly. This is potentially a big challenge, particularly in the case of dwellings and small businesses.

These proposals require a chain of good design, specification and product selection, manufacture, installation, commissioning, and maintenance. The outcome is only as robust as the weakest link and we need robust systems to ensure that the whole chain is in place.

- 8 Will the existing building control system be able to enforce the proposed changes?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>

In 2004 CIBSE expressed concern that BCOs would not be able to cope with the compliance checking and enforcement of Part L 2006. There was considerable evidence of lack of enforcement (and compliance with) the 2002 Revisions. CIBSE stated that without a significant increase in Building Control resources (and corresponding increases in fees or Treasury funding) the only realistic route to effective compliance with Part L 2006 and delivery of government policy objectives and obligations to the EU would be to engage with the relevant

professionals with the appropriate knowledge of compliance, and to empower those suitably qualified people to assist building control. A system which positively incentivises the use of such professionals will help to create demand for such professionals. There was scope to implement this via the powers created through Section 8 of the Sustainable and Secure Buildings Act. This section overcame all the difficulties which the (then) ODPM had encountered in relation to the difficulties applying the legal framework of competent persons schemes to Part L compliance checking.

Building Control Bodies quite rightly concentrate their limited resources in areas where there is direct threat to human safety in buildings. We welcome the work being done to develop this risk based approach but without an increase in resources it will be necessary to operate a risk based approach and energy performance will necessarily have a lower place in the risk hierarchy than structural, electrical and fire safety to name just three.

A possibility discussed briefly between CIBSE and ODPM at the time was the Approved Inspector system being modified to allow individuals to be approved as an inspector for one section of the Building Regs – in this case Part L. CIBSE still considers this worthy of further consideration.

- 9 Please provide below any general comments you have on the outline approach to improving compliance and performance of Parts L and F in the longer term.

Comment The Building Regulations have become increasingly complex to the point of near impossibility. CIBSE has been involved in a CLG working group to address the readability of the approved documents but we have probably already passed the point at which building control needs to be further strengthened or the regulations made less complex. Whole building certification may be the way to go, alternatively, a system whereby compliance with Part L and F can be certified by a suitably qualified person.

- 10 Please indicate your view about the need for, remit of and operational scope of a steering group – consisting of interests in government, building control, and industry together with the education, training and research communities – designed to develop and coordinate a strategy aimed at closing the performance gap by 2016.

(a) The need for such a group

Agree	Do not agree	No view
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(b) Please provide any comments you may have on the need for such a group

Comment
CIBSE would be are willing to serve on such a group as we consider it could be potentially very effective – CIBSE would also be willing to provide the Secretariat for such a group.

(c) If you agree that such a group would be valuable, please comment on the group's remit and scope

Comment This Group would have to provide simple, practical, realistic guidance and have a range of representation. It would have to have the power to 'steer' and not just be a talking shop.

- 11 If you have any other comments on the *Proposals for improving compliance and building performance*, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number.

Paragraph number	Comment

(The comment box will expand to accommodate any comments you wish to make)

Volume 1

Proposals for amending Part L and Part F of the Building Regulations

Chapter 3

Proposals for Accredited Construction Details (ACDs)

- 12 Do you support the proposal to accredit proprietary details?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

Comment

However there are some significant issues which should be addressed:

1. Few architects use ACDs, but most services engineers assume they are being applied when entering values for SAP line 34 (thermal bridges) in their modelling software. This is a major cause of poor post occupancy energy consumption results; as linear and point bridges are rife in most modern construction, particularly rain screen cladding; but are ignored in the calculation. The two alternative methods of Psi value assessment referred to in SAP Appendix K and IP 1/06 are also rarely used by architects and engineers: 1) numerical calculation and 2) the punitive y value method. ACDs should feature in the training and dissemination strategy.

2. The current ACDs do not set particularly high standards. They place reliance on plasterboard and paint (with penetrations for sockets, lighting, fitted furniture etc.) or rigid board insulation (presumably foil tape on the outer face), with no mention of continuous membrane Air and Vapour Control Layers – standards could be higher and therefore more effective without any significant impact.

3. They represent rather outmoded construction based on the suburban low rise house

building methods, and address very little of the currently dominant model of medium rise system clad construction.

4. They are poorly communicated with ambiguity in the drawings – this is a general standard that could be rectified retrospectively as well as for the future ACDs
5. There should be co-ordination with Robust Details in Part E and ACDs should be tested to the extent that part E Robust Details are tested to
6. ACDs can be subject to wide band of interpretation and should be accompanied by more guidance to reduce ambiguity. Much of the supporting guidance is obscure and poorly worded. For example, the explanation of γ values in IP 1/06 is not particularly clear. The coverage of point and linear rain screen bracket bridging in BR443 4.9.5 is very thorough, but little known and understood throughout the industry.
7. The conflict of ground floor interface details with Part M should be addressed
8. There should be details covering adjacency of two differing construction systems
9. ACDs should cover vapour control and moisture ingress as well as air leakage control and thermal bridging

13 Do you agree that the scheme(s) should encompass both domestic and non-domestic construction?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment	

14 Do you agree that psi-values should always be calculated by individuals with appropriate expertise and experience?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment	
It may be necessary to create a special accreditation to demonstrate the competency of persons doing calculations.	

15 Do you agree that a margin (say 10%) should be added to calculated psi-values until a minimum number of implementations of the detail have been inspected on site and shown to be satisfactory?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>Comment</p> <p>This approach is acceptable as long as there is a robust monitoring exercise in place to assess the actual performance of ACDs and to tune the provisions in the light of actual performance. This will also possibly need to extend to elements of Part E - acoustics.</p>	

- 16 Do you agree that regular inspection and feedback will improve the robustness of the details and add credibility to the claimed performance of the details?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>Comment</p> <p>This is essential and has to occur if ACDs are not to become a means of evasion and not compliance. It is important that a funding mechanism for monitoring is put in place.</p> <p>The 'threat' of regular inspection will reduce the temptation to adapt the ACDs by the installer.</p> <p>For ACDs to be a success not only should they be robust but they should be simple to install and understand and difficult to modify.</p>	

- 17 Do you agree that potential scheme operators should meet the criteria listed in paragraph 3-15 of *Proposals for Accredited Construction Details*?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>If your answer is Yes, please comment on how the criteria should be defined.</p> <p>If your answer is No, please list suitable criteria.</p> <p>CLG needs to be careful to avoid the QA problems that have arisen from the arrangements for energy assessor accreditation. It is vital that ACD scheme operators are committed to the core values of robust building control, and do not just see this as a commercial service.</p>	

- 18 If you have any other comments on the *Proposals for Accredited Construction Details*, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number.

Paragraph number	Comment
1.	The ACDs should be widened to include the requirements to control

	<p>interstitial condensation, cavity fire transmission and moisture penetration, thereby becoming a more comprehensive and un-conflicting tool to the industry.</p> <p>2. The details chosen for the basic set should mirror those already tested for acceptance into Part E Robust Details. This would highlight problems in the Robust Details with respect other Approved Documents. This is a general flaw in the Robust/Accredited Details system: that each detail must be altered by the user to address the needs of other parts of the Building Regulations, thereby often nullifying the original detail.</p> <p>3. The general standards in the basic set of ACDs should be raised, using better air/vapour control layers and indicating insulation zones more akin to those in use today.</p> <p>4. The new proposals for training and information dissemination should be wholeheartedly supported, with CIBSE contributing through its usual channels.</p> <p>5. CLG is seeking comments on the 25% penalty for unique calculated details by competent persons in proposed clause 5.5a.b of ADL1A and ADL2A (pages 36-37 and 134-135 of Volume 2). Given the poor standard of the original ACDs, this is rather harsh, as good designers may propose details considerably better than ACDs, model them in 2D thermal software and negotiate buildability with contractors, only to be penalised by the 25% rule. This should be discussed further.</p> <p>6. The clause 5.5a.c) of ADL1A penalty for use of unaccredited details without quantification (default $y=0.15$), as in IP1/06, should be supported.</p> <p>7. Clause 5.5a c) of ADL2A is confusing. There is no clear reason for using the 50% Psi penalty instead of the $y=0.15$ approach. Surely, either one method of adjustment for unaccredited details should be used in both approved documents.</p> <p>8. The junctions listed in IP 1/06 should be referenced with the same code as that used for the ACDs.</p>
--	---

(The comment box will expand to accommodate any comments you wish to make)

Volume 1

Proposals for amending Part L and Part F of the Building Regulations

Chapter 4

Training and dissemination strategy

19 Do you agree with the strategic objectives described?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment This all needs to be done with a longer term view – taking into account future	

revisions of the regulations as training and dissemination will be a slow and on-going process.

20 Do you agree with the list of target groups?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is No , please comment on how the list should be modified or developed.	

21 Do you agree with the range of content described?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is No , please comment on how the range of contents should be modified or developed.	

