README on Demo XLS 52016-1

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Replaces document: --

1 Contents of the set of files

- **2 x Calculation Excel files (xlsm)**
- **7 x Demo input data files (xlsx)**
- **2 x Demo climate data files (xlsx)**
- **Readme file (pdf)**
- **Explanation on updated spreadsheets for EN ISO 52010-1 and ISO 52016-1 (pdf from pptx)**

2 Explanation on the spreadsheets

- The Info and Explanation sheets in the Excel files
- Slide deck: Explanation_XLS_Demo_ISO_52010 & 52016-1_2019.11.pdf

3 Procedure

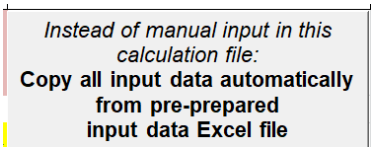
1. Open the calculation Excel file

2. Go to the sheet ClimData
   a. If you want another climate or the same climate with different planes (orientation and tilt angle): take or create an appropriate output file from the spreadsheet on ISO 52010-1
   b. Clear the sheet ClimData and copy paste into this sheet all data from the output file from the ISO 52010-1 calculation mentioned above. Save the file

3.
   a. Take and, if needed, adapt the Excel file that contains the input data. Be sure to save this file in the same folder as the calculation Excel file.
   Note that the input data cover more than one sheet!!

   b. Go to the calculation Excel file and open the sheet Method_input

   c. Fill in the name of the Excel file that contains the input data

   d. Push the button: 

4. Alternative for step 3 (only recommended for minor changes): manually adapt the input data on all input sheets of the calculation Excel file

5. Push the button: 

, This will start the macro to complete the hourly calculations (the monthly calculations are performed without macro)

6. When the calculation has been completed, the calculation Excel file will be stored with the date and time in the file name. It is recommended to adapt the file name to identify e.g. the case and climate used.

4 Some observations on the calculations/results compared to the previous version

- The previous version was published in 2015, on the basis of the draft standard prEN ISO/DIS 52016-1.
  Ad hoc updating was done in 2016 for the calculation cases to be reported in EN ISO 52016-1:2017 and for the example case in CEN ISO/TR 52016-2.
- With the new updated spreadsheet (2019) some shortcomings in these previous calculations were revealed.
- For the monthly calculation method in the 2016 spreadsheet the solar radiation was erroneously shifted one month.
- BESTEST cases 600, 640 and 600FF (lightweight building): the new results from the hourly calculation method deviate significantly from the results reported in EN ISO 52016-1.
  The main reason is that for these cases by mistake the distribution of the mass over the nodes of the opaque constructions was still based on the procedure in the draft standard, the prEN DIS 52016-1 (no thermal capacity on the surface nodes) instead of on the distribution according to the standard published in 2017 (the surface nodes are *not* excluded in the distribution of the thermal capacity).
  NOTE: the new results may give cause to discuss a possible refinement of the distribution of the thermal capacity as part of revision of the standard.
- BESTEST cases 900, 940 and 900FF (heavyweight building): the new results from the hourly calculation method are almost identical to the results reported in EN ISO 52016-1.
- The Example01 case reported in CEN ISO/TR 52016-2 has been calculated with the climate that is intended for the BESTEST cases (DRYCOLD, based on Denver (Col., USA) instead of with a more moderate climate (De Bilt, The Netherlands).

5 More information

For more information on this EPB standard and on the whole set of EPB standards, please visit the EPB Center website: www.epb.center