INTEGRATED ENVIRONMENTAL SOLUTIONS

Introducing <Virtual Environment> 6.2

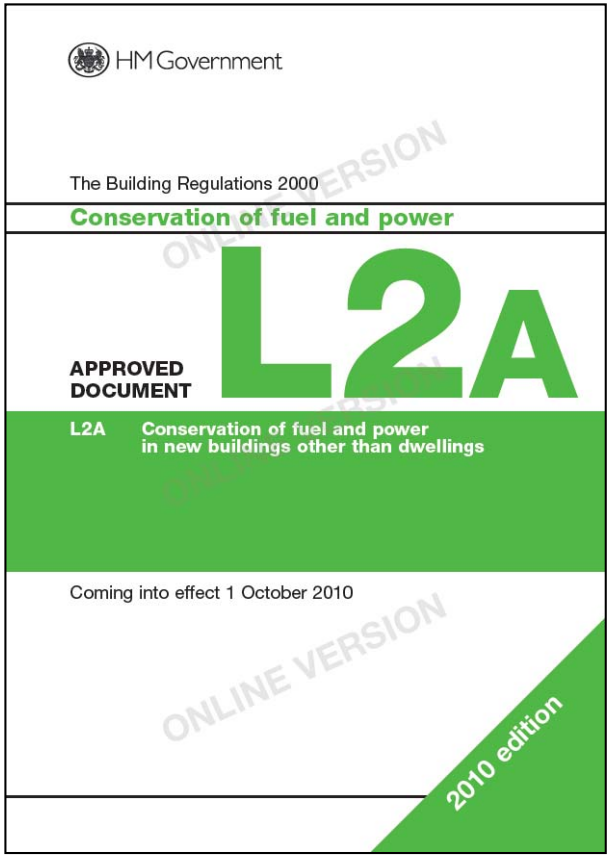
12th October 2010

Design, Simulate & Innovate with IES <Virtual Environment>

Part L2A Changes

Criterion 1 – Achieving the BER

- Target Emission Rate (TER) calculation changed significantly.
- TER now determined by a new 2010 Notional Building.
- Improvement Factors and Low Zero Carbon Factors have been removed.
- The 2010 Part L2A is intended to achieve an aggregate reduction of 25%.
- The reduction therefore between building types will vary.



The 2010 Notional Building

The Target Emission Rate

- The TER is now the Notional Building Emission Rate
- Improvement Factors and Low Zero Carbon Factors no longer exist in calculation
- The 2010 NCM Modelling Guide details the properties for the 2010 Notional Building.
- This new approach has the advantage of allowing the Actual and Notional Buildings to be directly compared to identify key areas where improvement is required.

The 2010 Notional Building

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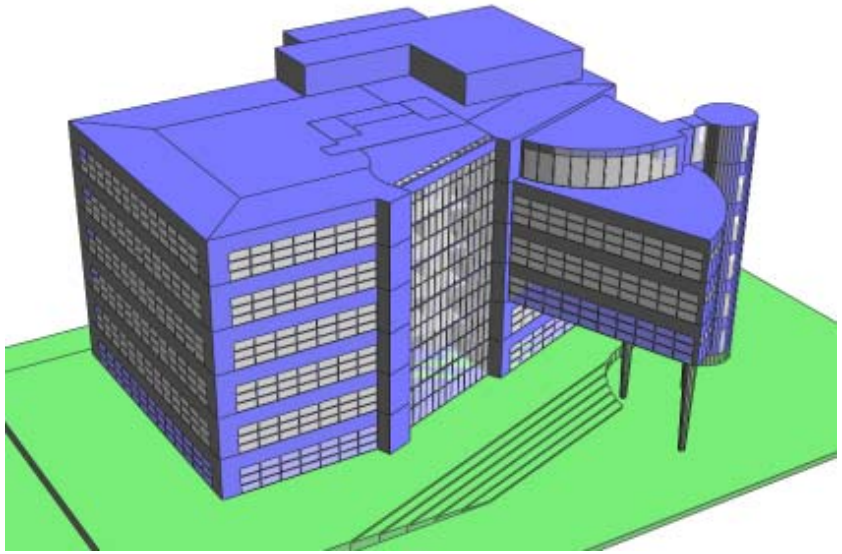
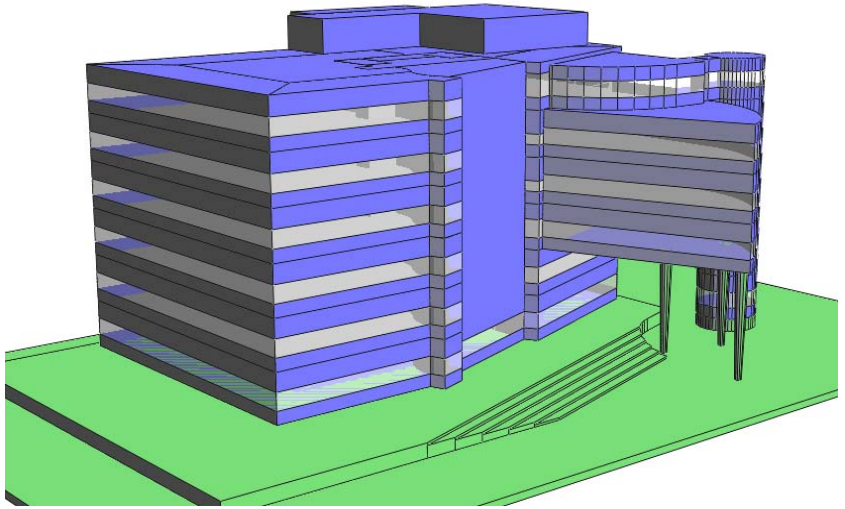


