help

CCWeatherGen Basefile Creator

Version 1.1

Sustainable Energy Research Group

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UNIVERSITY OF
Southampton
School of Civil Engineering
and the Environment

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Contents

COVER PICTURE:

The picture on the front cover of this help file was created with the Educational Version of Graphisoft® ArchiCAD.

CCWeatherGen Basefile Creator

1. Introduction

The CCWeatherGen Basefile Creator enables you to generate CIBSE/Met Office style TRY/DSY files from inputted columns of weather data. The tool is Microsoft® Excel based and is aimed at CCWeatherGen users who possess the CIBSE/Met Office weather data in formats other than that provided directly by CIBSE. Files generated with this tool can be read by CCWeatherGen for further processing into climate change weather data. This tool is made available free of charge. However, it is solely distributed WITHOUT the required weather data.

Basic requirements for running the CCWeatherGen Basefile Creator tool

(a) A valid installation of Microsoft® Excel on your local hard drive. CCWeatherGen Basefile Creator has been tested with the 2003 and 2007 versions. (However, the authors do not take responsibility for any compatibility issues on these or other platforms.)
(b) A licensed copy of weather data from a CIBSE/Met Office weather station or any other weather data.

2. Preparing the CCWeatherGen Basefile Creator tool for use

In order to use this tool you need to have hourly weather data for a whole year (8760 hours) as well as information on the weather station's latitude, longitude and its elevation above sea level. The location of the original CIBSE/Met Office weather stations is given below in Table 1. Furthermore, you need to know whether your data represents a 'typical year' (TRY) or a 'hot summer year' (DSY). The following data parameters are required for the CCWeatherGen Basefile Creator tool:

- cloud cover [okta 1/8]
- dry bulb temperature [°C]
- wet bulb temperature [°C]
- atmospheric pressure [hPa]
- wind direction [degrees]
- wind speed [m/s]
- global horizontal radiation [W/m²]
- diffuse horizontal radiation [W/m²]

Please note that the tool will not work if one of the data columns is missing.

Table 1 - CIBSE/Met Office weather stations: location and elevation

City	Met Office weather station	Latitude [°]	Longitude [°]	Elevation [m]
Belfast	Aldergrove	54.66 N	6.22 W	63
Birmingham	Elmdon	52.45 N	1.74 W	96
Cardiff	Rhoose	51.40 N	3.34 W	65
Edinburgh	Turnhouse	55.95 N	3.35 W	35
Glasgow	Abbotsinch	55.87 N	4.43 W	5
Leeds	Leeds w.c.	53.80 N	1.56 W	64
London	Heathrow	51.48 N	0.45 W	25
Manchester	Ringway	53.36 N	2.28 W	69
Newcastle	Newcastle w.c.	54.98 N	1.60 W	52
Norwich	Coltishall	52.76 N	1.36 E	17
Nottingham	Nottingham w.c.	53.01 N	1.25 W	117
Plymouth	Plymouth w.c.	50.35 N	4.12 W	50
Southampton	Southampton w.c.	50.90 N	1.41 W	3
Swindon	Boscombe Down	51.16 N	1.75 W	126

Abbreviations used in this document

CIBSE	Chartered Institution of Building Services Engineers
DSY	Design Summer Year
TRY	Test Reference Year

WARNING:

There is a very high risk of producing meaningless data with this tool. Therefore, users are advised to use this tool with extreme care and to cross-check any inputted data before clicking the '*Start CIBSE/Met Office Style Basefile Generation*'.

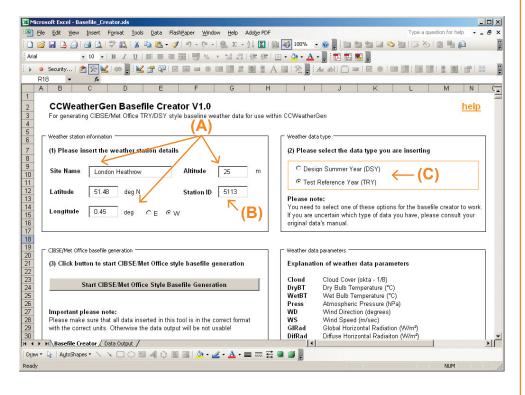# 3. Creating CIBSE/Met Office style weather files for use in CCWeatherGen

3.1. Permitting macros in Microsoft® Excel

Macros need to be permitted for CCWeatherGen Basefile Creator to work. In Microsoft® Excel 2003 this needs to be done prior to opening CCWeatherGen Basefile Creator. Please select '*Macro*' from the '*Tools*' menu. Select '*Security…*' and choose '*Low*' from the '*Security Level*' tab inside the message box. (You may wish to change the security level back after you have finished using the CCWeatherGen Basefile Creator tool in order to prevent potentially unsafe macros from being executed on your system.) Now open CCWeatherGen Basefile Creator. If you are using Microsoft® Excel 2007 please open CCWeatherGen Basefile Creator and select '*Options...*' at the end of the '*Security Warning*' message in the task bar. Inside the following message box select '*Enable this content*' and click '*OK*'.

