

Overheating risk in dwellings: weather file requirements

CIBSE TM59: 2026



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Overheating risk in dwellings: weather file requirements

1. Introduction

The purpose of this supplementary guidance is to provide the specific details of the weather files to be used to meet the requirements of Technical Memorandum TM59: *Overheating risk in dwellings: a design stage methodology* (2026a). This has been separated from TM59 to improve the longevity of the Technical Memorandum and allow this supplementary guidance to be updated as new, future weather projections emerge and insights into the appropriate use of the weather files evolve.

2. CIBSE weather files

The CIBSE 2025 Weather Data provides updated weather files based on an improved observational baseline (1994–2023) and the latest UKCP18 climate projections, offering more accurate modelling for present and future conditions.

The dataset now incorporates enhanced solar radiation information from the Copernicus Climate Change Service (CAMS), improving assessments of overheating and solar gains. CIBSE has moved from individual weather-station locations to a clearer 28-zone UK climate system, providing more geographically representative files. The zones can be navigated using the [CIBSE Weather Data Selection Tool](#) (CIBSE 2026b).

Two file types are available: Test Reference Years (TRYs), which represent typical annual conditions for energy modelling, and Design Summer Years (DSYs), which capture extreme heat events and support overheating analyses.

There are three types of DSY file available (DSY1, DSY2 and DSY3) representing different hot weather events:

- DSY1: a moderate year containing heat events with a return period of 7 years.
- DSY2: the year containing the most intense heat events.
- DSY3: the year containing the longest heat events.

Weather files are provided for the 2030s, 2050s and 2080s, each representing projected climate conditions for each of these future decades. Multiple emissions scenarios (RCP2.6, RCP4.5 and RCP8.5) are available to reflect different potential global warming pathways. Continuation of the current rate of greenhouse gas emission is represented by RCP8.5.^[1] Probability percentiles (10th, 50th and 90th) enable overheating assessments for cooler, median and more extreme future climate predictions.

Further information on the weather files is available in the CIBSE Technical Briefing (CIBSE, 2025). Access to the files is available via www.cibse.org/weatherdata.

[1] RCP8.5 is the high emission scenario.

3. Weather file requirement for TM59

Overheating assessment should be undertaken using the latest version of the DSY1 file appropriate to the site location for the 2050s, RCP8.5, 50th percentile scenario. This file represents the minimum requirement for assessments carried out in accordance with TM59 (2026a).

These weather files are labelled **Zone Reference_DSY1_2050s_HIGH50_CIBSE_v1.1**.

4. Alternative weather files for TM59 assessments

Alternative weather files are included to enable more thorough TM59 overheating assessments; for example, the more extreme DSY2 and DSY3 files, alternative 10th and 90th percentile projections, alternative emission scenarios, and current, 2030s, and more distant, 2080s, climate projections. It is recommended that dwelling designs are tested against more extreme future weather scenarios, especially when required in the client's brief, or for demonstrating mitigation options under more extreme events (e.g. heatwaves).

Further guidance on good practice and alternative weather files are available (see CIBSE TM48: *Use of climate change data in building simulation: the CIBSE Future Weather Years* (2009), TM49: *Design Summer Years for London* (2014a) and CIBSE's *Probabilistic Climate Profiles (ProCliPs)* (2014b) for further advice).

References

CIBSE (2009) *Use of climate change data in building simulation: the CIBSE Future Weather Years* TM48 (London: Chartered Institution of Building Services Engineers)

CIBSE (2014a) *Design Summer Years for London* TM49 (London: Chartered Institution of Building Services Engineers)

CIBSE (2014b) *Probabilistic Climate Profiles (ProCliPs)* (London: Chartered Institution of Building Services Engineers)

CIBSE (2025) *CIBSE weather data [2025 Release] V1.0* Technical Briefing (London: Chartered Institution of Building Services Engineers) (available at: <https://go.cibse.org/weather-data-technical-briefing-document>) (accessed: 19 February 2026)

CIBSE (2026a) *Overheating risk in dwellings: a design stage methodology* TM59 (2026) (London: Chartered Institution of Building Services Engineers)

CIBSE (2026b) Find your weather data sets [online] (London: Chartered Institution of Building Services Engineers) (available at: <https://www.cibse.org/knowledge-research/weather-data/find-your-weather-data-sets/>) (accessed: 19 February 2026)