

SAP CONSULTATION RESPONSE

General Response	
<p>The BESA has completed a response to the consultation and has noted that the document states that there will be a later consultation on revisions to Building Regulations. We would however like to take this opportunity to discuss what we consider to be the fundamental flaws in the whole process. In the introduction to this consultation it is stated that, "For new dwellings, SAP is used as the vehicle for demonstrating compliance with the relevant building regulations"</p> <p>The SAP calculation process may be a best practice process for estimating the performance of a building however it only represents a theoretical model and a "promise" that this will be delivered. The evidence of the Carbon Hub Final Report is that this in a practice a vain hope. Whilst compliance of Part L is not enforced the SAP calculation is in effect a tick list of measures that if employed at design and build stages will deliver the desired outcome. In practice, however this stifles innovation, as designers revert to the picking list to select a solution that complies and it also relies upon the design being built as designed. The performance gap which is currently recognised as a 300% over use of energy would suggest that the latter rarely happens.</p> <p>The lie of the current system is that it is based upon what you promise to do rather than what you actually do. Once planning is achieved a process of value engineering, or re-design through client change or just process inefficiencies of a <i>build and design</i> culture means we quickly step away from the original "approved design". A better approach would be to focus on what was delivered by setting simple m2 parameters for energy and carbon. The designer can use whatever solutions for fabric, services, energy they wish provided that the design can be shown to have met those parameters once built through a rigorous commissioning process. This would require the correct design, installation and commissioning of sub metering to provide the evidence required.</p> <p>This process would allow the designer to truly innovate, without constraints and would ensure the focus is on delivery not simply gaining planning and building regs approval.</p> <p>The following could also be considered;</p> <ul style="list-style-type: none"> • Set simple energy and carbon parameters dependent upon building type • Develop an annual MOT style check and recommissioning excluding occupier plug in loads to ensure the building remains within the design criteria • Make allowance for a failure of innovation that does not punish the innovator • A greater data base of information on which to develop estimation processes will result <p>The failure of the energy conservation regulations is always portrayed as a victimless crime, it is not. Tenants and building users pay the additional energy costs of operating the buildings and as citizens and tax payers the performance gap is paid for by us, as we need to build more energy capacity like Hinckley C, using state funds. The true cost of the performance gap should be met by the developer who has reaped the benefits of "value engineering" the project. The profits of those actions return to shareholders. To ensure that this does not happens the focus needs to shift from promise to delivery.</p>	
Additional Specific Points	
Intent of SAP	<p>Is SAP intended as a method of incentivising / selecting technology by the authorities?</p> <p>Q4 shows that it can be thought of as such, whereas other proposals are not. A consistent approach should be adopted.</p>
Inclusion of specific industry bodies	<p>We do not believe it appropriate to specify specific industry bodies and schemes such as HETAS and MCS. Firstly there are alternatives in the market and therefore preferential treatment is being given to commercial enterprises. Secondly the sector is changing all the time and therefore SAP may fall behind, causing confusion.</p>
Innovation killer	<p>The current use of SAP as a tick box design tool completely shuts the door on innovative solutions. Any new technology or method that cannot fit in the SAP will not get used no matter how good it is.</p>
Time line too short to make effective response	<p>The time allowed for responses to such a detailed document with supporting evidence is insufficient. As an industry body with a broad membership, who have expertise in this subject, it is not possible to effectively canvass our members in such a short timeframe, especially over the festive season. This will result in a lower quality industry response and therefore not the best possible outcome.</p>
1	<p>Proposed Amendment 1 - Updating Carbon Emission Factors</p> <p>http://www.earth.org.uk/gridCarbonIntensityGB.html</p> <p>0.398 is possibly still a little high compared to actual averages, reflecting a conservative view in the underlying data. Given that the expected growth in power generation is much more certain to be low carbon/renewables a more optimistic approach should be adopted.</p> <p>Given the rapid changes in power carbon intensity it would be more appropriate to update annually.</p> <p>CHP and renewable power generated locally should displace more than equivalent power. 1KW local removes the need to generate AND transmit 1KW at the power station, which would be c 1.6KW</p> <p>Reduction in power efficiency when producing useful heat only applies to turbine based generation. The use of low temp waste heat is treated unfairly and would not allow for use as a source for heat pumps, which would not reduce the power generation efficiency.</p> <p>Other waste heat and solar thermal are not identified and yet these have major potential to contribute to a low carbon future, as identified in various government studies.</p>
Do you agree with the proposal to use the methodology set out in the technical working paper for calculating carbon emission factors and update the figures?	

