iSERV - Spaces, activities and HVAC systems data spreadsheet: Frequently Asked Questions

Cardiff University

v1.10

By

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Intelligent Energy – Europe (IEE) SAVE Project

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Project websites:

Main website: http://www.iservcmb.info

Database website: http://www.iservcmb.eu

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Contents

Inspection of HVAC Systems through continuous monitoring and benchmarking

Intelligent Energy Europe Project Number: IEE-10-272
Acronym: iSERV

Translate   English

Spaces, activities and HVAC systems data spreadsheet

Building:

Data applicable from:

Created by K2n Ltd, 20th March 2012, Version 1.21

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If you have any questions or issues related to this spreadsheet then please check the iServ website at http://www.iservcmb.info/, the K2n website at http://www.k2nenergy.com

or send an email to info@k2nenergy.com

This spreadsheet can be used to collect and maintain data required for mandatory Inspections of Heating, Ventilation and Air-conditioning systems as well as to collect data for use within an iSERV type benchmarking process for assessing the performance of these systems

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Disclaimer

iSERV wishes to allow all potential participants to minimise the time they need to spend to enter their initial data into the iSERV database, as well as help consolidate information of value to them during HVAC Inspections.

iSERV therefore freely provides this Excel Workbook for these purposes subject to the following conditions:

1. The User shall not market, sell, distribute or transfer the software or any part thereof without the prior written consent of the iSERV Coordinator;

2. The User acknowledges that the iSERV software is new and may therefore have inherent defects, errors or deficiencies;

3. The User uses the iSERV software at the User's own risk, and on the strict understanding that the User will not hold iSERV or its agents engaged in the software development liable for any loss or damage arising from the use of the iSERV software

4. To the fullest extent permitted by law, iSERV excludes any and all liability in respect of loss or damage, whether personal (including death or personal injury) or to property and whether direct, consequential or special (including consequential financial loss) of the User or any third party, however caused, arising directly or indirectly out of the User's use of, or inability to use, the iSERV software.

5. iSERV makes no warranties, express or implied, as to the merchantability or fitness of the iSERV software for any particular purpose.

6. Although upgrades of the iSERV software may be made available from time to time, iSERV cannot undertake to email or notify users of the software of any such upgrade, and it shall be the responsibility of users to assure themselves that the version they are using at any time is the most up to date version.

"There is an urgent need to reduce energy consumption in HVAC systems across Europe. CIBSE are participating in iSERV as the project offers practical help to those who operate and manage HVAC systems to reduce energy consumption, carbon emissions and, most importantly to many building operators, cost. The iSERV data entry spreadsheet is an invaluable tool for gaining an overall understanding of the HVAC system described and for collating information essential for Inspections." Hywel Davies (Technical Director, CIBSE)

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If you are having problems entering data into the spreadsheet please try the following actions first:

1. **Close the spreadsheet and re-open it**

2. **Check you have allowed macros to run and enabled all content in the spreadsheet**

3. **Save the spreadsheet to your hard drive**

4. **Re-open the spreadsheet and the macros should now work when you use the <CTRL><DOWN ARROW> key combination**

5. **If this still does not work go back to the www.iservcmb.info website, download the spreadsheet again and redo actions 1 – 4**

General

1) What version of Excel do I need to run this spreadsheet?

This spreadsheet has been tested in Excel versions from 2003 to 2010. It should run in Excel 97 as well but has not been tested in this version.

2) What information do I need to participate in iSERV?

The information needed in order to complete the spreadsheet and register your building to the iSERV database is:

- Data on floor area and activities served on a room-by-room basis

- Hours of use of areas by activities

- Data on HVAC system components, sensors and utility meters

- How these all connect together, to provide the relationship between activities, HVAC components and utility use.

The information you are expected to provide on an on-going basis is:

- Ongoing sub-hourly data

- Ongoing maintenance of information e.g. change in activities, HVAC components, etc

3) I get error messages when I first open the sheet. What should I do?

The spreadsheet has embedded macros that **MUST BE ENABLED** before they will work. As a security measure Microsoft disables all macros downloaded from the internet by default. To make the spreadsheet work you should follow this procedure:

- On first opening the spreadsheet from the internet download - accept all macros/enable content when asked;

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- Save the spreadsheet to a location on your hard drive with a file name of your choice.

- Re-open the spreadsheet. The macros will now be enabled and you should not get any errors come up. If you do, then re-accept them again and go through the process. If this persists please email steve.blatch@k2nenergy.com explaining the problem and he will respond to you directly.

4) Is the iSERVcmb data spreadsheet available in languages other than English?

The iSERVcmb data spreadsheet is currently available in nine different languages. The languages are Dutch, French, German, Greek, Italian, Portuguese, Slovenian, Spanish, Hungarian and English.

The spreadsheet includes a translation function that allows you to translate the spreadsheet from English to any of the aforementioned languages. To translate the spreadsheet, select your language and click the "Translate" button in the Introduction tab. Allow the translation a few moments to complete. Once the translation is complete, all the tabs will be translated in the language you selected.