Actual Building



Notional Building

The 2010 Notional Building

Notional Building Fabric & Air Permeability

- Building U-values are lower than the 2006 Notional Building and lower than the Criterion 2 Requirements.
- The Notional Building will have an Air Permeability of 5 m^3/m^2@50Pa.
- The actual building will likely need to have similar properties in order to avoid higher loads than the Notional Building

Exposed Element	Notional U-Value (W/m2.K)
Roofs	0.18
Walls	0.26
Exposed Floors	0.22
Windows / Rooflights	1.8
Vehicle Access Door	1.5
Pedestrian & High Usage Door	2.2

Automatic Reportage

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Fabric and infiltration

Fabric performance

Construction category	Average U value (W/m²•K)		Sum UA value (W/K)	
	Notional	Actual	Notional	Actual
External floor	0.22	0.25	330	375
External glazing	1.80	1.98	770	392
External roof	0.18	0.25	270	375
External wall	0.26	0.35	175	316
Personnel doors	2.18	2.19	49	49
Total fabric loss summary W/K			**1,594**	**1,507**
Air permeability m^3 / m^2.hr @ 50Pa			5.0	10.0
Total infiltration loss W/K			**725**	**1,305**

HVAC systems

HVAC System:Main system

HVAC System characteristics

System characteristics	Notional	Actual
AHU SFP (W/(l/s))	1.80	2.20
Cooling SSEER	3.79	1.92
Demand controlled ventilation	No	No
Heat recovery effectiveness	0.70	0.65
Heating SCoP	0.834	0.855
Heating fuel	Gas	Gas
NCM system type	Notional	Fan coil systems
Pump configuration	Variable speed multiple pressure sensors	Variable speed differential sensor in system

Automatic Reportage

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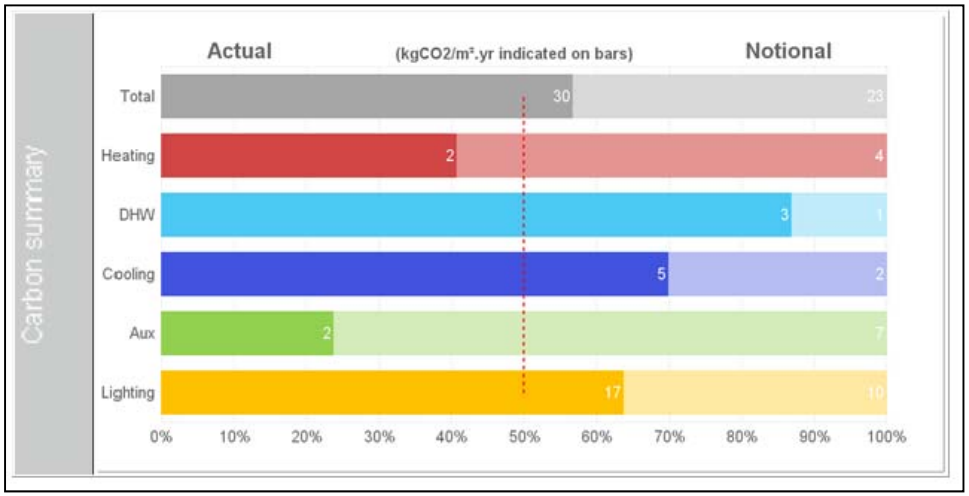

