

SAP 10.2 – updates for new document version April 2023.

The updates described below have been collated during software testing and generally as queries are made of the BRE SAP team.

Changes which have required a change to SAP software

1. Existing heat networks may now be assessed against either the standard notional building (new option) or versus the same heat network (as currently in SAP software).
 - Change: Addition of text to Table R1 in Appendix R. “Assessors may optionally use the existing heat network approach as defined in section 1.7 of the Approved Document L 2021 edition if the heat network was in place before 15 June 2022. The option must be used consistently in all systems if selected.” (pg. 120).
 - Justification: The drafting in the SAP10.2 specification on heat networks was ambiguous. It has become apparent that BRE and the software companies have interpreted the specification in a different way to which the heat networks policy team had anticipated.
 - Impact: Buildings connected to existing heat networks can now be compared against the standard notional building (gas boiler). Therefore, if the heat network is low carbon, the building will benefit from having low carbon heating in comparison to the notional building. Therefore, the building may not require additional measures such as PV, because of the carbon and primary energy benefit coming from the low carbon heat network. Existing low carbon heat networks will become more attractive to housebuilders to improve their performance.

2. Correction of heat networks fuel prices.
 - Change: Correction of unit prices for recovered heat in heat networks in Table 12 (Fuel prices, emission factors and primary energy factors) on pg 189.
 - Justification: These prices are incorrect. There was a broken link in the spreadsheet, which meant that it was giving old erroneous figures.
Impact: Correct prices are cheaper than erroneous ones and the SAP score will be improved for heat networks using recovered heat.

3. New distribution loss factor for two dwellings sharing a single heating system
 - Change: New distribution loss factor added into Table 12c (Distribution loss factor for heat networks) on pg. 193.
 - Justification: Table 12c was a new table for SAP10.2; however, it missed this particular configuration.
 - Impact: This will allow this particular configuration to be modelled.

Cosmetic changes and clarifications (no change to existing SAP software)

4. References to Appendix S.
 - Change: replacement of the phrase “Appendix S” with the phrase “RdSAP 10 specification” throughout.
 - Justification: To promote the modularisation of SAP.
 - Impact: The RdSAP 10 specification will be a separate document. This will make it easier to update the SAP and RdSAP specifications independently of one another and promotes continuous improvement.
5. Performance of mechanical ventilation systems.
 - Change: Remove Table 4h (“In use factors¹ for mechanical ventilation systems”). Replace references to Table 4h with references to the Product Characteristics Database (PCDB). Publish technical paper S10TP-13 on the SAP 10 website and add a reference to this in the SAP 10 specification (pg. 16)
 - Justification: During SAP 10 development, a decision was taken to move these factors from a fixed table in SAP 10 into the PCDB to enable them to be updated in an agile fashion, rather than be fixed for the whole lifetime of SAP 10. This approach was implemented in SAP 10 software; however, it was not changed in the SAP 10 specification, and is therefore being updated retrospectively. A technical paper will be published alongside the revised SAP 10 specification to enable external scrutiny.
 - Impact: Increased transparency.
6. Procedure for two mechanical ventilation systems
 - Change: In section 2.6.9 “Two mechanical ventilation systems” (pg. 17), a sentence will be added, which states “If documentation in footnote 2² has been submitted as evidence for both ventilation systems, SAP software will use the measured in-use factor”.
 - Justification: This has been available in previous versions of SAP via the SAP conventions. However, it has previously not been properly documented in the SAP specification.
 - Impact: Greater transparency of the methodology.
7. Dates of Part L uplift
 - Change: Section 15 “Building Regulations and Associated Metrics” has been updated to state “At the date of this publication SAP 10.2 has been formally adopted for use in England from June 2022 and Wales from November 2022, and is expected to be adopted later in other UK administrations.”
 - Justification: to reflect current legislation
 - Impact: readers can easily refer to when SAP 10.2 was adopted.
8. Reference to technical paper.
 - Change: Pg. 58 added reference to SAP 10 website and URL. To publish S10TP-12 on the website.
 - Justification: easier reference
 - Impact: easier reference
9. Typo correction
 - Change: Pg. 62 correction from ‘SAP 2009’ to ‘SAP 10.2’ factor in section E2.
 - Justification: correcting an error
 - Impact: correcting an error
10. Clarification that lighting for existing dwellings will be covered by the RdSAP 10 specification.