5) How do I check my spreadsheet, where do I send it, and what happens afterwards?

1. Please ensure you submit the data on the latest version of the iSERV data entry spreadsheet. **This is currently version 3.0 (as of 22nd February 2013).**

2. **You MUST make sure you press the VALIDATE Button at the top of the MAIN data entry page to check you have no errors in the data you submit**

3. The VALIDATE button presents two types of warnings. Those errors which must be corrected before submitting the spreadsheet are shown in RED while those errors which are warnings that data being submitted is not connected anywhere are shown in YELLOW. The YELLOW warnings will usually relate to meters or sensors that have not been connected but there is one specific warning to do with UNIQUE ID's for meters and sensors which may arise. See sections 6) and 7) for more details of Unique ID's.

4. The validated spreadsheet should then be sent to your local iSERV partner for further review. Once they confirm that your spreadsheet is complete, it will be uploaded to the HERO database.

5. There will be NO manual assessment of the data accuracy by the iSERV partner in most cases.

6. Once the spreadsheet is uploaded to the HERO database, you will be sent a username and details of how to logon to the iSERV database to view, make amendments, or run reports for each system you enter data for.

6) What do I do with my monitored data?

Before filling your spreadsheet, please send a sample of your metering data to your local partner. The sample will be sent to the iSERV database in order to ensure that your metering data are in a compatible format. As a standard, we accept data files in .txt or .csv format. If your data is not in any of these formats, you can still send a sample to your local partner for them to check whether it is in a useable format. Please read question 8 for more details.

After you gain approval, you will be provided with an email address where you will be able to automatically send your metering data.

To ensure your data is assigned to the right meters and sensors all data files supplied should have a unique ID associated with them. The unique ID must be the first entry on the first line in any data file you sent to the iSERV database. Alternatively it might appear in a column in the rows of data you send.

The unique meter ID is a key piece of data for the system as the process that loads your sub-hourly meter or sensor readings into the iSERV application is automated and unattended. If the system cannot match the data to a meter or sensor then the data readings file will be rejected and will be sent back to you with a message explaining the problem. If you do not yet know these ID's when completing the spreadsheet that is fine and the spreadsheet will assign a TEMPORARY UNIQUE ID to each meter or sensor where this is not known, but you cannot connect data to the HVAC system until these match the information in the data files for each meter or sensor.

7) How can I acquire the unique ID associated with each meter/sensor?

Normally, when you get your first monitored datasets from your HVAC systems, you will find a unique ID in the data header for each meter and sensor. If you have not already assigned these in the spreadsheet, then you need to manually enter these against the appropriate meter or sensor in the online system.

If your monitored data does not automatically generate an ID number during its collection you can manually assign any unique ID you wish. This must be the first entry on the first line in any data file. However you will then need to do this every time you send data for a meter or sensor. In this instance it is suggested that data is not sent more frequently than once a month - and maybe only every 3 months for systems with many meters and sensors. You should contact your iSERV Partner responsible for your country if you are in this situation and they will explore with you and K2n means by which you might automate this process or minimise the time you need to spend on it.

8) What is the standard data format of meter and sensor readings?

The iSERVcmb database accepts .csv or .txt data formats as standard. The .csv and .txt files need to be separated by either comma or another separator which is not a character used for anything else in the file.

 The examples below show two potential data file formats. The 1st format is a utility bill (1st 6 hours) for a half hourly meter. The 2nd format is generated by quarter hourly meters attached to a set of chillers. K2n will be able to load any format as long as the date is in the form of a header followed by repeating rows. K2n will need unique identifiers for each meter being loaded.

In this first example the Unique ID is contained in the COREMPAN Column on every row. This type of file could hold multiple meters in it. The data in this example contains CONSUMPTIONS per interval. The HERO database will use this data directly but will lose accuracy if any data is missing as best estimates will then have to be used for this missing data.