3.2. Inserting weather station information

After closing the entry splash-screen your screen should look as shown below. Please insert your weather station's location parameters into the '*Weather station information*' box **(A)**. All the shown weather station related parameters are required for the tool to work. Please note that latitude and longitude have to be inserted as fractional degrees, i.e. not in degrees and minutes. If you do not know your weather station's ID number **(B)** you may leave the Station ID field at its default value '0000'. (Normally the station ID will be the value in the first data column of your original data.)

Select the type of data you are inserting in the '*Weather data type*' box **(C)**. A 'Test Reference Year' (TRY) represents a 'typical year' and is used for evaluation of building services systems. A 'Design Summer Year' (DSY) is a 'hot summer year' for assessing naturally ventilated buildings. If you are uncertain which type of data you have, please consult your original data's manual. It is important to select the correct data type to avoid data misinterpretation at later stages.

3.3. Generating a CIBSE/Met Office style data file

Copy-paste your weather data output columns into the blank columns of the '*Weather data input*' box **(D)**. You may also insert the year information if available to you **(E)**. Please be aware that the time-step convention is not identical for all weather datasets. For example, the original CIBSE/Met Office weather data has hourly time-steps from 0 to 23 hours, 0 hours being the hour from midnight until 1 o'clock. Your data may be organised in time steps of 1 to 24 hours or 0.30 to 23.30 hours. If your CIBSE/Met Office radiation data follows the convention of 0.30 to 23.30 hours and all the remaining data the convention of 1 to 24 hours as shown in Table 2, you need to insert the data into the '*Weather data input*' box as shown on the right hand side of Table 2. Whilst the radiation data is simply copy-pasted, for all other parameters hours '*0*' and '*100*' on day 1 need to contain the value of your data's hour 1. This is required to make the data rows consistent with the original CIBSE/Met Office files.

Click '*Start CIBSE/Met Office Style Basefile Generation*' **(F)**. Prior to the weather file generation an extensive data integrity check is being performed. During this check any data inconsistencies will be highlighted to you for your attention. The weather file generation may take several minutes. On completion you will be prompted whether you want to save the weather file. It is recommended to save the file as suggested and to accept the proposed filename. Your CIBSE/Met Office TRY/DSY file is now ready for use with the main CCWeatherGen tool.
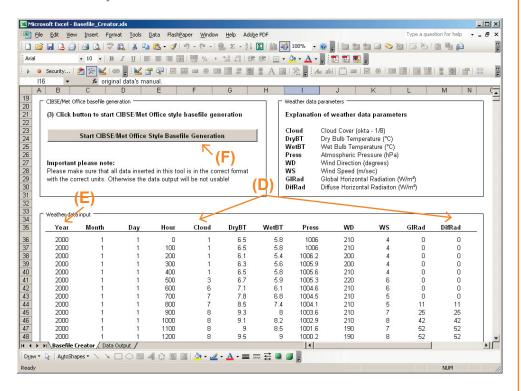

Table 2 - Differences in time-step convention

Your data				CIBSE/Met Office TRY/DSY file		
Time	Radiation	Time	Others	Time	Radiation	Others
0:30	A	1:00	a	0:00	A	a
1:30	B	2:00	b	1:00	B	a
2:30	C	3:00	c	2:00	C	b
3:30	D	4:00	d	3:00	D	c
4:30	E	5:00	e	4:00	E	d
5:30	F	6:00	f	5:00	F	e
...	..	...	..	...	..	..
23:30	X	24:00	x	23:00	X	w
0:30	Y	1:00	y	0:00	Y	x

QUICK GUIDE:

(D)
Insert your columns of weather data into the '*Weather data input*' box

(E)
Insert the year information if available to you

(F)
Click '*Start CIBSE/Met Office Style Basefile Generation*' to generate a TRY/DSY style file

IMPORTANT - PLEASE NOTE:

Please insert your data into the '*Weather data input*' box as shown in Table 2 if your radiation data follows the convention of 0.30 to 23.30 hours and all the remaining data the convention of 1 to 24 hours.

4. Copyright and licensing notes

The weather data inserted into the CCWeatherGen Basefile Creation tool for generating CIBSE/Met Office DSY/TRY style baseline weather files may be copyrighted material depending on its origin. Therefore, files generated using this tool can only be used by persons or entities that possess the corresponding licensed weather data. The user of the CCWeatherGen Basefile Creator tool takes the sole responsibility of complying with the terms and conditions of the original weather data supplier's license agreement when inserting it into the tool. Files generated with the CCWeatherGen Basefile Creator tool may not be distributed to a third party.

5. Disclaimer of warranties

The entire risk as to the quality, accuracy and performance of the weather data calculated with the CCWeatherGen Basefile Creator tool is with you. In no event will the authors of the basefile generation tool be liable to you for any damages, including without limitation any lost profits, lost savings, or other incidental or consequential damages arising out of the use or inability to use the tool and/or its generated data.

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