22 Do you agree with the approach described for working with industry?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment Yes – but it should be across the whole industry covering the entire supply chain to ensure no weak links	

23 Please provide any general comments you have on the long term development of the knowledge and skills base.

Comment
The focus of developing the skills and knowledge base seems to make the assumption that all change will be delivered by building designers and facility managers. However it is just as important to ensure that the building owner/developer has an understanding of policy, potential and opportunity to ensure that they set ambitious but realistic targets and also clear design briefs. Training, awareness and dissemination of information should also be targeted at this sector. Members of the professional bodies are often the first to have contact with the owners/developers and this conduit could be used to develop asset owners understanding of

objectives and the advantages of interaction between all members of the design team.

- 24 If you have any other comments on the *Training and dissemination strategy*, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number.

Paragraph number	Comment
	CIBSE participated in the working group that devised the proposed approach, and is broadly supportive. However, it is important to stress the significance of providing an adequately trained workforce to deliver low carbon buildings that meet the targets for emissions both on construction AND in day to day operation. It cannot be stressed too highly that this is a non trivial exercise, that cannot be achieved through a series of roadshows and training events in the six months after Part L 2010 is launched – it requires far more fundamental action.
	The phrase 'Suitably Qualified Person' is often referred to in relation to CHP. CIBSE would like to see accreditation schemes similar to those for EPC, DEC and AC inspectors to identify 'suitably qualified persons' who will have undergone training enabling them to design sensible CHP systems and produce reliable feasibility reports. It is important that the specification for such a scheme should cover knowledge base and experience. This type of competence based scheme could be broadened to cover training on all LZC technology.

(The comment box will expand to accommodate any comments you wish to make)

Volume 1

Proposals for amending Part L and Part F of the Building Regulations

Chapter 5 Future Thinking Paper

Part L

25 Do you agree that the separate target for electric resistance heating should be progressively removed?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
<p>Comment It is unclear what we are being asked to support. In general special cases lead to unforeseen and usually unwanted consequences. Why would this separate target be any different?</p> <p>In addition, we should not be establishing an approach now that will, in future, dis-incentivise CHP.</p>	

26 Do you agree that the calculation tools should report energy demand (kWh/year) for both regulated and currently unregulated demands from 2010?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>Comment The more currently unregulated use can be brought within the scope of Part L the better. It is also important to focus on both energy use and carbon emissions – over emphasis on emissions can lead to perverse outcomes that waste energy with low emissions!</p> <p>Care must be exercised when using the energy demand data collected to ensure that any benchmarking etc is fair to all buildings.</p> <p>This should go hand in hand with consideration of potential future occupancy and changing requirements that require major fit-out or re-fit.</p>	

27 Do you support the idea of setting energy demand limits in amendments to Part L beyond 2010?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>If your answer is Yes, which metrics do you think are most appropriate and why?</p> <p>We should learn from America where they are well ahead on peak demand. Reducing peak demand will reduce the need for additional capacity and reduces the risk of power cuts. This is going to be increasingly important in the next decade.</p>	

28 Do you support the concept of incorporating an automatic assessment of renewable potential as part of the Part L compliance tools?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

If your answer is Yes, please give suggestions as to how this assessment could be carried out. Some of the current experience of CIBSE members in dealing with renewables in SBEM gives grave cause for concern. Unless the full code of SBEM is transparent, so that users can see and understand why SBEM generates the results it produces, then this proposal is highly problematic, and will increasingly lead to problems for CLG. Given the current discussions within the Microgeneration Certification scheme about its treatment of innovative solar thermal systems, the current black box approach in SBEM is increasingly likely to lead CLG to court for unfair treatment of one product against another.

29 In respect of the operating and maintenance information to be provided to the user, do you think it would be a good idea if the level of content and form of presentation of the material were made a legal requirement?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Experience with reporting of statutory air conditioning inspections has shown that there is a need to be prescriptive in terms of content and format, otherwise competition occurs around content and form, undermining quality and confidence.	

30 Do you agree that vertical transport, security and feature lighting should be included in the TER/BER calculation for non-dwellings beyond 2010?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Because significant amounts of energy can be saved through energy efficient vertical transport systems. Bringing vertical transport into regulated energy use will incentivise lift manufacturers to produce more energy efficient lifts. The CIBSE Lifts Group supports this and is willing to contribute to developing the proposals.	
CIBSE also agrees that security and feature lighting should be included.	

31 Do you agree that the energy impact of air curtains should be included beyond 2010?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is Yes, on what basis should standards be set, and how should the energy impact of other large openings be assessed? Set up an expert industry working group to address this.	

32 If the exemption for conservatories less than 30m² is removed from Part L in 2010, how do you think energy performance standards for conservatories should be improved beyond 2010?

Comment If they are used as all season habitable space, then they have to meet the same energy performance standards as other all season habitable space.

33 Do you feel that the modelling of highly glazed spaces in SAP and SBEM is adequate?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
We reiterate our comment in Question 28 calling for the full code of SBEM to be transparent.	

34 If you have any other comments on the *Future thinking paper* in relation to Part L, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number.

Paragraph number	Comment
	Information and Communication Technologies (ICT) needs to be looked at hard as the energy usage of these systems has increased at a rapid rate in recent years. As the power used by ICT equipment increases so does the cooling demand. Therefore we recommend that CLG look at how best to regulate both the energy use and the cooling process.
	<p>Demand reduction is also key to reducing peak demand (se Q 27) and also to reducing total installed generating capacity. It needs to be the first measure every time – a kWh <u>not</u> used is the cheapest form of emissions reduction.</p> <p>The approach from the zero carbon definition illustrated in a triangle with energy efficiency at the bottom should have a 4th step before that of “Reducing Demand”. Zero Carbon cannot be reached unless user behaviour is tackled, demand cannot continue to grow as it has.</p>
	Balancing requirements of all parts of the building regulations will become a challenge. For example concerns are being expressed that the extra construction material needed to create a low heat loss building may be raising the fire load to unacceptable levels in some circumstances. There cannot be contradictions between the parts of the building regulations.

Part F

35 Dwellings are traditionally naturally ventilated. Within this consultation version of ADF, we have included guidance for increased natural ventilator area for more airtight dwellings. Do you have any evidence to suggest that appropriately sized natural ventilation does **not work** adequately in airtight homes?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>The following comments do not specifically address the question asked but there is no more appropriate question box to place them.</p> <p>The key issue is the need to ensure that where MVHR is used it will actually be robust - well manufactured, installed, commissioned and maintained, and will deliver a comfortable and healthy environment. There are serious reservations about the ability of MVHR to achieve this, especially in low cost housing. We cannot move away from openable windows in low rise dwellings, and in summertime these may be the ventilation approach of choice. In addition, for MVHR to be effective, it is essential to achieve an especially high standard of air-tightness, so the air extracted is the same air blown in, not cold outside air. With current construction methods, there is no short cut to proving the level that has been achieved: it has to be measured.</p> <p>CIBSE has recently met with officials at Business Innovation and Skills. They have clearly come to the conclusion that in the domestic market whole house mechanical ventilation is the only way to go. We need to be sure that the potential benefits of MHVR are actually realised. Amongst the professional membership of CIBSE there have been two views – firstly, that MHVR, properly installed, commissioned, understood and operated can work well but that in a domestic situation it is questionable whether this would be typical.</p> <p>There is much that can go wrong - failed motors, blocked filters and un-insulated ducts can be monitored and maintained by a facilities manager in a non-domestic scenario but may not receive the required care and attention in dwellings. Social Housing could be inspected by LAs and RSLs but the private rented sector is less well regulated. Another issue is how these are going to be installed without compromising the fire safety of dwellings.</p> <p>The vast majority of the UK building stock does not have whole house ventilation systems and the vast majority of the UK housing stock does not suffer from mould growth and damp. Where these small cases exist, case studies have shown that it is usually the occupant behaviour, e.g. trying to dry washing in the house. Warm air based systems were extensively tried in the 1970's - the market (occupiers/owners) rejected them conclusively and they have largely been replaced with passive ventilation and radiators. People want to live in buildings in which they have control over their conditions in a simple low tech way given the specifics of the UK climate. The attempt to try and force mechanical systems into ordinary dwellings is not what the consumer wants and it will lead to homes being built that not many consumers want.</p> <p>Local authorities started installing MVHR systems in the 1980's. It would be worth trying to track some case studies. A major problem for MVHR in most of Britain is that the climate is just too mild. SAP calculations currently penalise MVHR because the fan electricity is deemed to outweigh the savings from the heat recovered. Obviously in a very cold climates the economics and energy balance might be different. The extreme air-tightness needed to squeeze any energy benefit out of the UK climate, combined with the very small size of British low income</p>	

dwelling, is not fail-safe. A Swedish Indoor Air study identifying low ventilation rates in houses combined with a proven impact on child health is an excellent example of what to expect. (C. G. Bornehag , J. Sundell , L. Hägerhed-Engman , T. Sigsgaard "Association between Ventilation Rates in 390 Swedish Homes and Allergic Symptoms in Children", INDOOR AIR: Volume 15(4) p 275-280 (2005). Also a study by CHMC in Canada showed 12% of systems not working at all and over 50% with blocked filters (CMHC Research Highlights "Field Survey of Heat Recovery Ventilation Systems", Technical Series 96-215 1999). The Chairman of the CIBSE Policy and Consultation Committee was part of a delegation that visited Sweden at the time. Blocked filters have also been shown in Japanese studies.