COREMPAN	Date	Reading Type	00:00	00:30	01:00	01:30	02:00	02:30	03:00	03:30	04:00	04:30	05:00	05:30	06:00
2100040172872	01/04/2011	kWh	196.10	199.90	197.80	198.80	199.20	195.50	197.90	196.80	199.00	194.50	201.30	221.00	222.70
2100040172872	02/04/2011	kWh	186.40	181.50	182.60	184.00	186.10	188.20	186.20	191.80	187.50	200.80	221.60	219.80	226.80
2100040172872	03/04/2011	kWh	193.10	193.50	191.40	192.10	195.20	194.50	193.90	196.80	197.40	196.80	196.00	192.50	211.00
2100040172872	04/04/2011	kWh	198.40	199.80	198.30	196.60	198.50	197.50	193.70	196.00	200.50	194.60	206.30	205.40	214.20
2100040172872	05/04/2011	kWh	204.30	207.60	202.00	207.90	210.70	209.50	214.70	211.00	207.40	211.30	221.00	216.30	232.30
2100040172872	06/04/2011	kWh	231.00	233.20	231.20	233.80	230.40	231.50	230.10	231.60	231.30	231.80	234.10	232.60	249.20
2100040172872	07/04/2011	kWh	203.50	198.90	199.40	206.40	206.40	207.30	208.10	206.10	210.70	210.90	209.90	210.20	223.40
2100040172872	08/04/2011	kWh	202.60	202.10	201.80	200.80	200.90	207.90	208.80	206.50	207.90	212.60	207.00	212.80	218.00
2100040172872	09/04/2011	kWh	193.20	190.60	192.40	190.00	191.40	185.00	187.90	188.80	186.30	190.10	188.40	189.00	204.80
2100040172872	10/04/2011	kWh	194.10	196.30	193.20	184.80	188.10	186.10	182.80	188.70	187.30	190.80	192.20	187.00	198.10
2100040172872	11/04/2011	kWh	193.80	192.60	193.40	194.30	193.20	191.90	192.40	195.50	196.50	196.30	207.30	209.10	212.00
2100040172872	12/04/2011	kWh	194.80	189.80	192.40	194.30	191.60	192.50	193.80	191.40	192.20	193.50	194.30	193.40	209.50
2100040172872	13/04/2011	kWh	193.40	191.50	191.80	192.30	193.80	192.40	192.30	192.80	193.10	196.20	194.40	191.70	206.70

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In the second example below, the Unique ID is the name assigned for each column. This is not always generated by the meter and this example shows meter data generated by manual intervention. It is important the end user knows that if these Unique ID header names are altered then the names in the iSERV database must be updated to reflect the change (FROM the month of alteration only).

The data in this example contains meter READINGS. The iSERV database will convert these into interval consumptions. This type of data is most accurate for overall consumption as the readings allow any missing consumption from missing readings to be accurately known once the readings resume.

	SWB_A_Incomer	SWB_B_Incomer	SWB_A_Chiller_1	SWB_A_Chiller_2	SWB_B_Chiller_3
2009-Oct-01 00:00:00.000	6,164,825	3,565,660	431,465	461,417	733,169
2009-Oct-01 00:15:00.000	6,164,884	3,565,701	431,465	461,419	733,175
2009-Oct-01 00:30:00.000	6,164,940	3,565,739	431,465	461,421	733,180
2009-Oct-01 00:45:00.000	6,164,994	3,565,777	431,466	461,422	733,185
2009-Oct-01 01:00:00.000	6,165,049	3,565,817	431,466	461,425	733,191
2009-Oct-01 01:15:00.000	6,165,096	3,565,855	431,467	461,426	733,195

clear what each column of data contains e.g. data, time, meter reading/meter consumption, etc

Editing and Validating

9)   Why can't I insert information in/edit a cell?

There are a few reasons why you might not be able to edit a cell. First you must check that when you open the .xls file, on the top of the spreadsheet (under the menu bar) a yellow label might appear with the following indication: "Security warning: Some active content has been disabled. Click for more details. Enable Content". You must click the Enable Content button to use this spreadsheet. See 2) above.

Secondly, a number of cells on the spreadsheet are protected to prevent corruption of data, so will prevent you entering data. These will normally be grey. If any changes are required to these then please contact steve.blatch@k2nenergy.com to explain what you wish to change.

10) Can I copy and paste information from one cell to another inside the sheet?

The white cells can be freely copied and pasted into other white cells inside the spread sheet as they contain simple text and/or choices which can be copied. The cells highlighted in grey colour contain macros and must not be copied and pasted into other cells inside the spreadsheet as this will lead to corruption of the spreadsheet data.

11) Can I copy and paste information from other spreadsheets or document files inside the spreadsheet?

You are free to copy and paste simple text into any of the white highlighted cells of the spreadsheet. You must not copy and paste any form of information into any of the grey highlighted cells of the spreadsheet as this will lead to corruption of the spreadsheet's data.

12) How do I add a new line?

To add a new line in the spreadsheet, simply press the Add a Meter/ Sensor/ HVAC system/ HVAC component/ Schedule/ Space button and enter the number of lines you wish to add. These will be added at the end of each section.

13) How do I delete a line?

To delete a line from the spreadsheet, simply right click the number of the line you want to delete from the row header depicted at the left of the Excel window and then choose Delete from the menu.

14) Why are some cells highlighted in grey?

Cells highlighted in grey are protected as they contain macros. You are not required to fill these cells as they acquire their content automatically from other cells.

e.g. Under the Utility meter section, the "space where located" cell is automatically filled after you complete the Space section and note the location of the meter in a space. This is why you should complete this spreadsheet from top to bottom.

15) Why are some fields marked with the * sign?

The Fields marked with ***** are the compulsory fields for each building and should be completed to provide you with the reports you will need from the system.

16) Why are some headings <u>underlined</u>?

An **<u>underlined</u>** column heading indicates that the column has a list of values available. To display the list, move to the relevant cell and press <Ctrl><Down Arrow>. An alternative method is <Right Mouse Button><List of Values>.