SAP CONSULTATION RESPONSE

<p>2</p> <p>Should we keep the current set of heating patterns set out in SAP or move to using two heating periods every day of the week? Please provide supporting information for your view.</p>	<p>Proposed Amendment 2 – SAP heating regime</p> <p>We support the change to a consistent 7 day approach. Based on the evidence presented and changing work patterns.</p>
<p>3</p> <p>Do you agree with the proposal to amend default Distribution Loss Factors for Heat Networks?</p>	<p>Proposed Amendment 3 – Distribution loss factors for heat networks</p> <p>The proposals are complex and likely to be widely misunderstood and misused. Based on experience from our membership; the more complex the choices the more open it is to gaming and the more removed from creating the ideal outcome.</p> <p>Proposals require post construction analysis to achieve lower DLF which is unlike any other technology. The long build out time of many large systems makes post construction analysis very difficult to achieve.</p> <p>The calculation of heat losses is extremely difficult due to the dynamic nature of heat use. This requires dynamic modelling to get close to reality. The subsequent carbon calculations are also complicated by the carbon intensity of the source e.g. it would be worth a high loss if the source of the heat were very low carbon from a biomass power station.</p> <p>The data set used is too small and not reflective of best practice. In reality the UK market is still developing the experience and skills necessary to build good DH systems. Many systems take years to reach full build out and only at that point can whole system optimisation be carried out.</p> <p>What are the consequences of buildings and systems falling out of compliance? How would split ownership issues be handled? Given that there is a low level of enforcement now, it is unlikely that non-compliance beyond sign-off would drive much change.</p> <p>This change could cause serious difficulties for the district heating sector, if SAP is intended as a policy implementation tool then this proposal fails to achieve this. The UK reality is poor because heat networks are still being designed, constructed and operated in a sub-optimal way. There is little regulation or knowledge amongst clients that would drive improvements. However the situation is improving quickly now e.g. CIBSE (CP1) and BESA (HIU test standard).</p> <p>Given the complexity of this issue we would recommend setting up a specific district heat body for the industry that would be able to provide; guidance, expertise and carbon numbers on application. This would represent the provision of best practice engineering, latest knowledge and guidance to the industry. It would be a supportive measure designed to grow a sector that has an important role to play in the UKs energy future.</p>
<p>4</p> <p>Do you agree with the proposal to change the way that lighting is calculated in SAP?</p>	<p>Proposed Amendment 4 – SAP’s lighting calculation including RdSAP</p> <p>Agree</p> <p>Note that stated aim is to incentivise low energy lighting – is SAP appropriate for incentivisation? If it is then due consideration for proposal 3 is necessary.</p>
<p>5</p> <p>Do you agree with the proposal to remove the default values in Table K1, review default values as proposed, and recognise Certified Thermal Details and Products schemes? Do you agree with the proposal in due course to amend the default γ-value to 0.2?</p>	<p>Proposed Amendment 5 – Treatment of thermal bridges</p> <p>No opinion</p>
<p>6</p> <p>Do you agree with the proposals to adjust U-values and Ψ-values for elements next to unheated spaces?</p>	<p>Proposed Amendment 6 – Treatment of areas next to unheated spaces</p> <p>agree</p>
<p>7</p> <p>Do you agree with the proposal to change the default U-values for walls for existing buildings in RdSAP?</p>	<p>Proposed Amendment 7 – U-Values for walls in existing dwellings – RdSAP</p> <p>No opinion</p>