Having been very impressed with the energy and comfort performance of and occupant responses to well-designed and operated MVHR, a CIBSE member has tried it for himself and provided a useful case study: <http://zerochampion.building.co.uk/2009/09/07/the-refurbishment-challenge-air-tightness/> . This building refurbishment aims to achieve an 80 per cent carbon saving.

We need to recognise that air quality is just as important as temperature. But we need to give occupants simple means to help them as to when they need to open a window. In Schools teachers have welcomed the use of a simple CO2 monitor which indicates when it is advisable to open windows - as generally people do not realise that although CO2 maybe ' harmless ' it does not help concentration. Proximity to the outside environment (e.g. roadways, schools) has an effect on air quality and also noise.

And also architectural form needs to be designed with airflow in mind. The Natural History Museum by Waterhouse in about 1883 is a good example. Passive considerations are still important today. These help to lower the power demand whilst maintaining fresh conditions throughout most of the year, so limiting the use of active systems to when extreme conditions prevail. We must not forget the use of building materials, mass and night cooling all help to balance the energy requirements.

Measurements undertaken by Veetech show that bedroom ventilation is extremely poor - see <http://www.veetech.org.uk/Bedroom%20Ventilation.htm>. The headline Part F minimum ventilation for dwellings is poor, reducing to 4 l/s per person for the third person onwards. In addition this is a whole house value rather than an individual room value. Rather like lighting, ventilation should follow the occupant - something that mechanical systems are unlikely to achieve. Soon CO₂ sensors will be sufficiently stable and cheap enough to provide occupants with the facility to monitor CO₂ in the home and provide them with the information they need.

36 Do you agree that we should develop guidance for demand-controlled ventilation systems in new dwellings beyond 2010?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

Mechanical ventilation is not necessarily the only answer when dealing with air-tight and very low heat loss buildings, natural ventilation should not be dismissed. However mechanical ventilation will be suitable in some dwellings for various reasons (for example, acoustics) and DCV will be crucial in reaching the really low emission targets in the future. Occupancy patterns should be an element of the design process. Having mechanical ventilation running whilst all

the occupants of a dwelling are out for the day is clearly wasteful.
 How to implement DCV is another question, a manual switch is unlikely to be used properly whilst automatic control using PIR sensors etc adds greater complexity and cost. Perhaps there is a lesson to be learned from the hospitality industry - the 'key card' system seen in hotels could be adopted where the system comes on when the door key card is placed in a card holder. There are other automatic controls which are triggered by other things which are already on the market and should be used as well

37 Do you foresee the need for technical amendments to guidance for new buildings other than dwellings in subsequent revisions of ADF?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
If your answer is Yes, please provide details. There may be lessons learnt after implementation of ADF 2010. A robust review process should be planned.	

38 Do you foresee the need for significant technical amendments to guidance for existing buildings in subsequent revisions of ADF?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
If your answer is Yes, please provide evidence There may be lessons learnt after implementation of ADF 2010. A robust review process should be planned.	

39 If you have any other comments on the *Future thinking paper* in relation to Part F, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number.

Paragraph number	Comment
	We really do need to continue to monitor the impact of the changes in Parts F and L on overall indoor air quality and associated health effects. The current small scale projects are welcome but more work on a wider sample base is needed over the next 2 years to provide a robust evidence base.

(The comment box will expand to accommodate any comments you wish to make)

Volume 1

Proposals for amending Part L and Part F of the Building Regulations

Annex B

Consultation stage Impact Assessment

Part L

- 40 Are the levels of emissions reductions set out for different new domestic and non-domestic building types reasonable?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is No , please explain why	

- 41 Are the cost and benefit data and methods of analysis given in the Impact Assessment for **new** domestic and non-domestic buildings reasonable to evaluate the impact to amendments to Part L?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Please suggest how the estimates and methods of analysis could be improved	

- 42 Are the cost and benefit data and methods of analysis given in the Impact Assessment for **existing** domestic and non-domestic buildings reasonable to evaluate the impact to amendments to Part L?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Please suggest how the estimates and methods of analysis could be improved	

Part F

- 43 For Part F, are the proposals for higher ventilation rates, testing and commissioning of ventilation systems in new dwellings set out in the Impact Assessment adequate to offset any worsening in indoor air quality that could arise from increases in air tightness? Are the costs identified reasonable?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is No , please suggest what other changes might be required and their likely cost.	

General

- 44 Are there categories of risk, uncertainty or unintended consequences that have not been identified in the Impact Assessment?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is Yes , please identify them. Thoughts on how to quantify the costs and benefits of any further categories would also be helpful	

- 45 Are you content with the specific impact tests carried out in the Impact Assessment?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is No , please explain why	

- 46 Do you agree with the proposed percentage improvement in compliance arising from the amendments to Parts L and F, based on the evidence in the Impact Assessment as well as in Chapter 2: *Proposals for improving compliance and building performance*?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is No , please explain why	

- 47 If you have any other comments on the *Impact assessment*, please add them here, making clear which issue each comment relates to by identifying the relevant page number.

Page number	Comment
	There is little in the way of data or evidence to enable CIBSE to comment on the impact assessment.

(The comment box will expand to accommodate any comments you wish to make)

Volume 2

Proposed technical guidance for Part L

Chapter 1

Approved Document L1A – Conservation of fuel and power in new dwellings

Chapter 2

Approved Document L1B – Conservation of fuel and power in existing dwellings

Chapter 3

Approved Document L2A – Conservation of fuel and power in new buildings other than dwellings

Chapter 4

Approved Document L2B – Conservation of fuel and power in existing buildings other than dwellings

ADL1A, ADL1B, ADL2A, ADL2B

- 48 Do you agree with the proposal to remove the current exemptions for certain classes of building/building work from the energy efficiency regulations, and to use guidance to demonstrate what is reasonable in each particular case?

Yes	<input type="checkbox"/>
-----	--------------------------

No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
<p>There is not enough detail about proposed guidance to be able to comment. It is an important question however that needs industry input. CIBSE would like to see a plan, list of contributors/authors and a timetable for the production of this guidance and an opportunity for industry to input to it before answering this question.</p>	

49 Do you consider that the exemption for conservatories less than 30 m² should be removed from Part L in 2010? (*The main details are in ADL1B.*)

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

50 If the exemption for conservatories less than 30 m² is removed from Part L in 2010, do you consider that work on conservatories should be notifiable?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>If it were not notified how would compliance be assured? It would however place a greater burden on building control. Instead an independent certification scheme may be more manageable.</p> <p>There is an underlying behavioural issue here - we have to set about winning hearts and minds over to more energy efficient low carbon options. Otherwise this regulation in particular will achieve nothing.</p>	

51 Do you agree with the proposed definition of a conservatory if introduced in 2010?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment	

52 Do you agree with the proposed technical standards for conservatories if introduced in 2010?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment	

--

53 Do you agree that we should introduce guidance on the insulation of swimming pool basins within buildings?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
The addition of a minimum U-value for swimming pools is welcomed but we suggest some text is added to the compliance guide to highlight that the heat loads for swimming pools will be reduced and as a consequence CHP units designed to serve swimming pools will need to be sized smaller than before.	

ADL1A, AD2A

54 Do you agree with the proposal to require a design stage CO₂ emission rate calculation to be provided to the building control body (BCB) with the deposit of plans, in addition to a final as-built calculation?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
CIBSE welcomes this proposal. Many professional building services engineers already submit CO ₂ calculations to the BCB at the design stage to be granted planning permission. By making it a requirement rather than a suggestion (as it currently is in the ADL2A) designers can confidently include it in their scope of work for agreement with the client. The detailed specification needs to be included too.	

55 Do you agree that the commissioning plan should be made available with the deposit of plans?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>The regulatory requirement for the commissioning plan and energy calculations and detailed specification is important. There is an underlying commercial issue in that until outline planning is granted the engineers are working at risk or for minimal fees. This will be a problem that drives lowest cost compliance even in larger consultants for pure cash flow and risk management reasons.</p> <p>Commissioning is inherently linked to installation progress and generally when the installation programme slips, so does the commissioning programme and the building does not perform as designed right from the start. Requiring the consideration of commissioning at an early stage can only improve the situation.</p>	

CIBSE welcomes CIBSE code M now stated to be the approved procedure, supported by the other CIBSE Codes and BSRIA Guides.