Otherwise, if you feel that the information you want to insert is not part of the existing popup list, please contact steve.blatch@k2nenergy.com.

17) Why can't I see the popup list even if I press <Ctrl><Down Arrow> or <Right Mouse Button><List of Values>?

If an empty window pops up when trying to access a popup list then you have omitted to complete a previous portion of the spreadsheet.

e.g. you have yet to enter any meters into the spreadsheet, so you cannot choose meters to connect to an HVAC component yet.

18) Why do I get an error message when I try to enter values in a cell?

Some cells have validation rules. If you enter a value that fails the validation then the error message displayed will describe the correct format or type to enter.

19) How do I use the "Validate" button?

The iSERVcmb data spreadsheet contains a validation feature which allows you to check whether all mandatory fields have been completed with the appropriate data format. Pressing the VALIDATE button in the MAIN tab sheet will result in the spreadsheet data entered being validated.

Errors are highlighted in red and warnings in yellow. All highlighted cells have a comment attached to them describing the nature of the problem. You can view the description when hovering the mouse over the highlighted cell. You are expected to correct all red errors before sending the spreadsheet to the database. After you complete all the corrections use the "validate" button again. If your spreadsheet is ready for submission you will receive the following message "No validation errors or warning found – spreadsheet passes validation test".

The RED error checks in place are:

- ✓ that all required fields are entered;
- ✓ that all cells where value selected from drop down list have valid values from the drop down list;
- ✓ that numeric values are numeric and dates are correctly formatted dates;
- ✓ that names and unique ids are unique.

The YELLOW warning checks in place are:

- ✓ that all meters, sensors, HVAC systems and schedules that are defined are used somewhere.

20) I am confused. Where can I get assistance with filling the spreadsheet?

All column headings have help text. To display the help text, select the heading you are having trouble with and press the <Ctrl><Down Arrow> keys together. You can also read the latest FAQ documents by clicking the "FAQ" button on the top of the page.

Content and Terminology: Introduction and Main Tab

21) What does the "site name" field refer to?

The site name refers to the area in which the building is located. The site can be either a public or a private estate. If the site is considered a private estate then please name the operator which has the ownership of the estate. Example: McKenzie House is a Cardiff University building located in the "Cardiff University Estate".

22) What does the "organisation name" field refer to?

The organisation name refers to the end user that is occupying the building or spaces served by the HVAC system(s) being described.

23) What does the "construct month" field refer to?

The construction month can help iSERV understand the insulation levels likely to be found in the fabric. The construct month should be inserted in the MM/YYYY format. If the building's fabric has been

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retrofitted then the construct month is the date of retrofit. If you don't have information on the month of construction or retrofit then insert only the year. Different construction times or standards for individual spaces can be set in the online application.

e.g. If a building was built in 1923 like McKenzie House but the cladding was completely retrofitted in 1989 to the Building Regulations of that time then the date chosen here should be 1989.

24) My building includes numerous extensions/ spaces added during different years. How do I fill in the "construct month" field?

In this case, it is recommended that you use the date of construction of the main area of your building as the "construct month". This is sufficient when filling the iSERV data spreadsheet which constitutes an initial data entry stage. You will be able to amend the date of construction by space in the online database.

25) What is the "property reference code"?

The property reference code is a unique National identification number assigned to each land register. You will usually find this on the Building's Energy Performance Certificate or from the local Government Planning Department. The property reference code is used by iSERV to ensure coordination with any other legislative requirements for the building. This code will have a different name in each country. Example: In the UK this code is defined by the UPRN (Unique Property Reference Number).

26) In what form must the latitude and longitude coordinates be inserted?

If you have not already inserted a postcode or similar that will identify the building location, then the latitude and longitude coordinates must be inserted in a GPS format. Please use the following link to convert the coordinates from "Degrees Minutes Seconds" or "Decimal Degrees" format to GPS format: http://www.cosports.com/index.php/tool/tools/latlong

27) What does the term "gross internal area" refer to?

The gross internal floor area (GIA) of a building is the area measured to the internal face of the perimeter wall for each floor level. It includes areas occupied by internal walls and partitions, columns, piers and other internal projections, internal balconies, stairwells, toilets, lift lobbies, fire corridors, atria measured at base level only.
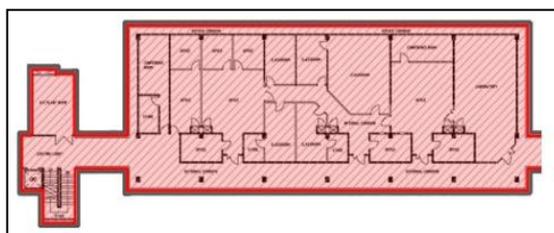
It excludes the perimeter wall thickness and external projections, external balconies and external fire escapes. Furthermore, unused areas such as unheated cellars or lofts are not included in the gross internal floor area. Its unit is measured in m^2.

28) How do I deal with the area occupied by internal walls/partitions when calculating the area occupied by a room in the building?

