

TUTORIAL FOR THE TM22 PROCEDURE

This tutorial document describes a set of test cases referred to by their section number. For each one a series of actions is listed below, resulting in completed example workbooks. These are included as Excel files along with the associated pdf printout in the Tutorials folder of the CDROM. The tutorial workbooks should NOT be used for further assessments - use the provided blank TM22 workbook file (TM22v6a.xls).

See the release notes Readme.txt on the CDROM for the latest information including Excel version compatibility.

1. PREPARATION

If not already done, copy the blank workbook from the CD into a suitable folder on your system.

It may be convenient to enter your name and details onto the Identification screen and save that as your blank workbook. To do this:

- 1a Start the procedure by clicking the Start button
- 1b Enter your details
- 1c Click Next to get the main menu
- 1d Click New Assessment to clear building data (but not identification data) and return to the opening screen
- 1e Save the blank file with your identification details, using Excel's File... Save As... with a chosen filename.

For each building case it is advisable to open the blank workbook (or a previous case if you are using that) and immediately save it under a suitable name relating to the project or building.

2. EXAMPLE: SIMPLE OFFICE CASE (TM22 Option A)

- 2a Open the blank workbook
- 2b Start the procedure by clicking the Start button
- 2c Enter the building identification details, and your identification details if not already done from section 1 above. Enter the date and click Next to get the Main Menu.
- 2d You can press a '?' help button at any time, or view the procedure map or release notes.
- 2e Since we have a simple building, select Option A by clicking the button A to get the main data entry screen for this option.
- 2f To enter data, type responses into yellow cells (followed by the Return key or a direction key), or select options by clicking on white menu cells with the grey arrow to the right.
Enter an assessment reference of your choosing and then complete the building details:
Building types - Office
Building specific type - Naturally ventilated open plan office
QA supporting information - Log Book
Building area or size basis - Net lettable area m2
Area m2 - 1500
QA supporting information - Letting data
Electricity consumption - 200,000 kWh (no need to enter the comma in large numbers)
QA supporting information - Validated energy bills
Other fuel type - natural gas
Electricity consumption - 150,000 kWh
QA supporting information - Validated energy bills
- 2g Click Next to get the main results page, and review the results

- 2h (You can return to the previous page to make changes by clicking Back and then proceed again to the results page by clicking Next again)
- 2i Click Next to get the “End of Procedure” Page
- 2j Optionally click “Print Results” to print the procedure screens used.
- 2k Save the whole workbook using Excel’s File... Save, (or File Save As... if you have not already saved under a chosen filename)
- 2m Close the workbook, or Click “Return to Main Menu” to continue with further analysis, or to revisit the analysis (in which case select option A again)

3. MORE ADVANCED NOTES ON THE SIMPLE OFFICE CASE

Before printing, it can be useful to select Adobe Acrobat™ as your printer if this is available on your system, so that you can review the printed results on-screen first.

At step 2g above, when the Main Results page is showing, you can change the system of Grades using the keyboard key combination Control-[Lower case L] to cycle through the three options. The options (as described from the “?” help button and in more detail in the Release Notes) are an A to G system, or a refined system with each grade split into two (e.g. B1 and B2), or an AGT% system. These options are normally set in the Option C System Assessment results page.

We are using the Navigation buttons (Next, Back and the A-C option buttons) to get to the next sheets. This is strongly advised, rather than using Excel worksheet tabs. However, in general tabs can also be used to move around with one exception: on completion of the Option A data screen as above, the Next button must be used as it causes data to be copied into the main procedure to produce the results.

4. EXAMPLE: OFFICE WITH BANK AREA AND LARGE SERVER ROOM (TM22 Option B)

This example could be started from scratch but we are going to treat it as a development of the example in section 2 - the office has a high street bank for its ground floor (all on a single set of utility supply meters), with a substantial submetered regional server room.