56 Do you agree with the proposed approach to assigning psi-values in the DER/BER calculation?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
Comment	

57 Many adjustable trickle ventilators, and other air inlet devices, are designed to provide a small amount of background ventilation even when fully closed. Do you agree with the proposal that, in order to obtain a good measure of building envelope performance, the air permeability of buildings should be measured with air inlet devices sealed (method B in BS EN 13892:2006) rather than just closed as at present?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>It is prudent to align the method with the British Standard. This also complies with CIBSE Guide A 2006 which recommends that 'any natural ventilation and mechanical ventilation openings are sealed with polythene sheet and adhesive tape.'</p> <p>Manufacturers design products to seal tight under closing mechanisms and external forces (from the outside of the building), which is correct. But these features can have the reverse effect and allow more air leakage when (unnaturally) pressurised from the inside of the building. It would be silly to reverse this feature just to improve an artificial internal air tightness test. So, again it is better to seal the vents</p>	

ADL1B, ADL2B

58 Do you support the revised definition of renovation?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
<p>In general the revised definition is supported however there is some concern in the industry (with leading membrane manufacturers for example) that the new definition of what constitutes a renovation and the need to redefine what is stripping down (which was highlighted at a BRE Part L 2010 Consultation Seminar) may be a backwards step.</p>	

In the proposed technical guidance for part L (page 59) there is a proposal to amend the definition of renovation in relation to a thermal element from 'the provision of a new layer or replacement of an existing layer' to 'the process of stripping down the element to expose the basic structural components (brick, blockwork, timber / metal frame, joists, rafters etc.)' This may be a sensible interpretation in most situations, however, when a flat roof is in need of re-roofing because the waterproof membrane has deteriorated beyond repair, it is not usually necessary to strip off the existing layer(s) unless the structure is also in need of repair. Up until 2006 it was common practice to merely install a new waterproofing layer over the existing. Since 2006 however, Building Control has been adamant that if the existing thermal performance of the roof was below a certain U value and more than 25% of the roof area needed replacing then the thermal element required to be upgraded by installing additional insulation prior to re-waterproofing. This has generally been accepted by the roofing industry, and most contractors will now advise building owners accordingly (although some still describe liquid waterproofing as a decorative finish). If the new interpretation for refurbishment is accepted, roofing contractors will merely revert to overlaying the existing waterproofing without upgrading the thermal performance, quoting that the underlying structure did not need to be exposed.

CIBSE suggests a possible new wording -----means the process of stripping down the element to expose the basic structural components, for walls this would be the brick/blockwork/timber/metal frame, pitched roofs - rafters/joists/supporting structure, flat roofs supporting deck/metal/timber/concrete or membrane if being retained as a vapour control layer and ground floors sub floor/hardcore, and then -----.

We also question the logic of increasing the proportion of the thermal element when repair becomes refurbishment from 25% to 50%

59 Do you agree with the guidance covering work on historic and traditional buildings and places of worship?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>The guidance needs to be specific and simple so that it is easy to follow and removes ambiguity so that energy efficiency is improved. Perhaps the provision of a target emission rating based on a notionally compliant building would be the best approach so that if fabric cannot be upgraded then other allowable measures are provided so as not to compromise emission savings or heritage.</p> <p>Guidance needs to be mindful that many heritage buildings use humidity control to preserve the building and/or its content; therefore energy consumption may be higher than otherwise expected. CIBSE's Guide to Building Services for Historic Buildings contains useful guidance.</p>	

60 Do you agree with the improvements to standards that are proposed for work in existing buildings?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

There is some concern amongst CIBSE Professional members that if the standards such as U-values are improved too much then more building owners may go by the back door and use a 'local' contractor to refurbish the property without using any insulation and not use a reputable contractor or membrane/insulation supplier who would advise them correctly.

While there may be some truth in this, the correct response is not to 'water down' the requirements in the hope that more people will comply with the regulations. Instead enforcement has to be improved to stop non-compliant refurbishments. This will be even more important during future revisions of Part L and F.

ADL2A, ADL2B

61 Do you agree with the new guidance relating to buildings with low energy demand?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>Comment Item c, buildings intended to be used for less than 15hrs/week should be removed. Just because a building does not use energy for very long periods of time, being wasteful in those short periods is not justified. Also, as is pointed out in the proposals, there can be no guarantee that the usage would not be increased at some point in the future.</p>	

ADL1A

62 Do you agree with the revised definition of dwelling type?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>Comment It is clearer in respect of student accommodation, sheltered housing etc</p>	

63 Do you support the proposals for assessing the air permeability of dwellings that are not subject to a pressure test?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>Comment Paragraph 5.15a – Where the builder can use results from a similar dwelling type it is slightly risky but understandable as it will reduce costs. This may require some spot checks though to check whether this method is reliable. Paragraph 5.15b – Using a default of 15m³/(h.m²) is fine.</p>	

64 Do you agree with the assumptions on secondary heating and internal lighting as proposed for the actual dwelling?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment	

65 Do you agree with the proposals for dealing with heat losses caused by a party wall bypass?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment Many CIBSE members when asked this question replied 'don't know' which highlights that this issue is not understood yet by the industry. This is one of the topics that CLG should include in the training we highlighted would be necessary in question 6c to ensure that industry can implement the new regulations successfully.	

66 If you have any other comments on *Approved Document L1A*, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number. Note that the issues relating to the target setting mechanism are raised under Volume 2, Chapter 5 dealing with changes to the *National Calculation Methodology (NCM)*.

Paragraph number	Comment

(The comment box will expand to accommodate any comments you wish to make)

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment	

ADL1B

67 Do you agree that, for most cases, the basis of the standards for replacement windows should be the window energy rating?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

Comment

68 If you have any other comments on *Approved Document L1B*, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number.

Paragraph number	Comment
	<u>Future connection</u> The AD could include a statement that a building should consider connecting into an existing district heating network when work on the heating system is done. It should also state that 2 capped off pipes should be left for connection to future networks.

(The comment box will expand to accommodate any comments you wish to make)

ADL2A

69 Do you agree that Part L should set standards for buildings which use energy to condition spaces that contain processes, such as computer rooms and cold stores?.

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>This issue needs careful consideration and, if included, careful wording. 'Process Energy' could cover circumstances for which the regulations are not intended. We suggest that a list of exactly which processes are included in the energy efficiency requirements be produced otherwise there may be unintended consequences. For server rooms in offices the requirements should apply but perhaps not for heavy industrial processes for which the requirements may not be logical or feasible. There may well be separate regulations that already cover these activities such as the carbon reduction commitment and the scale of energy consumption in some cases will be so vast that energy efficiency may already be a primary concern.</p>	

70 Do you agree with the new guidance covering modular and portable buildings?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment	

71 Do you agree with the proposed approach to shell and core developments?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

Don't know	<input type="checkbox"/>
Comment Finding the most energy intensive fit out that is compliant can in some cases be quite time consuming. Perhaps this process could be simplified if SBEM produced the default settings for a shell building.	

72 Do you agree with the proposed change to the basis of Criterion 3 – limiting the effects of solar gain in summer?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>It is encouraging to see that air-conditioned buildings now have to comply with criterion 3 due to introduction of a solar gain calculation (the 2006 overheating calculation affectively only applied to naturally vented buildings). However it is a concern that the over heating calculation has been removed. There is now a danger that 2010 compliant buildings may be built which overheat and later require an AC retro-fit.</p> <p>We propose that the solar gain calculation proposed be adopted for air-conditioned buildings and the previous overheating calculation (1% over 28°C and 5% over 25°C criteria) be re-instated for un-conditioned buildings.</p> <p>We also have some queries below.</p> <p><u>g-Value</u> How was the g-value leading to more lighting energy use of 0.46 for the reference building decided upon? It appears to be quite low. We are concerned that this prescriptive approach may prevent the architect from striking the right balance between daylighting and overheating.</p> <p><u>Occupied Space</u> Criterion 3 only complies for an occupied space which is defined as a space that is intended to be occupied by the same person for a substantial part of the day. We are concerned that this definition could cause some confusion about what is and isn't included. For example, is a roof lit atrium with a receptionist stationed on the ground floor exempt or not?</p> <p><u>Thermal Mass</u> The proposed calculation does not appear to account for the thermal mass of the building. If so, we propose that thermal mass should be a factor in the calculation. It needn't be complicated, a factor could be applied for light, medium or heavy weight buildings in a similar way that CIBSE guide B provides plant size ratios to heating buildings of different weights.</p> <p><u>Shading</u> The use of external and internal shading devices to reduce the solar gain is not mentioned. Is this an allowable solution? We think that it should be included. Can shading from neighbouring buildings be included in the calculation or not? We see that there are pro's and con's to including it. Whilst you can't always rely on the surrounding buildings to maintain the same shape it would seem unwise to install low g-value glazing or shading devices on a facade that is shaded by a neighbouring building. We request that a decision be made one way or the other so that everyone is doing the same.</p>	

73 If you have any other comments on *Approved Document L2A*, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number. Note that the issues relating to the target setting mechanism are raised under Volume 2, Chapter 5 of this consultation on *Proposed changes to the National Calculation Methodology (NCM)*.

