

SAPSIG 19 April 2018 Meeting

Attendees:

BEIS	Katy Read (up to 12.20pm)
MHCLG	Victoria Tink
Members	Adam Tilford, Ashley Bateson, Dr Martin Searle, Dr Neil Cutland, Dr Simon Lannon and Stuart Fairlie
BRE	John Henderson and Will Wright
RDL (Secretariat)	John Tebbit (Chair) and Nick Booth

Apologies:

MHCLG	Paul Decort
Members	Prof Kevin Lomas, Dr Richard Fitton and Prof Robert Lowe
BRE	Paul Davidson

Acronyms:

The following are those that may not be known to readers when published in BRE's website.

RDL	Robust Details Limited
SAPIF	SAP Industry Forum

Agenda issued 18 April 2018

BRE papers issued 13 April 2018

1 New contractual arrangements

- 1.1 Commenced 01 August 2017 for a three year term.
- 1.2 Secretariat briefly explained Lots 1 – 3 with BRE and Lot 4 (Quality Assurance) with RDL was to give confidence to BEIS for the SAP Contract.
- 1.3 Secretariat stressed that RDL was 'disinterested' in the technical outcomes as it was focussing on ensuring due process was followed for each outcome.

2 Conflict of interest / Impartiality

- 2.1 Secretariat explained.
- 2.2 During the course of the meeting there were no reported Conflicts of Interests and the secretariat did not observe any.

3 BEIS

- 3.1 Government explained:
 - (1) that Stakeholder and Industry engagement is a key factor in the SAP Contract with BRE.
 - (2) SAPIF (joint group between BRE and RDL), is being set up to assist with addressing this engagement.
 - (3) SAPIF is: non-decision-making; route for feedback; members will probably have specific interests. Consideration needs to be given as to whether SAPSIG members could be members of SAPIF given potential perceived conflicts

ACTION: Members to approach the SAPSIG secretariat if they wish to join SAPIF.

4 Last meeting

- 4.1 Last meeting was 10 May 2016.
- 4.2 BRE had summarised the Actions & follow-up (circulated to members 18 April 2018). Determined that actions were done or did not need doing (due to the 2 year timescale between meetings).

5 Changes feeding into SAP 10

5.1 Introduction

- 5.1.1 The purpose was to evaluate BRE's approach to amendments outlined in Government's response to the SAP 10 consultation.
- 5.1.2 Changes may be as a result of new data.
- 5.1.3 SAP 2016 Consultation (as SAP version known at the time) undertaken. BEIS considered and published the Government response. These changes were discussed in detail – see below.
- 5.1.4 SAP 2016 will be published as SAP10.0 and will not be for further consultation.
- 5.1.5 It was stressed SAP 10.0 is not currently for Part L compliance (need SAP 2012 for current Building Regulations).
- 5.1.6 A Member suggested that, as a principle, SAPSIG errs on the side of caution in its decisions where there is uncertainty.

5.2 Why publish SAP 10?

- 5.2.1 SAP 10.0 is being published to assist industry with understanding the effects of the SAP 10 changes. A Member noted that forward-thinking developers will be particularly interested.

5.3 Part L

- 5.3.1 Government advised Part L consultation is anticipated for the latter part of 2018; which will include consultation on adopting SAP10 in the updated Regulations. The consultation will have SAP10.1 published alongside it.

5.4 Existing dwellings

- 5.4.1 RdSAP 9.93 is likely to remain in use for some time after SAP 10 is published. A Member suggested it would be risky to release RdSAP at the same time as SAP. Better to let the new version of SAP bed-in first.

5.5 Timeline:

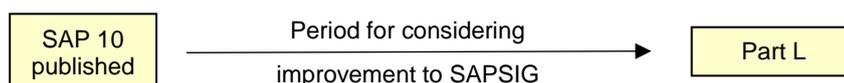
- 5.5.1 SAP 10.0 to be published Summer 2018.
- 5.5.2 A Member advised that (1) builders want compliance, with the forward-thinking developers trying to future-proof; and (2) Planners also want to future-proof.