- 4a Open your previously saved example from section 2 (or the Section 2 tutorial file).
- 4b Save the workbook with a new filename for this new case.
- 4c If necessary, proceed to the Main Menu (If you saved at the End of Procedure screen, click “Return to Main menu”. If you saved at the opening screen, press Start and then Next).
- 4d From the Main Menu select the B procedure option by clicking the B button, because we have a multi zone building with special energy use. This will get the Building Types and Size page.
- 4e Complete the data on the Building Types and Size page (which will already have the office data showing from the Section 2 example):
 - Number of zones - 2
 - For area 2 type - Bank
 - Sub-type - Bank all-electric with cooling
 - QA supporting information - Full agreement with definitions
 - Measurement basis - Sales floor area
 - Size (bank i.e. Area 2) - 300 m2 SFA
 - QA supporting information - Letting data
 - Size (office i.e. Area 1) - enter 1000 m2 NLA [reduced from the previous value 1500 m2]
- 4d Click Next to get the Energy screen (which will already have the electricity and gas data showing from the section 2 example above):
- 4e Click “Change Specials” to enter the “special” server room data:

In the section "Process: Energy used for non-building purposes":

Row 1 description - "Regional server room"

Row 1 electricity - 70,000 kWh

QA supporting information - Metered supply

- 4f Click "Back to Energy Use sheet" to return to the energy use sheet - note then that the special energy use is listed in the summary as a process energy use.
- 4g From the Energy Use sheet click Next to get the Main Results sheet. Notice that the Adjusted energy use is lower than the Actual because of the server room and the electricity is now rated at B improved from E.
- 4f From the Main results sheet click Next to get the "End of procedure" sheet.
- 4g As in section 2, save the workbook (with a new name if not previously saved), and print the output if required).

5. EXAMPLE: SYSTEM ASSESSMENT - TM22 Option C

This example could be started from scratch but we are going to treat it as a development of the example in section 4 - with some system metered energy uses available from a Part L/GIL65/TM39 energy metering system: the main ventilation systems, lighting and small power (IT systems other than the server room) are sub-metered.

Note that this assessment (the system assessment option C) is intended to provide a valid and useful understanding of system and building performance and is not primarily intended for legislative system benchmarking.

- 5a Open your previously saved example from section 4 (or the Section 4 tutorial file).
- 5b Save the workbook with a new filename for this new case.
- 5c If necessary, proceed to the Main Menu (If you saved at the End of Procedure screen, click "Return to Main menu". If you saved at the opening screen, press Start and then Next).
- 5d From the Main Menu select the C procedure option by clicking the C button, because we have system data and we want to do a comparison.
- 5e Press Next from the Building Types and Size screen, the Energy Use screen and the Results screen which are the same as in Section 4 above, to get to the Systems Assessment screen. Note that this screen already shows the buildings systems benchmarks to the right of the screen.
- 5f From the Systems Assessment select "Add / Edit" from the Metered Energy column to get the metered energy data input screen.
- 5g In the Metered Data Input screen, enter the available system energy use data; remember that we have already entered the actual total electricity use of the building from the utility bills and the metered server room has been specified as a special energy use and removed from the total:
 - Metered fan power - 18,400 kWh
 - Metered lighting - 28,000 kWh
 - Metered desk IT - 19,000 kWhClick "Back to Systems Assessment" to return to the main Systems Assessment sheet
- 5h On the Systems Assessment page, select "Metered Data" as Data source 1 using the drop-down menu so that our three items of metered system data will be used in the charted comparison. Then tick the "Auto-complete" box for Data source 1 - this is because we don't have system data for all systems but we have already entered the total energy use in earlier screens so the software can fill-in the missing systems to make up the total (it fills them in so that all the missing systems have the same Grade). Then click Next to get the System Results screen.
- 5j The System Results screen shows that heating energy is quite high (grade C) whereas the lighting and IT are exceptionally low energy use grade A - fan use is poor with a grade E. Click Next to get the "End of Procedure" screen.
- 5k As previously, save the workbook and print the used sheets if required.

6. MORE ADVANCED NOTES ON SYSTEM ASSESSMENT - TM22 Option C

The previous example would have looked very different without the Regional server room. You could as an exercise run the previous example but without the Special energy use for the server room.

Instead of metered energy use, you may have modelled energy use - from design calculations or an Asset Rating. These can be entered in much the same way as the metered energy use. The comparison with benchmarks allows up to two of these to be compared with the benchmarks.

A further option is the Plant Sheet which allows the energy use of each plant item (or group of similar items such as a general lighting system) to be analysed separately so that the energy use of the various systems can be calculated. A simple notional example is included as the section 6 tutorial Excel file.