Paragraph number	Comment
V2 P123 ADL2A 4.16	<p>Part (a): An example calculation of the combined emission factor would be helpful.</p> <p>Parts (b) and (c) Further clarification required and an example calculation would again be helpful.</p>
V2 P123 ADL2A 4.17	<p>The additional text provides good clarification but creating a thermal emission factor where electrical output of the CHP and fuel consumption are treated as essentially irrelevant is the wrong approach.</p> <p>We propose the following equation be used in conjunction with the feasibility study called for later in this response.</p> <p>The net CO₂ impact of CHP = CO₂ due to gas burnt – CO₂ due to avoided electrical import – CO₂ avoided by not producing heat in a boiler – CO₂ avoided by not using electricity in a chiller.</p> <p>The CO₂ reduction of the ‘correctly sized’ CHP from the feasibility study could then be evaluated rather than an arbitrary emission factor.</p> <p>A scheme for accredited suitably qualified persons responsible for CHP design would be helpful.</p>
4.31b	<p>There is a proposal for centralised switches to be considered. This is an improvement but is just as open to neglect as multiple manual switches. This action can be automated, leaving no requirement for any manual interface (although provision of a manual over ride is of course beneficial) to save energy.</p>
	<p>The NCM lighting level needs looking at particularly for hospitals. Presently the NCM lighting lux level is less than the LG2 lighting code requirement in wards and circulation areas. this makes it very difficult to get a hospital to pass the emissions criteria</p>
	<p><u>Removal of Building Bulletin 101 ‘Ventilation in Schools’ in ADL2A</u></p> <p>CIBSE, advised by its School Design Group, believes that the education estate is very different from the majority of built environments covered by the building regulations and as a result we strongly advocate the provision of specific guidance for schools or more widely to learning establishments.</p> <p>This is important because the school estate represents some 2% of the UK building stock, but this is of the order of 15% of the Government estate this is an area where carbon management and the quality of the built environment could offer significant leadership in terms of best practice. Turning to the learning capacity of the school this is the essence of the guidance provided in BB101, a framework that requires the impact of high CO₂ levels, adverse temperatures, etc to be considered and managed to ensure that it supports the maximisation of learning and development.</p> <p>In this context CIBSE finds it regrettable that the reference to Building Bulletin 101 ‘Ventilation in Schools’ in ADL2A 2006 has been removed in the 2010</p>

	<p>consultation version of ADL2A. This Building Bulletin deals with the risks and assessment of overheating in school buildings and is an integral part of safeguarding the learning environment.</p> <p>CIBSE would like some confirmation that research has been carried out to ensure that the reliance solely on controlling solar radiation into a densely occupied school building (i.e. in some school models occupation density is 1 person per 1.5 m² to 2m² with ICT etc) is adequate to avoid overheating.</p> <p>Additionally, we also ask for clarification on how the CLG consider that the removal of the guidance on the limitation of overheating, as in BB101, from ADL2A, is in line with the Government's Climate Adaptation policy.</p> <p>It is widely reported, anecdotally, that overheating in schools can be problematic based upon historical learning models, today we have an increasing level of ICT and this challenge is likely to be exacerbated. Therefore the CIBSE requests that the citation of BB101, with respect to its overheating standards in schools, is re-instated in the Approved Document.</p>
--	--

(The comment box will expand to accommodate any comments you wish to make)

ADL2B

- 74 If you have any other comments on *Approved Document L2B*, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number.

Paragraph number	Comment
	<p>CIBSE does not support the proposal to have two different criteria, one for existing buildings and one for new buildings. With respect to lighting any major refurbishments are dealt with in the same way as if the building was a new build. Lighting controls should form an integral part of lighting for both new buildings and refurbishments. Strongly recommend that the criteria proposed for existing buildings should apply to new buildings as well.</p>
	<p>Whilst CIBSE supports many of the changes and additions to the ADs we are concerned (as stated elsewhere in this response) that the growing size of the Part L documentation will make compliance a greater burden to the industry and increase cases of unintended non-compliance because the guidance is too complex.</p> <p>As broader targets get tougher this highly prescriptive approach may become unwieldy and for future revisions a new approach may need to be considered where broad targets are set that can be easily measured and achieved in any number of ways and which can be easily checked for compliance.</p>
	<p>Future connection - the guidance should include a statement that a building should consider connecting into an existing district heating network when work on the heating system is done. Also state that 2 capped off pipes should be left for connection to future networks.</p>

(The comment box will expand to accommodate any comments you wish to make)

Volume 2

Proposed technical guidance for Part L

Chapter 5

Proposed changes to the National Calculation Methodology

- 75 Do you agree that the specification of the notional dwelling represents a reasonably achievable standard?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment	

- 76 Do you agree with a fuel-based target that for most fuels delivers an approximately equal energy efficiency standard?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>

CIBSE is not convinced by the argument for a fuel-based target. The intention is to encourage energy efficiency but the effect may be to discourage renewable technologies. To reach zero carbon we will need renewable technologies so why discourage them now only to need them later? This could stunt the growth of the renewable industry in the UK.

Carbon Emission Factors

CIBSE has consulted professionals from the CIBSE CHP group on this issue. Some believe the removal of a differential between consumed and displaced electrical emission factors is valid for the following reason. Whether electricity demand is modified by improved electricity efficiency or on-site generation it must lead to the same impact on the power stations supplying the grid. Others believe that locally generated electricity will displace mostly coal and gas generated electricity and that there are less distribution losses from locally generated electricity which results in the view that there should be a differential. This indicates a need for research.

The carbon emission factors are different to those produced by DEFRA, there should be consistency across government departments.

Why has the electrical emission factor for heating changed from 0.422 to 0.306 kgCO₂/kWh? Is this also the carbon factor for power?

Should carbon factors for Bio-fuels also be included here?

We support a grid emission factor of 0.591kgCO₂/kWh provided it includes transmission losses.

Bio-fuels

The factor for Bio-oil is worse than for Bio-diesel. This does not incentivise using bio-oil directly in CHP, instead the oil would need distilling to produce diesel and CHP would be in competition with the transport industry for supply.

There should be more information about what is defined as Bio-oil and Bio-diesel. There are specific definitions for Bio-diesel and Pure Plant Oils (PPO) with different ratios of blend – eg B5 or B80? In the holistic view are we comparing eggs with eggs for these two factors? – in the field to CHP life cycle what should be added to the Bio-diesel factor to account for the processing and transport? PPO can be grown, produced and used within a short distance. PPO is virtually wholly renewable benefitting the commercial position by virtue of the ROCs available – something not available once a blend is used. The use of PPO in CHP that operates more efficiently than transport ought to be where the more valuable renewable resource should be used – as a PPO it is not in competition with the transport industry.

77 Do you agree that electric resistance heating should have a more demanding energy efficiency standard than other fuels?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
Comment	
In table 2 (page 205) why is the fuel factor for electricity (direct) 0.306 and the fuel factor for electric heat pump 0.591? Why aren't they the same?	
As for using oil-fired heating in the notional building if the actual building is using electric – this seems like a fudge. If the carbon factors are correct why don't we stick to modelling what is actually going in to the building? Also, in the long term we may not want to be discouraging electric heating if the grid can decarbonise significantly.	

78 Do you agree that the specifications of the notional non-dwellings represent reasonably achievable standards?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment	

79 Do you agree with the three generic space types used to generate the notional building for non-dwellings?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

Don't know	<input type="checkbox"/>
Comment	

80 Do you agree that the selection of the space type should be driven by the activity database rather than being a user choice?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
Comment	This could prove difficult on some buildings that have a slightly different operation – e.g. amending the space type of an industrial unit with a high percentile of side lit windows and very few roof lights. We suggest it can be changed but would require an audit entry when changed.

81 Do you agree that the list of available activity areas should be constrained by the Planning Use Class?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
Comment	

82 If you have any other comments on the *Proposed changes to the National Calculation Methodology*, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph number.

