

# Curriculum Vitae of Catherine Elizabeth Simpson, C.Eng, C.Env, MAE, FIET, FEI, FCIBSE

**Date of Birth:** June 1962

**Address:** Pardlestone Bungalow, Kilve, Somerset, TA5 1EQ

**Contact details:** 07957 827870, cathie@buildingsimulation.co.uk

**Occupation:** Chartered Engineer, Director  
Independent Building Performance Consultant



## EXPERT WITNESS EXPERIENCE

2020-to date	<b>Macfarlanes</b> – Advisory report and preparation of claim for defective design in 8 schools leading to excess energy consumption, WP expert meetings for mediation
2020-2020	<b>RPC</b> – Advisory report for remedial work on student accommodation with inadequate ventilation leading to overheating and mould growth
2019-2020	<b>Eversheds Sutherland LLP</b> - On site tests, CFD simulations of incident, reports, oral evidence for arbitration for gross negligence claim against engine manufacturer following a gas explosion
2016-2018	<b>RPC and DAC Beachcroft LLP</b> – Onsite tests, CFD simulation of remedial proposals, reports for mediation and specification of remedial works to address overheating of a glazed façade in a university building.
2018-2018	<b>RPC</b> - Residential Accommodation – Pre-action advice on overheating in multiple high-rise dwellings
2017-2017	<b>Laing O'Rourke</b> Legal Department – Advisory reports on overheating in multiple high-rise dwellings
2016-2017	<b>Mayer Brown LLP</b> - Custody Suite - reports for mediation and arbitration on defective design of combined heat and power (CHP)
2016-2016	<b>Lend Lease</b> - The International Quarter, acted as mediator in a modelling dispute on the design of a ventilated façade on a commercial building.
2015-2016	<b>Berwin Leighton Paisner LLP</b> - Hospital - advisory report on overheating to communal spaces and entrance.
2014-2015	<b>Scotch &amp; Partners</b> – Acted as mediator on modelling dispute regarding mechanical ventilation to dwellings.
2014-2015	<b>Stephenson Harwood LLP</b> , One Hyde Park – onsite tests and report for mediation on external condensation on ventilated façade.
2014-2015	<b>Hoare Lea &amp; Partners</b> , RAF Valley - assistance with thermal modelling evaluation and overheating
2012-2013	<b>Macfarlanes LLP</b> - 41 Millharbour – Dynamic thermal modelling and report for mediation on overheating due to alleged overheating due to defective window design.
2012-2012	<b>Pinsent Masons LLP</b> - Jewish Free School – report for mediation on defective natural ventilation design.
2008-2011	<b>Beale &amp; Co LLP</b> - Building 12 Harbourside – Dynamic thermal modelling, reports, participation in mediation for overheating to commercial premises.

## PROFESSIONAL QUALIFICATIONS

Member of The Academy of Experts (MAE)	2020
Qualified Expert Determiner	2020
Fellow of the Institute of Engineering and Technology (FIET)	2020
Register of Professional Energy Consultants (allowed to lapse 2017)	2015
ITC Level II Thermography (allowed to lapse 2017)	2011
Cardiff University Bond Solon (CUBS) Civil Expert Witness Certificate	2010
Chartered Environmentalist (CEnv)	2009
Fellow of the Energy Institute (FEI)	2009
Fellow of the Chartered Institution of Building Services Engineers (FCIBSE)	2009
Chartered Engineer (CEng)	1993
IQA Diploma in Quality Management (Distinction)	1992

## EDUCATION

University of Cranfield (1985 to 1986) - M.Sc. Energy in Buildings

University of Bradford (1981 to 1985) - B.Sc. (Hons) Industrial Technology & Management

Bury Technical College (1979 to 1981) - B.Tech National Diploma in Business Studies (Distinction)

Catherine Elizabeth Simpson

## EMPLOYMENT DETAILS

**1988 to date**

**Building Simulation Limited (BSL) - 34 years as Principal Director**

Catherine founded Building Simulation in 1988 to provide independent, state of the art dynamic thermal modelling (DTM) and computational fluid dynamic (CFD) simulation to the construction industry with a focus on energy consumption, overheating and building performance. In 1994, Catherine won the simulation contract for the £250M MoD Procurement Executive at Abbey Wood which established BSL as a significant player in the industry. Other high-profile contracts followed such as PFI projects at Hexham hospital, the Bluewater shopping centre, the Urbis Centre in Manchester, the V&A in London, as well as undertaking work for Land Securities, Stanhope, Grosvenor, Westfield Shopping Towns, The Prudential, LWT and the Central Veterinary Laboratories, MOD Benson and The Tate.