You should calculate the area of a space as being to the centre line of any internal walls or partitions, but to the internal face of any external walls.

29) What does the term "conditioned GIA" refer to?

The conditioned GIA of a building is the gross internal floor area of conditioned spaces, e.g. only those areas served by the HVAC system of interest. However see 43) below.

30) What does the "sector" heading refer to?

"Sector" refers to the main activity sector to which the Organisation belongs e.g. Higher Education. The activities available for *Space* are by default then chosen from this sector. However, a different "sector" can be chosen at space level if a specific activity is not available for the main sector chosen. See 57) below for a complete list of activities that can be chosen.

31) What is a meter multiplier?

With some electric meters you must multiply the reading obtained from the dials by a factor called the "meter multiplier". This may be noted on or near the meter. However, not all meters will have these multipliers and in the case of uncertainty short-term measurements on the metered supply should be undertaken to ascertain the meter is reading correctly.

32) What is an "all in one system"?

All-in-one systems are the stand-alone fully integrated systems e.g. a domestic AC unit

33) What is an "all-air single/dual duct CV system "?

An all-air system provides complete sensible and latent cooling capacity in the cold air supplied by the system. Heating, cooling and ventilation can be accomplished by the same air stream, either in the central system or at a particular zone. All-air systems can be classified into either single duct systems or dual duct systems.

A dual duct system is one in which hot and cold air are supplied separately and mixed only at entry to the zone. This is usually very inefficient but gives good control of temperature and humidity. Single duct systems are the most common system where air is provided in one duct to all zones and then either heated or cooled at point of provision to the space.

34) Where can I find the required HVAC components' technical specifications?

Please check HVAC component data with Eurovent Certification where possible by using the following link: http://www.eurovent.com . A Google or similar search on manufacturer name, range and model number is often the quickest way to do this. Please see the Certiflash tab to see how Eurovent data can be incorporated into your search engine.

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35) What does a "Chilled water flow temperature" sensor measure?

A "Chilled water flow temperature" sensor measures the temperature at which water flows from the Chiller. There are other terms which might also be used - such as Leaving Water Temperature (LWT). Entry Water Temperature (EWT) can also be used for Return temperatures to the Chiller and other items of HVAC plant.

36) What does a "Return filter stage 1 pressure drop" sensor measure?

A "Return filter stage 1 pressure drop" sensor measures the pressure drop across the first filter on the extract from a space.

37) What does a "Return filter stage 2 pressure drop" sensor measure?

A "Return filter stage 2 pressure drop" sensor measures the pressure drop across the second filter on the extract from a space.

38) What does the "Duct/ Pipe Area m2" heading refer to?

"Duct/ Pipe Area m2" refers to cross-sectional area of duct or pipe in square meters. With appropriate sensors and this information we can estimate your energy input along these ducts.

39) What is the difference between the HVAC System and HVAC Component sections of the Main tab?

The HVAC System section refers to the whole system for the building. This section allows for multiple separate systems in one building e.g. independent AC systems as well as the main HVAC system. The HVAC components section should include all the elements of this HVAC system noted individually i.e. pumps, fans, boilers, chillers, etc - with their attendant data.

40) What is the difference between primary and secondary pumps?

Primary pumps are of constant flow and pump water in a circuit around the chillers or boilers. Secondary pumps take chilled water from this primary circuit loop and pump water to separate parts of the building as required. The primary pump runs all the time the chillers or boilers are in use, while the secondary pumps could be cycled on and off to create independent zones.

41) Why should I choose a parent component?

Where there is a possibility of double counting energy e.g. primary and secondary fans (e.g. main AHU and Secondary AHU's using the same air) you should choose a parent component. This prevents us counting the air and energy supplied more than once if we have the relevant sensors. This is also important for HEAT EXCHANGERS which will usually be associated with a particular AHU or set of fans.

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42) How do I divide my building in spaces?

It is recommended that the building is divided in spaces by physically separating rooms as a minimum. This is suitable for a number of reasons:

1. The building in the database will then be compatible in the future with BIM systems once Building Information Modelling becomes the norm.

2. It allows for more intuitive understanding of the reports as you can relate a recommendation to a specific physical space rather than a collection of disparate spaces under one heading e.g. open plan offices.

3. If the use of a space changes it is much easier to amend over time by having a number of separate spaces rather than having to try and remember to take areas off remaining spaces, etc.

4. The database can also be used as a space utilisation tool when individual rooms are physically separated.

43) Some rooms are not served by an HVAC system. Is it required to list them in the spreadsheet?

It is not mandatory to list unconditioned spaces, however, it is advisable to record and list all spaces in each building so that all areas are accounted for.

NB. You should treat a space as conditioned by the HVAC system if it is clear that its temperature and ventilation will be achieved by the HVAC system *e.g. a small store room may not have any direct connection to the HVAC system but may be heated and ventilated indirectly from the adjoining space.*

44) Why is it important to set the HVAC component or utility meter physically located in a space?