Paragraph number	Comment
	<p>Part L 2006 effectively encourages building designers to go for air conditioning option. This is because an actual air conditioned building is compared with an air conditioned notional building i.e. M&E strategy of notional building depends on the actual M&E strategy. You have more variables in an A/C design to play with and therefore more scope to improve energy efficiency over notional building. Consequently it's easier to get a 'pass' result. Further, you don't need to worry about the 'overheating' criterion.</p> <p>The methodology for Operational Rating which is the methodology behind DEC's is different. Operational benchmarks are independent of M&E strategy for the building. An air conditioned office will be compared with the same benchmark as a naturally ventilated office (see CIBSE TM46). Consequently, people are effectively encouraged to use air conditioning at design stage and, at operational level, the building occupier will be penalised with a poor operational rating. The advice to the building occupier would be to use natural and mixed mode ventilation to reduce energy consumption; but once a building is designed for full</p>

	<p>A/C it is not always practical to shift to mixed mode or natural ventilation. Part L, as it stands, contradicts the Operational Rating Methodology and sends the wrong message.</p> <p>The aggregate approach reduces the imbalance by making shallow plan air-conditioned offices achieve a higher CO₂ reduction than shallow plan heated offices. However, the air conditioning auxiliary energy in the notional building now differs with different system types (in the actual building - the system type in the notional building is (was) deliberately undefined). This means that the carbon target now depends on the system type which, as highlighted above, is the wrong approach. If it is decided to go with a more energy intensive servicing solution then steps need to be taken elsewhere in the building/services design to balance this. The TER should not be dependant on system selection</p>
	<p>In C-SBEM, auxiliary energy reduces from 1W/m² to 0.6W/m² if variable speed pumps are utilised. We feel that this is too broad a shift and doesn't take into account the control strategy applied. We propose a graded approach which reduces auxiliary energy in relation to the control regime.</p> <p>For instance</p> <ul style="list-style-type: none"> a) 0.9W/m² if the drive is being used as a commissioning tool to set the duty b) 0.8W/m² if the drive is being used with a differential pressure sensor installed across the pump c) 0.6W/m² if the drive is being used with a differential pressure sensor installed out in the system d) 0.5W/m² if the drive is being used with multiple differential pressure sensors installed out in the system

(The comment box will expand to accommodate any comments you wish to make)

Volume 2

Proposed technical guidance for Part L

Chapters 6 and 7

Domestic and non-domestic building services compliance guides

- 83 The building services guides contain guidance on recommended minimum standards for appliance efficiency, system control, and installation and commissioning procedures. The guides also contain a significant amount of general “good practice” guidance on building services specifications and installation.

(a) Is the guidance clear and at an appropriate level?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Comment The guides are an improvement and whilst clear and at the appropriate level there are some areas where the content needs changing in our opinion. For example solar thermal is overlooked. CIBSE can assist via our professional engineer members.	

(b) Would it be useful to indicate within the guides those parts that are essential for compliance purposes, e.g. by highlighting text or adding separate check lists?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Whilst this is consistent with the proposed AD approach it runs the risk of labelling some of this purely voluntary.	

- 84 Are the minimum performance standards a useful starting point in the context of designing a building to achieve the TER?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
But care is needed with this approach as the minimum standards are a long stop, not a de facto elemental method. The elemental standards of the notional building would be a better starting point.	

85 Do you agree that the minimum efficiency of gas and oil-fired new and replacement boilers should be raised to 90%.?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
<p>CIBSE believes that minimum efficiency should be raised provided that the demand can be met by manufacturers. Redundancy of boilers on current stock lists would not be substantial given the lead in time – the supply chain in the domestic market has dealt with this kind of transition before.</p> <p>However there are still some issues that CLG should be aware of:</p> <p>90% GCV min would cause problems for non-condensing boilers - this minimum would exclude the use of all non-condensing boilers.</p> <p>It is not always possible to achieve 90% GCV minimum from condensing boilers without major implications for the system onto which the boiler is being installed.</p> <p>Section 2.5 correctly points out that condensing boilers will not deliver their best efficiencies unless the return water temperature is below 55⁰C. Most manufacturers detail efficiencies at 80/60⁰C and 50/30⁰C and these can differ by as much as 7%.</p> <p>There are many system designs where condensing boilers are to be used at 80/60⁰C. We therefore believe that the document should clearly stipulate that the gross efficiency entered into the Seasonal Boiler Efficiency calculation should be the efficiency at the appropriate operating temperature.</p>	

86 There is an agreed labelling system in place for rating the performance of heating system pumps and circulators. Do you agree that it is appropriate to require a minimum rating of “Band C”?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
<p>CIBSE is pleased that circulator pumps have been included for the first time with a minimum rating of Band C for both domestic and non-domestic properties as it recognises the significant carbon savings and reductions in energy consumption that can be achieved by installing energy efficient pumps. Having a minimum rating of band C will help manufacturers in the UK prepare for the EuP Directive that will mean only Band A circulator pumps will be sold from 1st January 2013 and A* or their equivalents from August 2015. It will also pave the way for the further tightening up of energy performance requirements in the 2013 and future revisions Part L.</p>	

87 The performance of PV systems is currently indicated by their minimum cell efficiency. Is there another index of performance, such as Performance Ratio or System Yield that would be more appropriate?

Minimum cell efficiency	<input type="checkbox"/>
Other index of performance	<input checked="" type="checkbox"/>
<p>If your answer is other index of performance, please provide details below:</p> <p>Efficiency is of limited interest when the energy source is free! If you have unlimited roof area</p>	

then cost per kWh is of greater interest than kWh/m² of panel. If you have limited roof area and do not care what the cost is then kWh/m² (i.e. efficiency) will be the main driver.

The efficiency is needed to calculate the CO₂ savings as shown correctly in the compliance guide but there is no need to put minimum standards on collector efficiency.

System yield is probably a better performance indicator but why add any minimum value? Any CO₂ saving is better than none and we do not want to discourage PV by adding extra hurdles.

88 The guides deal mainly with the most commonly employed building services. Is it clear that the guides do not preclude the use of other suitable services or innovative technologies?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>
It is <u>vital</u> that they should do so.	

89 Are there any significant omissions from the content of the guides?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is Yes , please provide details:	
Direct solar thermal - The provision of a guide when using new technology sources in lighting applications. e.g. LED guidance.	

90 If you have any other comments on the *Domestic Building Services Compliance Guide* and *Non-Domestic Building Services Compliance Guide*, please add them here, making clear which issue each comment relates to by identifying the guide and relevant section.

Guide	Section	Comment
Non-Dom	Heat Pumps	<p>The new carbon emissions factors are;</p> <p>natural gas - 0.206kgCO₂/kWh</p> <p>Electricity - 0.591kgCO₂/kWh.</p> <p>Therefore the emissions for electricity which used to be around double that of gas now has a ratio close to 3.</p> <p>In the compliance guide the COP for heat pumps when heating has been increased from 2.0 to 2.2 for heating and is set at 2.0 for hot water. Therefore a new heat pump installation can now be installed that does not out perform a new boiler installation. Is this an oversight? Should the COP for heat pumps be raised? Why has the factor for electricity gone up when the grid is supposed to be getting</p>

		decarbonised?
Non Dom	Air distribution	<p>Table 36 identifies a maximum external pressure drop which for a centralised system is 400Pa supply.</p> <p>However, with systems installed at height, typical nozzle jet velocities need to be 20-30m/s plus for the air to reach the floor. At these velocities, nozzle pressure drops are 240-540Pa. There are several systems installed at over 30m height, requiring velocities of 33m/s with losses of 650Pa.</p> <p>Clearly a system limitation of 400Pa would spell the end of high velocity systems. Is this the intention? Engineers and architects will need to be aware that designs where grilles and diffusers are situated a long way from the area to be conditioned will struggle to keep the pressure drop below 400Pa whilst also providing the necessary throw.</p>
Domestic & Non-Dom	Lighting	<p>There is no restriction placed on over-lighting and, by implication, no limit on the absolute energy consumed.</p> <p>Thresholds given for lamp efficacy favour the use of higher wattage lamps where these may not always be necessary. The 22lm/W limit on display lighting, for example, may force the specifier to use a 100W tungsten-halogen lamp where an equivalent 50W lamp would have been sufficient but not permitted</p> <p>The measure of Luminaire Lumens per Circuit Watt makes no allowance for Utilisation - how much of the light exiting the luminaire is 'useful'.</p> <p>For a responsible, competent, professional lighting designer, compliance with Part L can often result in a more energy-hungry lighting scheme than could have otherwise been specified.</p> <p>Measuring lighting design only by luminaire lumens/watt can produce lower quality lit environments, and remove the possibility of utilising true design expertise from lighting experts.</p> <p>We are disappointed that the revision does not take advantage of the new BSEN Standard 15193 for defining the lighting energy requirements for buildings. This standard was specifically developed to support the EU Directive on the Energy Performance of Buildings (EPB). The revision must include reference to BSEN 15193. This standard for calculating the energy performance of lighting within buildings using KWh /m² year takes into account lighting controls standby power, emergency lighting battery charge power, daylight linking and presence controls. This allows intelligent design of smart efficient lighting installations rather than energy savings through a coarse numeric criterion.</p>
Non-Dom	Lighting	We support the proposal to have separate metering of the energy used for lighting. This provides the users with the benefit of managing the use of lighting according to both the availability of daylight and the occupancy of the building.
Non-Dom	Lighting	We recognise the issue of the relationship between security and feature lighting and support the definition of minimum efficacy standards for such lighting to avoid any problems with compliance,