5.6 Further changes

- 5.6.1 BRE explained: (1) that due to the number of changes, BRE proposed to email short papers over the next month or two, rather than further face-to-face meetings; **AGREED**
- 5.6.2 **AGREED**: BRE to send papers direct to members (rather than through the secretariat).
- 5.6.3 **AGREED**: members to circulate their feedback to all members.

6 How to improve SAPSIG?

6.1 Timeline



ACTION: Members to advise on aspects for how SAPSIG can improve.

- 6.2 A Member noted that as SAP becomes ever more complex, this brings into question the SAP Assessor's competencies – perhaps something for Government?

ACTION: Government to liaise internally regarding SAP Assessor competency.

7 Waste Water Heat Recovery (WWHR)

- 7.1 Secretariat advised that RDL had received correspondence about the performance of WWHR. Secretariat would try and get more data from the correspondents, which would be for BRE to consider. Secretariat to advise SAPSIG of the data for information purposes.

ACTION: Secretariat to ask correspondents to forward the data to BRE.

ACTION: BRE to consider the data and if necessary propose changes.

8 How much evidence for new technology?

- 8.1 BRE advised BRE are developing a chart/model/map (Appendix Q), as guidance, to describe the quantity and type of data that is needed, at least in general terms.

- End -

The following is the 'Changes to SAP following the SAP 2016 consultation' issued 13 April 2018, with SAPSIG meeting notes added in blue colour.

Changes to SAP following the SAP 2016 consultation

SAPSIG 11 April 2018 minutes in Blue colour
From each item, BRE introduced / explained

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Acronyms:

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PCDB	product Characteristics Database
RDL	Robust Details Limited
CIBSE	Chartered Institute of Building Services Engineers
PV	Photovoltaic

Introduction

This is a paper for SAPSIG members outlining the changes BRE are making to SAP 10, compared to the SAP 2016 consultation version. This is needed to address feedback received during that consultation, based on the contents of BEIS's consultation response. Its purpose is to facilitate discussion at the SAPSIG meeting scheduled for 19th April 2018.

1 CO2 and primary energy factors

- We will update these factors when SAP 10.0 is published (summer), then again when Part L is ready to use SAP 10.1. We will also consider whether any changes to our calculation method are needed in light of recent and forthcoming EU legislation, taking into account EU Exit negotiations.
 - BRE: factor for electricity (carbon content) is reducing and the direction of travel is that it will be lower than gas in (say) 4 years. Noted that electricity carbon factor has roughly halved in last 10 years.
 - **AGREED:** Allow new factors to be used alongside existing SAP 2012 factors in SAP 10 demonstration software.
- We will produce a discussion paper on the feasibility of calculating and using in SAP different CO2/PE factors in different months of the year (only electricity factors are likely to vary much). If straightforward there may be time to get this into SAP 10.0.
 - BRE: Unclear if necessary to separate Heating from Hot Water. Timescales as such that a change here might not be possible in time for after the publication of SAP 10.0.
 - BRE: This would be anticipated to be a more realistic model.

2 Heating pattern

- We will move to a single morning/evening heating pattern 7 days per week (i.e. not different at the weekend), which was the most common heating pattern found in the Energy Follow Up Survey.
 - BRE: This was an output from the consultation. Bi-modal heating pattern. The effect is reduced heating resulting from less weekend demand.

3 Heat networks

- We will review the fuel costs (especially the standing charge) related to communal heat networks, which was questioned during the consultation.
 - BRE: Anticipates a change following the review.
- We will not impose a minimum distribution loss factor of 1.2 for design stage SAP calculations, since the best systems could have lower distribution losses than this and the risk of underestimating losses is with the developer – there is no advantage to them in predicting too low and then failing at the as-built stage.
 - BRE: Anticipates the standing charge for heat networks is likely to change following the review.
- We are inclined to reduce the in-use factor of 1.15 proposed to be applied to data entered in the PCDB for heat networks compliant with “CP1: Heat Networks: Code of Practice for the UK”, but we are awaiting further evidence to help justify this.
[For networks not entered in the PCDB the defaults of 1.5 (if compliant with CP1) or 2.0 will apply, as originally proposed.]
 - BRE: Looking to align with CIBSE’s work with upcoming Code of Practice (CP1). Default losses will be closer to reality, however with a route to CP1. This is for Calculation (with the default of in-use factor), however actual data can be used for existing networks (with no in-use factor applied).