¹ These in use factors include the mechanical ventilation system’s specific fan power and heat recovery efficiency and are used to determine the system’s performance.

² Footnote 2 of the SAP 10 specification sets out the measurements that are required to measure the in-situ specific fan power for mechanical ventilation systems with heat recovery (MVHR).

- Change: change to wording on pg. 89
 - Justification: the approach is different and is to be clarified in the RdSAP document
 - Impact: greater clarity
11. Clarification that apportioning of PV output is by kWh/month.
- Change: change to wording on pg. 92
 - Justification: to remove ambiguity on calculation as found in testing.
 - Impact: increased clarity. This was covered in software testing and approved SAP 10.2 software already reflects this.
12. Clarification of the division of electricity generated by PV on the roof of apartments.
- Change: Adding two sentences on pg. 93, which state: “The division of electricity generated in the cases above shall be done by prorating according to floor area the allocation of kWp of the array and kWh of total battery storage, if present. These prorated figures should be entered into the SAP worksheet for the corresponding dwelling.”
 - Justification: to remove ambiguity on calculation as found in testing.
 - Impact: increased clarity. This was covered in software testing and approved SAP 10.2 software already reflects this.
13. Clarification: cold water feed is from mains in the notional building.
- Change: Add the sentence “Cold water feed ‘from mains’ (for Table J1)” into the “Hot water system” row in Table R1: Reference values for target setting in Appendix R (pg. 119)
 - Justification: To remove ambiguity on calculation as found in testing. From mains is the more conservative (and common) value compared to header tank.
 - Impact: increased clarity. Approved SAP 10.2 software already reflects this.
14. Clarification: Heat interface unit is now sourced from a single PCDB entry
- Change: Change text in “Heat interface unit” row in Table R1 in Appendix R to “HIU data should be obtained from PCDB entry 400001” (pg. 119).
 - Justification: To remove ambiguity on calculation as found in testing.
 - Impact: increased clarity. Approved SAP 10.2 software already reflects this.
15. EPC improvement measures for new build dwellings
- Change: In “Appendix T: Improvement measures for Energy Performance Certificates”, adding the sentence “For improvement measures applicable in RdSAP assessments, see RdSAP 10 specification.” (pg. 123)
 - Justification: Clarification that the three improvement measures described refer to new build dwellings (and that existing dwellings will be covered separately in RdSAP).
 - Impact: increased clarity
16. Solar heating improvement measure for EPCs
- Change: In Appendix T, add the sentence “Circulation pump not PV powered”. (pg. 123)
 - Justification: Clarification that the circulation pump in the solar heating improvement measure is not powered by PV.
 - Impact: increased clarity. Approved SAP 10.2 software already reflects this.
17. Location of a thermal store
- Change: Addition of a sentence at the foot of the hot water section of the SAP worksheet (pg. 137) to clarify that if a thermal store is present, it is assumed to be inside the heated space.
 - Justification: clarification as this is the most common configuration.
 - Impact: increased clarity. Approved SAP 10.2 software already reflects this.

18. Clarification of metrics used in Table 12: Fuel prices, emission factors and primary energy factors
 - Change: In footnote k to Table 12 (pg. 190), change text to “Cost is per unit of heat generated (i.e. before distribution losses); emission and primary factors are per unit of fuel used by the heat generator.”
 - Justification: Clarification as per queries raised during testing.
 - Impact: increased clarity. Approved SAP 10.2 software already reflects this.

19. 18-hour Combined Primary Storage Unit (CPSU) tariff
 - Change: Add an 18-hour electric CPSU tariff into Table 12a (pg. 191)
 - Justification: this was missing in the written specification since SAP 2012 although it was always present in SAP software.
 - Impact: increased transparency. Approved SAP 10.2 software already reflects this.

20. Typo correction in Tables 15 & 16
 - Change: removal of rogue 'D' character in Table 15 and Table 16 on pg. 198.
 - Justification: removing error from document
 - Impact: increased clarity