		rather than use the TER/BER methodology.
Non-Dom	Lighting	<p>We would particularly wish to draw your attention to Section 14.4 Table 46 and 47 of the Non Domestic Building Services Compliance Guide, which sets out the minimum lighting efficacy levels for the three building usage parameters.</p> <p>The proposed 22 % increase in the Lumen / Circuit watt figure from 45 to 55 is significant. Since the Part L publication in 2006, advances in lamp technology and efficacy have been limited. This would mean that the options for improvement must come from the luminaire optic, two negative reactions could occur;</p> <p>a) Uplight orientated optics with wide open apertures with high light output ratios will become prevalent. These will easily meet the criteria but will increase the installed load and energy values.</p> <p>b) Reverting back to highly specular louvres similar to the old Cat 2 style of the past. This will hugely affect the quality of visual comfort in a space and drive up the need for higher illuminance levels to compensate.</p> <p>The proposed changes would therefore drive the performance of luminaires to be linked more closely to the Light Output Ratio (LOR). This is inherently flawed as there is no correlation to the utilised light from these luminaires and vertical illumination specified in the standard. For example, an uplighter may have a high LOR due to its open top nature; however the light emitted first has to be reflected (and absorbed) by the ceiling and walls adjacent. The effective light falling onto the working plane is therefore greatly reduced making it an inefficient light source, more luminaires will be required to achieve the task illumination.</p> <p>This utilisation factor (UF) of luminaires is not recognised in the Building Regulations and as such may penalise luminaires with a higher UF yet slightly lower LOR. Furthermore, once the increased Watts/m² values are translated in to the Buildings EPC, the effect would be to lower the overall achieved rating, contrary to policy. Our studies have shown that a typical 100m² office space lit to comply with the proposed standards would produce an electrical load as follows;</p> <p>Uplight solution 18.5 Watts / m²</p> <p>Whereas currently we are seeing figures of around 10 to 11 Watts/ m² with well lit comfortable spaces using downlights.</p> <p>Our research has shown that these proposals may lead to buildings and spaces where visual comfort levels and quality of performance will be reduced in order to comply with the proposed regulations. We therefore urge that these proposals are re-examined to allow for a more holistic approach to the many other aspects of overall lighting performance.</p>
Non Dom	Domestic Hot Water	We are disappointed that there is no mention of Solar Thermal in the document. This can make a significant contribution to energy saving in domestic hot water systems.
Non Dom	Section 15	There is no mention of an appropriate control strategy for water pumps.

	Water Pumps	<p>The installation of an inverter alone will not result in energy savings. In cSBEM, auxiliary energy reduces from 1W/m² to 0.6W/m² if variable speed pumps are utilised. We feel that this is too broad a shift and doesn't take into account the control strategy applied. We propose graded approach which reduces auxiliary energy in relation to the control regime.</p> <p>For instance</p> <ul style="list-style-type: none"> a) 0.9W/m² if the drive is being used as a commissioning tool to set the duty b) 0.8W/m² if the drive is being used with a differential pressure sensor installed across the pump c) 0.6W/m² if the drive is being used with a differential pressure sensor installed out in the system d) 0.5W/m² if the drive is being used with multiple differential pressure sensors installed out in the system
Domestic	CHP and Community heating	<p>Phasing of occupancy This section does not consider dealing with phasing of occupancy or variations in occupancy. I.e. if a building will become occupied gradually are multiple smaller CHP units better than one large unit?</p> <p>The section also focuses on the heating aspects of CHP. It appears to be assumed that there will always be a use for electricity come what may but demand for electricity is not guaranteed, it depends on the building and the agreement with the Distribution Network Operator.</p>
Domestic	CHP and Community heating	<p>The sensible % of annual heat supplied by a CHP installation varies for different buildings. We are therefore concerned about the figure 45% of Annual Heat Supply and would like to understand how the figure of 45% was reached.</p> <p>We suggest that the same approach is taken in the domestic guide as for the non-domestic guide. i.e. setting a CHPQA index of 105 instead of a % annual heat supply limit. We also strongly recommend that a CHP feasibility report be required and produced by the suitably qualified person we outlined in our response to Q 24. The feasibility study should for an installation that provides the best £/TCO₂</p> <p>We have considered whether the index should be raised to be higher than 105 and think that on balance it is right to use 105. Whilst indexes much higher than 105 can be reached we do not want to rule out perfectly good CHP installations by setting the hurdle too high for Part L 2010.</p>
Domestic	Micro-CHP	<p>We do not agree with Micro-CHP being dealt with separately, it should be moved into the non-domestic guide with the rest of CHP and referred to from the domestic guide. We see micro-CHP as appropriate for low density installations (less than 15 dwellings). We do not think micro-CHP should be treated as an alternative to the domestic boiler except for mansion size dwellings.</p>

Non-Dom	Table 1 p322	Some efficiencies given in the Table are based on gross calorific values whilst other are based on the net calorific value. For consistency, all efficiencies should be based on the same (say gross) calorific value.
Non-Dom	Table 1 p323	The table should read “CHPQA quality index > 105” and not <105
Non-Dom	CHP and Community heating p.356	Why has guidance been limited to <500kWe? CIBSE do not know of any reason for this limit, the threshold between what would be referred to as ‘district’ and ‘power station’ size systems is surely far higher than 500kWe.
Non-Dom	CHP and Community heating p.357	The power efficiency shown is incorrect. The CHPQA figures should be used.
Non-Dom	CHP and Community heating p.358	Please clarify the origin of the number “194” in equation 7.
General Comment		CHP Definition The definition of CHP in this consultation should be clarified. Does this refer to the unit itself or the entire scheme (i.e. including distribution etc)? Is the definition consistent throughout the document?
General Comment		The consultation is emphasising energy savings over Low and Zero Carbon technologies (LZC) because they are more cost effective. But to reach the long term target 80% reduction by 2050 LZC will also be needed so should not be discouraged now.
General Comment		We should have a national log of district heating schemes. This would make it easier for designers to find district heating schemes they can connect to. This could be monitored/managed by the CHPQA process. The carbon factors can them be derived from real data.

(The comment box will expand to accommodate any comments you wish to make)

Volume 3

Proposed technical guidance for Part F

Chapter 1

Approved Document F – Means of ventilation

91 In *Section 2: The Requirement F1 – Means of ventilation*, below the requirement we have set out six proposed changes to the Regulations. Do you agree that all the changes are desirable?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

Don't know	<input type="checkbox"/>
If your answer is No , please explain why Yes on the whole. The only slight concern would be with making the provision or alteration of continuously running mechanical systems notifiable building work. We are concerned that this could place unmanageable burden on building control.	

- 92 Section 5: Dwellings introduces a higher ventilation rate for dwellings designed to have an air permeability equal to or tighter than 5 m³/(h.m²) at 50 Pa. Do you agree that this is a reasonable change-over value?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is No , what changes should be made?	

- 93 The Approved Document calls for all ventilation systems to be installed correctly and commissioned, and Section 5: Dwellings refers to a new installation and commissioning compliance guide for new dwellings.

Do you think current standards of installation and commissioning need to be improved in new dwellings?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
The reliability of fans, particularly fan bearings, to maintain low noise levels is a case for proved type-testing in the environment for which they are to be installed. That means duration testing of fans to be used in bathrooms in a saturated atmosphere at 25°C plus; likewise with fans for kitchens – these need to be duration tested with high humidity and oil/smoke laden atmospheres. Currently manufacturers do not put this information on fans to assist the installer.	
For example, the commissioning checklist proposed should help reduce incidents of poor installation, for example when fans are installed but not wired up.	

- 94 Approved Document F 2006 spreads guidance for each domestic ventilation system type between Tables. In this edition, Section 5: Dwellings presents the full advice for each system in its own separate Table. Do you find this approach clearer?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is No , how do you think we should present the information?	

95 There has been little modification of *Section 6: Buildings other than dwellings* due to our understanding that air infiltration is not a significant part of the design strategy within any guidance referenced in this Section. Do you have any information to suggest modifications to the ventilation guidance for more airtight buildings of this type are necessary?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is Yes , please provide further information	

96 With reference to *Section 7: Work on existing buildings*, should trickle ventilators (or an equivalent means of ventilation) be fitted when windows are replaced? See also the analysis in the Impact Assessment.

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Please give reasons for your answer	
Trickle vents add cost and can still be overridden. The final results of the cost benefit analysis will be helpful.	

97 In *Appendix A: Performance based ventilation*, the basis of the moisture criterion has been changed to reflect recent research. Do you agree with these changes?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
Based on recent data from CLG this appears reasonable but we await the full report.	

98 In *Appendix B: Purge ventilation*, guidance has been added to say that if the window opens less than 15° it is not suitable for providing purge ventilation. Do you agree?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>

It depends upon size.

99 Appendix E is new. It gives noise criteria and an assessment procedure for continuous mechanical ventilation systems for use in dwellings. It provides a means of meeting the proposed new regulation for noise levels from these ventilation devices.

(a) Do you think the maximum sound power levels and the test for tonal components are reasonable?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is No, please give details CIBSE participated in the stakeholder discussions on 4 Sept and feel that the issues covered in these questions reflect our views on this.	

(b) Are the test procedures appropriate and is sufficient information provided to carry out the tests in a consistent way?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input checked="" type="checkbox"/>
If your answer is No, please give details CIBSE participated in the stakeholder discussions on 4 Sept and feel that the issues covered in these questions reflect our views on this.	