SAP CONSULTATION RESPONSE

8	Proposed Amendment 8 – Hot Water methodology in SAP
Do you agree with the proposal to amend the hot water methodology in SAP?	Agree
9	Proposed Amendment 9 – Summer temperatures assessment (Appendix P)
Do you agree with the proposals to change the questions in the assessment of internal temperature in summer (Appendix P)?	No opinion Agree as overheating can lead to proliferation of AC
10	Proposed Amendment 10 – Mechanical Ventilation Systems
Do you agree with the proposal to amend the treatment of Mechanical Ventilation Systems in SAP?	Tentative support,
11	Proposed Amendment 11 – Chimneys
Do you agree with the proposal to change the assumed air flow rate for chimneys and flues in SAP?	agree
12	Proposed Amendment 12 – Secondary Fraction from Storage Heating
Do you agree with the proposal not to alter assumptions on storage heating secondary fractions in SAP?	agree
13	Proposal Amendment 13 – Solid fuel heating efficiencies
Do you agree with the amendments proposed to solid fuel heating efficiencies?	79. There should be a difference between boilers in heated and unheated spaces, solid fuel appliances give off more heat in to the space they are situated in because the heat exchangers are larger. Therefore boilers in unheated space are less efficient from a whole system view. De facto endorsement of HEATAS as an authority is inconsistent – no other technology has unitary representation in SAP
14	Proposed Amendment 14 – Solar PV systems and overshadowing
Do you agree with the proposal to amend the procedure for determining overshadowing of solar PV installations?	Agree with the thinking however the implicit endorsement of MCS is rejected, proposal 17 gives the option for equivalent standards. The shading factors actually arise from simulation software which should be referenced.
15	Proposed Amendment 15 – Treatment of Solar PV and solar thermal systems – diverters
Do you agree with the approach to adjust the carbon savings where solar PV electricity is used in the home to heat water or where it is put into battery or other storage? Do you have a view on the correct export tariff for PV electricity exported to the grid? Do you have ideas on how solar thermal space heating, or storage of solar PV or hot water through a battery or other medium can be modelled?	Diverters are unlikely to be installed in new dwellings as the benefit resides with the owners only. They are a “cheat” device that plays on the export assumptions for PV, we support the correct treatment of these. Energy storage where fitted should also be accounted for, batteries and electric vehicles are becoming increasingly popular. Accurate modelling would not be possible at an economically feasible price and anyway the reality depends on consumer behaviour. Therefore simple assumptions should be used; e.g. without storage; 50% consumed on site, 50% exported. With storage; 75% consumed on site, 25% exported. Solar thermal deserves its own separate consideration. It is treated as a domestic water heater only but the technology has much wider potential. Solar thermal for space heating is best provided for by a thermal store type system, thus the energy available for space heating is the solar energy available less that used for DHW during heating seasons.
16	Proposed Amendment 16 – Boilers and seasonal efficiency in the Product Characteristics Database (PCDB) – including RdSAP
Do you agree with the proposal to provide a series of seasonal efficiencies for boilers on the Product Characteristics Database dependent on the controls they use and the design flow temperature of the system?	Agree and would ask why are solid fuel boilers and heat pumps are not treated in a similar way? In order to produce a fair comparison between all heat producing plant equal treatment is necessary.
Do you agree with the proposed change to the Energy Balance Validation method?	yes
17	Proposed Amendment 17 – Heat pump default values
Do you agree with the proposal to amend the default values for some heat pumps based on evidence from RHPP field trials?	agree
18	Proposed Amendment 18 – Technology costs in RdSAP
Do you have any evidence on the technology costs used in RdSAP?	No, difficult in such short time

SAP CONSULTATION RESPONSE

19	Proposed Amendment 19 – Heating controls
Do you have any evidence to update the assumptions that SAP makes about heating controls?	No response
20	Cost to Business
Can you provide any evidence on the cost and benefits to business of revisions to SAP independent of changes to any particular set of Buildings Regulations?	There is an opportunity cost of lack of innovation Experience has shown that technology is often installed to meet planning and regulatory requirements but is not used in practice. The client has to pay for the technology and installation and yet does not benefit from it, and the carbon reduction is not realised.

DRAFT