This information allows an inspector or building owner to find where a piece of equipment or a meter is physically located in the building. The Excel spreadsheet developed by the iSERV project is a tool to structure and organise the information of HVAC systems and can be used in order to collect and gather pertinent information prior to the inspection independently of the iSERV project. Hence, this information is important to your practical use of the spreadsheet.

45) What does the "Miscellaneous 24h activities" sector refer to?

The "Miscellaneous 24h activities" sector refers to any 2h hour activities that span across sectors.

46) What is a "Stand alone utility block"?

A "Stand alone utility block" is a building that just provides shower/toilet facilities.

47) What is a "24x7 generic office area"?

24x7 generic office areas are areas in continuous use (24 hours x 7 days) including offices and meeting rooms. It can include internal corridors providing access to the office spaces, tea making facilities or kitchenettes within the office space, areas for photocopiers and fax machines and staff lounges.

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48) What are "24x7 warehouse storages"?

24x7 warehouse storages are large (warehouse sized) storage areas with 24x7 operation.

49) What is a "nursery"?

Nursery is a place where parents may temporarily leave children with trained attendants. Nursery can be found under Further Education / Universities and Office.

50) What is a "floodlit facility"?

Floodlit facilities are external areas which are floodlit at night.

51) What is a "Retail warehouse sales area –electrical"?

A sales area in Retail Warehouses is designed to accommodate considerable electrical equipment loads such as lighting sales areas and IT/TV/Hi-Fi sales areas.

Content and Terminology: Schedules Tab

52) What happens if I have multiple schedules for different spaces?

The spreadsheet offers the ability to insert as many schedules as are required for different spaces. Additional schedules can be defined by completing the following steps:

- Press the <Add schedule> button on the main tab

- Set up the new schedule on the schedules tab (the schedules are placed one under the other so your need to scroll down the schedules tab)

- Appoint different schedules to different spaces in the main tab under the space zone

53) What are the variables needed to set up a schedule?

- The date ranges for which each schedule applies.

- The heating setpoint H (^{o}C)

- The cooling setpoint C (^{o}C)

- The relative humidity (RH) setpoints and control (y/n if controlled during the time period or blank if no RH control is active)

- The estimated average occupancy Occ in each time slot

54) What does the "occupancy" refer to?

The "occupancy" required in the schedules tab is the estimated average occupancy number expected in the building at each hour and not the maximum occupancy number.

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55) What if my schedule doesn't start/end exactly at a given hour?

If a schedule doesn't start/end exactly at a given hour then you should round it up to the nearest hour and then adjust using the online application. This limitation in the spreadsheet is because it would have made the Excel spreadsheet impractical to include options to the nearest minute.

56) I can't insert the Schedule name and Date range of my schedule. Why do I get an error message?

The Schedule name and Date range cells are locked because they receive information from the main tab. To complete these cells you must fill first the schedules section in the main tab and the information will be transferred automatically to the schedules tab.

Appendices

57) Appendix 1 – Complete list of sectors and activities that can be chosen for a space

The following table lists all the activities that can be chosen by each sector type. It can be seen that there are a number of activities that are repeated across a sector. This is because insufficient data currently exists to know whether these should all exhibit the same consumption characteristics or not. Please therefore choose the sector and activity that most closely describes the activity and the context in which it is being undertaken.

	Airport terminals	Bus Station Train Station Seaport Terminal	Car Parks 24 hrs	Community / Day Centre	Crown and County Courts	Dwelling	Emergency Services	Further Education / Universities	Hospital	Hotel	Industrial Process Building	Laundrette	Libraries / Museums / Galleries	Miscellaneous 24hr activities	Nursing Residential Homes and Hostels	Office
24x7 Generic Office Area																
24x7 Warehouse storage																
24 hrs Consulting/treatment areas									X						X	
Assembly areas / halls									X	X					X	
Auditoria																
Bathroom							X	X	X	X					X	
Bedroom							X									X
Bedroom Unit									X						X	
Car Park			X													X
Catering: Bars	X	X		X				X								
Catering: Eating/drinking area	X	X		X	X		X						X		X	X
Catering: Full Kitchen Preparing Hot Meals	X	X		X			X		X				X		X	X
Catering: Limited Hot Food Preparation Area	X	X		X			X		X				X		X	
Catering: Snack Bar with Chilled Cabinets	X	X		X									X			
Catering: Vending Machines	X	X		X			X		X				X		X	X
Cell (police/prison)					X		X									
Cellular Office area																X
Changing facilities with showers				X			X	X	X	X					X	
Circulation area (corridors and stairways)	X	X	X	X	X		X						X	X	X	X
Classroom								X	X						X	
Common circulation areas						X										
Cupboard	X	X		X			X						X	X	X	X
Data Centre														X		
Dept Store Sales area - chilled																
Dept Store Sales area - electrical																
Dept Store Sales area - general																
Diagnostic Imaging									X							