By 2011, Catherine had personally undertaken or project managed more than 1,000 computer simulation projects for a wide range of new, existing and re-purposed buildings. Approximately 70% of which were new build, the majority with natural and mixed mode ventilation. The balance of Catherine's experience is within existing buildings with post construction problems such as high energy consumption, draughts, poor indoor air quality, poor performance of plant etc. Catherine was one of the first commercial computer modellers in the UK to use mean wind pressure coefficients (MWPC) from wind tunnel tests as boundary conditions in CFD and dynamic thermal models to assess natural ventilation within the built environment. Catherine presented a paper on the use of MWPC at the 2009 Building Simulation Conference. Catherine is known for her engineering ability combined with her innovative and pragmatic approach to computer modelling.

Catherine's extensive computer modelling experience was recognised in 2008 when approached to assist with a large construction dispute about the application of computer modelling. Following a successful outcome, Catherine continued to apply her specialist knowledge to further high value disputes. As an established expert witness, Catherine has successfully defended claims using computer simulation and measured data to prove a claim was unfounded. When acting for respondents, Catherine has also successfully devised and proved, cost effective remedial measures. More recently Catherine simulated a catastrophic gas leak from a large industrial engine which satisfied a tribunal that a respondent's design was not at fault. Catherine has extensive on-site physical testing experience which she integrates with computer-based analysis to identify the cause of problems and to provide evidence-based solutions. Catherine has an excellent track record of good correlation between computer modelling and actual performance and has extensive experience working within claimant and respondent legal teams.

Catherine was one of the first five assessors who worked with BRE to develop the now established BREEAM scheme. Catherine was a BREEAM assessor from 1992 until 1998.

**1987 - 1988**

**Amazon Energy Limited (Software developers) - Simulation Engineer**

This company developed and sold TAS simulation and AMBIENS CFD software. Catherine trained in the use of the TAS software and undertook software training of new purchasers of the software in the UK and abroad including the Malaysian Jabatan Kerja Raya (JJR) in Kuala Lumpur, as well as Beta testing the software for the development team. Catherine also undertook consultancy to promote sales.

**1986 - 1987**

**Haden Young Limited (Building Contractors) - Trainee Building Services Engineer**

Catherine trained in mechanical services design and worked on a key project for Land Securities. Catherine was responsible for managing the out-sourcing of simulation consultancy to Amazon UK.

**May to Sept 1985**

**Lennon Property Services (Property Developers) - Central London**

**Jan to Sept 1984**

**Undergraduate Industrial Placement, Lennon Property Services (Property Developers) - London**

Catherine was personally recruited by, and appointed to work with, the Development Director. Attended contract meetings, design meetings, tenant negotiation meetings and assisted with compilation of projected cash flow for commercial land and property development. Catherine gained an insight into the management of property portfolios and the development of properties with Land Securities on behalf of the pension fund, Scottish Amicable.

## KEY PUBLICATIONS/ROLES

EiBi December 2018	CPD Article for the Energy Institute on Thermal Imaging
R70L 2016-date	Chair of registered charity to promote construction qualifications in secondary schools
Rumford Club 2015-2016	Chair of Rumford Club – an informal club for construction industry professionals to debate
CIBSE 2016-2018	CIBSE Council member
CIBSE 2014-2016	CIBSE Vice-President
CIBSE 2012-2014	CIBSE Board and Council member
BSRIA BG 48/2013	A Practical Guide to Building Thermal Modelling – co-author
CIBSE TM44:2011	Inspection of Air Conditioning Systems – Task group member and author
CIBSE 2009	Building Simulation Conference 2009: Dynamic Thermal Modelling and Physical Wind Tunnel Testing – An Important Partnership
CIBSE AM13:2000	Mixed Mode Ventilation – Contract author
CIBSE AM11:1998	Building Energy and Environmental Modelling – Task group member