100 In general, are you aware of any particular experience from other countries that should be considered as part of this review? This could relate to noise, ventilation performance, or other matters.

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is Yes, please provide details	

101 Do you have experience of ventilation systems designed according to the guidance in Approved Document F 2006 not providing adequate ventilation, and resulting in indoor air quality problems?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>

Don't know	<input type="checkbox"/>
<p>If your answer is Yes, please provide details of problems and likely causes, such as incorrect implementation of guidance</p> <p>But there is work on the link between ventilation performance and air quality, and on the impact of elevated CO2 levels on productivity which needs to be taken into account.</p>	

102 Do you have any suggestions for improving the clarity of Approved Document F?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
<p>If your answer is Yes, please provide details: Remove reference to free area and replace with equivalent area (EA). This will help industry make a total switch over to performance based ventilation. The guidance should explain that the aerodynamic performance of a ventilator defines its EA. Ventilators should also be marked so that the EA is visible.</p>	

103 If you have any further comments on Approved Document F, please add them here, making clear which issue each comment relates to by identifying the relevant paragraph of the AD.

Paragraph number	Comment

(The comment box will expand to accommodate any comments you wish to make)

Volume 3

Proposed technical guidance for Part F

Chapter 2

Domestic ventilation – Installation and Commissioning Compliance Guide

104 Is the installation and commissioning guidance both clear and appropriate for each system type?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

If your answer is **No**, please provide recommendations for improvement

105 Do you foresee any difficulties in implementing this guidance in practice to achieve a good quality of installation and commissioning?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
If your answer is Yes, please identify problems and potential solutions The domestic sector of the industry is made up predominantly of individuals and small companies, therefore it is far harder to bring in new regulations. It will require a considerable awareness campaign and training effort.	

106 (a) Do you agree that the completion checklist and commissioning sheet section should be completed and signed by a suitably "qualified" person?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

(b) If your answer is Yes, what training/education programme exists that would suitably qualify a person to complete this sheet, and what prior experience should that person possess?

Comment prior experience should be in designing / manufacturing of the product and experience in equipment commissioning and/or expert witnessing.

(c) Which industry association(s) should be invited to accredit their members?

Comment

Existing industry associations based around a trade or profession rather than an organisation set up expressly to take a commercial advantage of the opportunity accreditation provides. Only associations accredited by UKAS should be eligible.

There appears to be some problem with much of the training (specifically as preparation for accreditation) currently available in that while it covers the law, it tends not to convey what might be considered a minimum amount of technical understanding and that the only way of being sure that practical knowledge of the issues in question exist is to look for real working experience. The training content of an accreditation is a vital element to quality assurance and standards.

107 If you have any other comments on the *Domestic Ventilation: Installation and Commissioning Guide*, please add them here, making clear which issue each comment relates to by identifying the relevant section.

Section	Comment
	<p>For a more detailed response see Q35, but to reiterate:</p> <p>CIBSE is not convinced that mechanical ventilation with heat recovery (MVHR) is the most energy efficient way to ventilate an air-tight dwelling. This is an issue where computer modelling is inadequate; field trials are needed where energy consumption is measured for naturally and mechanically vented buildings.</p> <p>MVHR is usually installed in countries that have colder winters than the UK therefore they may not save enough heat in the UK to balance the energy consumed by the fan.</p> <p>Also if MVHR is to become more widespread in the future then there are a number of concerns to be answered.</p> <ol style="list-style-type: none"> 1. People do not sense CO₂ levels like they sense temperature so they might not be aware when the MVHR is not working. An alarm based system would be needed for when a system stops working. This could easily be incorporated into a building management system. 2. It is unlikely that home owners would keep the MVHR system in good working order and well maintained. Regular replacement and cleaning of filters for example. 3. The proposed Part F does provide guidance for proper design, installation and commissioning but again, compliance and enforcement are key.

(The comment box will expand to accommodate any comments you wish to make)

SAP and SBEM software for consultation at:

www.2010ncm.bre.co.uk

SAP 2009 software tool

For the purposes of the Part L consultation, the Government has issued a special version of a SAP 2009 software tool to help consultees identify the impact of the proposed changes to Part L and SAP on dwelling design. The tool's core calculation engine is the SAP 2009 methodology; it also has a simple user interface and generates a compliance "output report" (see below).

When the new Part L regulations come into force, the Government could continue to make the software for the core calculation engine available as an alternative to the traditional manual spreadsheet. The core calculation software could be provided in one of two formats – locked or unlocked:

- (a) A locked core calculation engine could be incorporated by software suppliers into their own products, with a user-friendly interface and added functionality. Developers could then use such products to demonstrate compliance with building regulations.
- (b) S Software with an unlocked core could be used by industry as a design tool to develop products with improved energy efficiency and/or to reduce carbon dioxide emissions associated with new build dwellings. It would not be possible to use software with an unlocked core calculation engine for demonstrating compliance.

108 Would a locked core calculation engine be useful?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Please give reasons for your answer A locked core calculation engine would be good. It will be the same arrangement as for SBEM where commercial software could be based on the core engine.	

109 Would an unlocked core calculation engine be useful?

Yes	<input type="checkbox"/>
No	<input checked="" type="checkbox"/>
Don't know	<input type="checkbox"/>
Please give reasons for your answer	

Compliance “output report”

It is proposed to amend the regulations so that builders will be required to submit to the building control body (BCB) CO2 emission rate calculations demonstrating compliance with building regulations at the initial design stage as well as on completion (the current requirement). At the design stage, the builder would carry out a preliminary calculation based on plans and specifications and provide the results of these calculations and the associated data inputs to the BCB.

It is suggested that compliance with building regulations would be improved and enforcement made easier if Part L compliance software (i.e SAP 2009, SBEM and other non-domestic CO2 emission rate calculation tools) produced a compliance “output report”. The output report would indicate whether the design met the Part L Criteria 1 to 3 in ADL1A and ADL2A, and would list the design features likely to be most critical in meeting the criteria along with relevant details of

the construction. When inspecting buildings during construction, BCBs would be able to focus on those key features.

The SAP and SBEM tools provided for the purposes of the Part L consultation both produce a compliance output report.

110 Do you agree that Part L compliance software should produce an output report?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Please give reasons for your answer With the vastness of Part L anything to aid as a design check list would be of great advantage. A report justified by the assessor is a key element. As the initial calculations are performed at design stage, a compliance output would be extremely beneficial to achieve good reductions on CO ₂ emissions during the construction phase. It would help building control bodies to focus on certain items.	

111 Do you have any suggestions for improving the output report produced by the SAP and SBEM consultation software?

Comment Illustrate where default figures have been used.

112 If you have any other comments on the Part L consultation SAP and SBEM software tools, please add them here.

Comment <p>The SBEM calculation engine is based on a monthly energy balance that can only ever be a crude approximation to how the building performs. Yet energy assessors are required to gather large amounts of data and the proposals for Part L 2010 exacerbate this. There is a mistaken belief that adding more data and complexity will improve accuracy. There are two possible alternative options.</p> <ol style="list-style-type: none">1. Simplify SBEM and greatly reduce the amount of data required, thereby recognising it can only ever be a simple comparison tool to allow a building's performance to be compared with a reference building. There is much data currently required that has little affect on the rating and we should aim to reduce the information required perhaps by 50%.2. Recognise that SBEM was only ever going to be a stop gap measure and encourage the development of software tools that can produce EPCs and BRUKL report from realistic computer models that can be also be used for design. These tools can be used to realistically assess the effectiveness of improvement measures which should be the main output of the recommendation report. The recommendation report needs to made more prominent and summary recommendations shown on the EPC. <p>cSAP includes pipe losses for distribution in district heating systems. We are concerned that heat losses depend very much on factors like the supply temperature and velocity of fluids so it</p>

is not trivial to compute them. Good insulation and appropriate heating density are factors that are sufficient to make district heating viable. Moreover, an economical feasibility study including pipe length and insulation will already assess what is feasible and what is not so the efficiency of the design is somewhat commercially self governing.

cSAP treats CHP too simply (not allowing you to allocate heat to just hot water or heating) whilst it treats district heating too complexly.

SAP software should clarify what is the fixed condition. For example, in 2006 ADL1A stated that "In all cases the DER should be calculated using a fixed assumption of 30% low energy lighting." However this was not a default setting in SAP.

The way SBEM calculates the effect of LZC technologies needs to be improved to estimate their real benefit. For example, SBEM asks for the COP of a ground source heat pump but does not ask for the pump energy used in the ground loop.

NCM templates need revising to be more realistic.

General suggestions and observations

113 Please enter below any additional suggestions or observations that you would like to make on the proposals for amending Part L and Part F of the Building Regulations.

CIBSE wrote to CLG in September 2008 suggesting that CLG adopt a single calculation engine, and for the software providers to compete around interfaces and added value products and services based on this single fully open source engine.

CIBSE firmly believes that SBEM should be fully open and transparent so that users can see how it arrives at its results.