	Airport terminals	Bus Station Train Station Seaport Terminal	Car Parks 24 hrs	Community / Day Centre	Crown and County Courts	Dwelling	Emergency Services	Further Education / Universities	Hospital	Hotel	Industrial Process Building	Laundrette	Libraries / Museums / Galleries	Miscellaneous 24hr activities	Nursing Residential Homes and Hostels	Office
Display areas																
Display and Public areas													█			
Display window												█				
Domestic Bathroom						█										
Domestic Bedroom						█										
Domestic Circulation						█										
Domestic Dining room						█										
Domestic Kitchen						█										
Domestic Lounge						█										
Domestic Toilet						█										
Dry sports hall				█			█			█						
External Space	█	█	█	█	█	█		█	█	█	█				█	█
Farms, Field Stations, Observatories								█								
Fitness Studio																
Fitness suite/gym							█			█						
Generic Checkin areas	█	█														
Generic Office Area	█	█	█		█		█		█	█	█					█
Generic Ward									█							
Greenhouses								█								
Hall/lecture theatre/assembly area				█	█			█					█			
Heavy Plant Room														█		
Hydrotherapy pool hall									█						█	
Ice rink																
Industrial process area								█	█		█					
IT: 24 hr High Density IT Suite								█	█				█			█
IT: High Density IT Suite								█	█				█			█
IT: LAN Rooms								█	█				█			█

	Airport terminals	Bus Station Train Station Seaport Terminal	Car Parks 24 hrs	Community / Day Centre	Crown and County Courts	Dwelling	Emergency Services	Further Education / Universities	Hospital	Hotel	Industrial Process Building	Laundrette	Libraries / Museums / Galleries	Miscellaneous 24hr activities	Nursing Residential Homes and Hostels	Office
IT: Server Room								X	X				X			X
Laboratory - heavy utility use								X	X		X		X			
Laboratory - heavy utility use with fume hoods								X	X		X		X			
Laboratory - light utility use								X	X							
Laboratory - light utility use with fume hoods								X	X		X		X			
Laundry								X		X		X			X	X
Lecture theatre								X								X
Library								X								X
Light plant room	X	X	X	X	X		X	X			X	X	X		X	X
Lounges	X	X		X	X						X	X				X
Meeting room								X								X
Nursery								X								
Office and consulting areas				X				X							X	
Open Plan Office Area																X
Operating theatre																
Performance area (stage)																
Physiotherapy Studio															X	
Post Mortem Facility																
Public circulation areas	X	X		X	X			X	X	X			X		X	X
Reception	X	X					X	X		X	X		X		X	
Recreational : Dry Sports Hall								X								
Recreational : Fitness Suite/Gym								X								X
Recreational : Floodlit facilities								X								
Recreational : Ice rink								X								
Recreational : Sauna,Steam,Spa								X								
Recreational : Sports ground changing rooms								X								
Recreational : Swimming Pools								X								

	Airport terminals	Bus Station Train Station Seaport Terminal	Car Parks 24 hrs	Community / Day Centre	Crown and County Courts	Dwelling	Emergency Services	Further Education / Universities	Hospital	Hotel	Industrial Process Building	Laundrette	Libraries / Museums / Galleries	Miscellaneous 24hr activities	Nursing Residential Homes and Hostels	Office
Residents common rooms								■								
Residents kitchen								■								
Retail Warehouse Sales area - chilled																
Retail Warehouse Sales area - electrical																
Retail Warehouse Sales area - general																
Sales area - general																
Server Room														■		
Small Shop Unit Sales area - chilled																
Small Shop Unit Sales area - electrical																
Small Shop Unit Sales area - general																
Space being refurbished	■	■		■	■	■	■	■	■	■	■		■	■	■	■
Storage Area								■								
Swimming pool										■						
Teaching Areas																
Theatre/Performance Area								■								
Toilet	■	■	■	■	■		■	■	■	■	■	■	■		■	■
Unoccupied space	■	■		■	■	■	■	■	■		■		■		■	■
Waiting Rooms	■	■														
Warehouses								■								
Warehouse sales area - chilled																
Warehouse sales area - electrical																
Warehouse sales area - general																
Warehouse storage											■					
Workshops - heavy utility use								■	■		■		■			
Workshops - heavy utility use with fume hoods								■	■							
Workshops - light utility use				■												
Workshops - light utility use with fume hoods								■	■		■		■			

	Primary Health Care Buildings	Primary School	Prisons	Residential Institutions - Residential Schools	Restaurant / Public House	Retail	Retail Warehouses	Secondary School	Social Clubs	Sports Centre / Leisure Centre	Sports Ground Arena	Stand Alone Utility Block	Telephone Exchanges	Theatres Cinemas Music Halls and Auditoria	Warehouse and Storage	Workshops Maintenance Depot
24x7 Generic Office Area															▪	
24x7 Warehouse storage															▪	
24 hrs Consulting/treatment areas																
Assembly areas / halls																
Auditoria										▪	▪			▪		
Bathroom			▪	▪												
Bedroom				▪												
Bedroom Unit																
Car Park						▪	▪									▪
Catering: Bars																
Catering: Eating/drinking area		▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Catering: Full Kitchen Preparing Hot Meals		▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Catering: Limited Hot Food Preparation Area		▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Catering: Snack Bar with Chilled Cabinets		▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Catering: Vending Machines		▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Cell (police/prison)			▪													
Cellular Office area																
Changing facilities with showers		▪	▪	▪				▪		▪	▪	▪			▪	▪
Circulation area (corridors and stairways)	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Classroom			▪													
Common circulation areas																
Cupboard	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Data Centre																
Dept Store Sales area - chilled						▪										
Dept Store Sales area - electrical						▪										
Dept Store Sales area - general						▪										
Diagnostic Imaging																