4 Lighting

- We will revert to a simple approach similar to the current method for existing homes, but allowing lamp efficacy to be entered, where known.
 - BRE: This is aimed at low energy lighting. Will enable future-proofing.
 - A Member: remarked upon the difference between lamps/bulbs and the luminaire.
ACTION: BRE to advise which (lamps/bulbs and the luminaire) this relates to for lamps efficacy.
- For new build, where the numbers and types of outlets need to be recorded, only lighting in habitable rooms will be considered.
 - BRE: Advised kitchens (& bathrooms) not treated as habitable rooms.
 - SAPSIG: Consider kitchens are probably the most heavily lit room in a home and therefore challenged the designation as non-habitable.
ACTION: Government to reconsider if kitchen and bathrooms should be designated habitable rooms.

5 Thermal bridges (BEIS was not present)

- We will remove the reference to BRE accredited details since there are now other schemes in place.
AGREED.
- We will add some additional thermal bridge types that are not covered by any existing category (this needs to be done in coordination with changes to Part L).
ACTION: Members to advise BRE of anything relevant regarding thermal bridging.

6 Thermal elements adjacent to unheated internal spaces (BEIS was not present)

- We will seek to simplify the adjustment to psi-values adjacent to unheated spaces for assessors, or remove it if this is not possible.
- BRE: Advised this also affects Thermal Bridging – although BRE are working on this – if difficult for the SAP assessor to navigate, this will be discarded. Consider possibly for SAP 11.

ACTION: A Member to send details to BRE of thermal elements.

- A Member: Advised the SAPSIG May 2016 meeting looked at this, drawing attention to Government's comments.

AGREED: Should be included unless very complicated.

7 Hot water (BEIS was not present)

- We will apply a reduction factor to distribution pipework losses where electric showers are used.

ACTION: BRE to amend the term 'Electric showers' to 'electrical instantons showers'.

- We will make provision for using the shower flow rate used in a Part G assessment.

AGREED.

- We will allow for different cold water temperatures depending on whether provided from a cold water header tank or directly from the mains supply.
- BRE: Advised this varies seasonally.

8 Summer temperature assessment (BEIS was not present)

- We will improve the wording to clarify some terms and avoid misunderstandings.
- BRE: Described a few examples.
- A Member: Advised the diagonal air flow through a corner apartment cannot be accurately modelled and questioned could SAP be amended.
- Discussed dynamic modelling. Government advised dynamic modelling could be used.

ACTION: BRE to consider additional ventilation option for corner apartments.

ACTION: BRE to change 'temperature' to 'heat gain'.

9 Mechanical ventilation (BEIS was not present)

- We will adjust the wording around whether the system is in the heated part of the dwelling (as currently worded it could be in an unheated corridor or similar – not the intention).
- BRE: Advised within the heated environment.
- A Member: Advised there is a massive difference between Design and In-use performance and this affects multiple aspects of welfare. Suggested an 'in-use factor' to account for poor workmanship.

ACTION: BRE to review in-use factor for those developers who choose not to comply with good practice (perhaps CIBSE) for mechanical ventilation.

ACTION: A Member to circulate the evidence etc regarding mechanical ventilation.

10 Chimneys and flues (BEIS was not present)

- We will review evidence received about lower flow rates for the flues of modern appliances (i.e. consider adding more categories).
- We will review whether chimneys with dampers ought to have lower flow rates than open chimneys (and whether they are sufficiently different to warrant different treatment).
 - An example is a wood-burning stove.
 - A Member: Advised the data was 'poor' (only c15 sets with a wide variation of reported performance).