	Primary Health Care Buildings	Primary School	Prisons	Residential Institutions - Residential Schools	Restaurant / Public House	Retail	Retail Warehouses	Secondary School	Social Clubs	Sports Centre / Leisure Centre	Sports Ground Arena	Stand Alone Utility Block	Telephone Exchanges	Theatres Cinemas Music Halls and Auditoria	Warehouse and Storage	Workshops Maintenance Depot
Display areas										X	X			X		
Display and Public areas																
Display window						X	X									
Domestic Bathroom																
Domestic Bedroom																
Domestic Circulation																
Domestic Dining room																
Domestic Kitchen																
Domestic Lounge																
Domestic Toilet																
Dry sports hall		X	X	X				X		X				X		
External Space	X	X	X	X	X	X	X	X					X	X	X	X
Farms, Field Stations, Observatories																
Fitness Studio										X	X			X		
Fitness suite/gym		X	X							X	X			X		X
Generic Checkin areas																
Generic Office Area					X	X	X			X	X		X	X	X	X
Generic Ward																
Greenhouses																
Hall/lecture theatre/assembly area		X	X	X				X	X	X				X		
Heavy Plant Room																
Hydrotherapy pool hall																
Ice rink										X	X			X		
Industrial process area			X												X	
IT: 24 hr High Density IT Suite	X															
IT: High Density IT Suite	X	X	X	X				X	X							
IT: LAN Rooms	X	X	X	X		X	X	X		X			X	X		

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	Primary Health Care Buildings	Primary School	Prisons	Residential Institutions - Residential Schools	Restaurant / Public House	Retail	Retail Warehouses	Secondary School	Social Clubs	Sports Centre / Leisure Centre	Sports Ground Arena	Stand Alone Utility Block	Telephone Exchanges	Theatres Cinemas Music Halls and Auditoria	Warehouse and Storage	Workshops Maintenance Depot
IT: Server Room	■	■	■	■		■	■	■					■	■		
Laboratory - heavy utility use				■				■								
Laboratory - heavy utility use with fume hoods				■				■								
Laboratory - light utility use		■		■				■								
Laboratory - light utility use with fume hoods		■		■				■								
Laundry			■	■		■				■				■		
Lecture theatre																
Library																
Light plant room	■	■	■	■	■	■	■	■	■	■	■		■	■	■	■
Lounges	■		■	■	■			■		■						
Meeting room									■							
Nursery																
Office and consulting areas	■	■	■	■				■								
Open Plan Office Area																
Operating theatre																
Performance area (stage)					■					■	■			■		
Physiotherapy Studio																
Post Mortem Facility																
Public circulation areas	■	■	■		■			■		■	■			■		
Reception	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Recreational : Dry Sports Hall																
Recreational : Fitness Suite/Gym																
Recreational : Floodlit facilities																
Recreational : Ice rink																
Recreational : Sauna,Steam,Spa																
Recreational : Sports ground changing rooms																
Recreational : Swimming Pools																

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	Primary Health Care Buildings	Primary School	Prisons	Residential Institutions - Residential Schools	Restaurant / Public House	Retail	Retail Warehouses	Secondary School	Social Clubs	Sports Centre / Leisure Centre	Sports Ground Arena	Stand Alone Utility Block	Telephone Exchanges	Theatres Cinemas Music Halls and Auditoria	Warehouse and Storage	Workshops Maintenance Depot
Residents common rooms				X												
Residents kitchen																
Retail Warehouse Sales area - chilled							X									
Retail Warehouse Sales area - electrical							X									
Retail Warehouse Sales area - general							X									
Sales area - general										X					X	
Server Room																
Small Shop Unit Sales area - chilled						X										
Small Shop Unit Sales area - electrical						X										
Small Shop Unit Sales area - general						X										
Space being refurbished	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Storage Area																
Swimming pool		X		X				X		X				X		
Teaching Areas		X		X				X								
Theatre/Performance Area																
Toilet	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Unoccupied space	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Waiting Rooms																
Warehouses																
Warehouse sales area - chilled						X										
Warehouse sales area - electrical						X										
Warehouse sales area - general						X										
Warehouse storage															X	
Workshops - heavy utility use			X	X				X								X
Workshops - heavy utility use with fume hoods			X	X				X								X
Workshops - light utility use	X	X	X	X						X				X		X
Workshops - light utility use with fume hoods		X	X	X				X								X

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