AGREED: There is clearly an opportunity for more research.

- Two members: Suggested using CFD (computational fluid dynamics) analysis.

ACTION: BRE to consider using a CFD analysis for chimneys & flues.

11 PV, diverters/batteries and solar thermal

AGREED: These technologies / systems have a huge potential impact.

- A Member: explained that the value assumed by SAP for the beta factor (proportion of generated electricity that is self-used) can significantly impact the overall SAP result. As such, it is important to use a robust measured value, and to review it regularly as new field data become available.
- We will revert to a single stage over-shading factor for PV (the near-obstacle element was considered impractical for assessors).

AGREED.

- The value of exported electricity will be reduced to the wholesale electricity price to reflect the greater benefits of using electricity on site.
 - BRE: Advised that at present the Export price is the same as the Import price – which was a legacy assumption. Agreed the effect of this change will be to encourage self-use rather than input into the national supply. Agreed this could affect battery development and usage.
- We will incorporate the method from EN15316-3-4 to allow for the benefits of solar space heating systems.
 - BRE: Advised useful and advantageous to cite an EN reference.
- We will revise the 'beta factor' (i.e. self-use factor) for on-site electricity generation. We are working on a method that relates this to the load ratio, which would be preferable to a fixed proportion. Where there is battery storage (or some other storage) the proportion used on site will be increased.
 - BRE: Advised BRE have 'decent' data to use for basic self-use factor (i.e. with no storage/diversion).
 - BRE: Advised electric cars are ignored.
 - Agreed excess electricity could be diverted to hot water heating, space heating and batteries.
 - Agreed there is a need for more data

ACTION: BRE to seek further information on (a) PV; (b) diverters/batteries; and (c) solar thermal.

- A Member: Advised previous SAPSIG meeting minutes covered this topic.

ACTION: Secretariat to view old SAPSIG meeting minutes for Government's text that outlined the process for PV, diverters/batteries and solar thermal.

AGREED: There is a need to consider Electric Vehicle charging for SAP 11.

12 Boilers and heat pumps (BEIS was not present)

- We will allow 2 hot water systems to be entered to facilitate the inclusion of hybrid boilers (heat pump + boiler).
- BRE: Advised working on a percentage split between the heat sources, however, there is an added complication of heating controls and the timings in the day.

13 Costs of improvement measures (BEIS was not present)

- We will review all improvement measure costs used on EPCs (which are held in the PCDB). In particular the PV cost is very out of date so we intend to update that even before SAP 10 is in use.

14 Heating controls (BEIS was not present)

- We are adding data fields to the PCDB to allow for control-specific adjustments to heating times and temperatures to allow for the possibility of recognising new control types without a further update to SAP, subject to suitably robust evidence being in place.

ACTION: Members to inform BRE if they are aware of any studies underway regarding heating controls.

- BRE: Advised not for SAP 10 (other than adding a possible PCDB route should further data become available).
- Data from a study in an environmentally controlled test house showing how the presence of TRVs affects the internal temperatures is being analysed and compared to the existing methodology in SAP. This may result in a reprofiling of the current equations for the non-living room 'demand temperature', Th2, in SAP table 9.
- BRE: Advised the Salford Test House was not a field data study and therefore not ideal, but better than current knowledge. The results may affect the equations used to calculate the non-living room temperature.

15 Other (BEIS was not present)

- We will stop treating communal heating HIUs as hot water cylinders.
 - BRE: Advised BRE now has some data, so an improvement.
- We will review blind and curtain factors in table P3.
 - BRE: Advised data submitted indicates current values may need reviewing.
- We will improve the options for inputting data about the thermal elements of rooms in roofs following feedback from assessor schemes.
 - BRE: Advised improvements will be made.
- We will review adjustment factors for non-vertical windows in table 6e.
 - BRE: Advised values are old etc and technology has moved on.
- We will update table 10c (air-conditioning efficiencies) in light of updated data in EN14825
 - Self-explanatory.

- End of Changes to SAP following the SAP 2016 consultation -