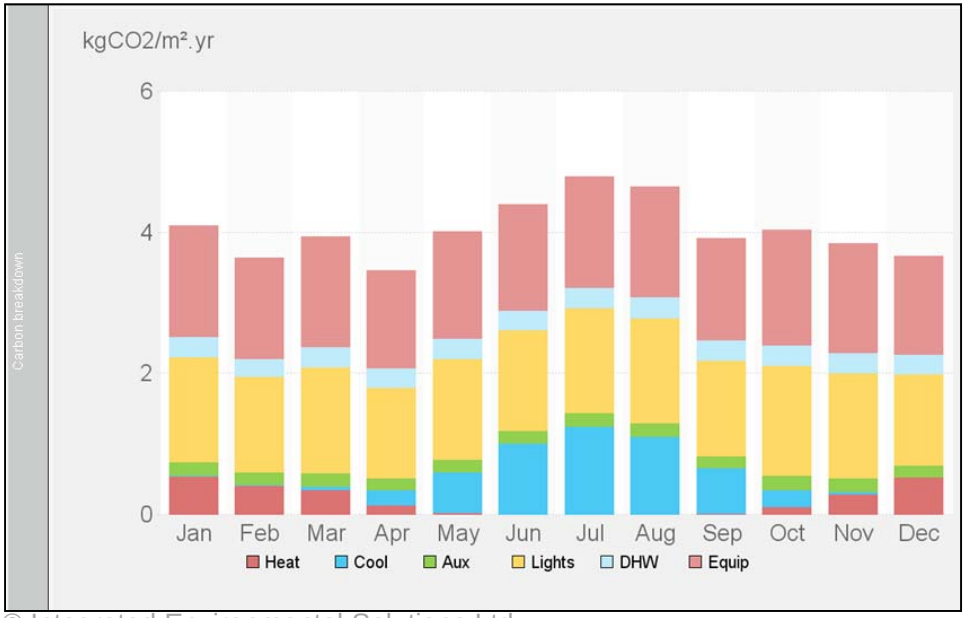

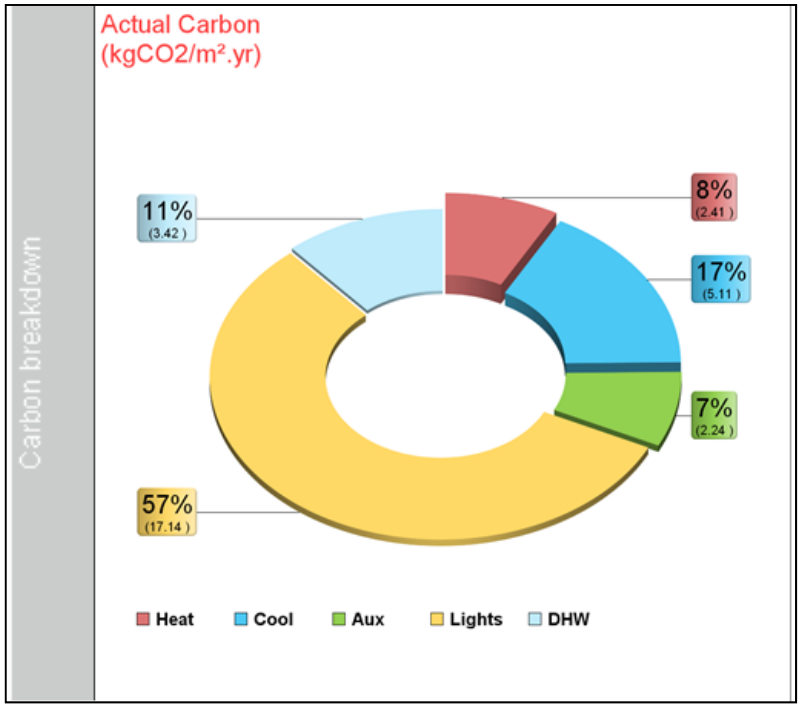

<VE Compliance> Navigator

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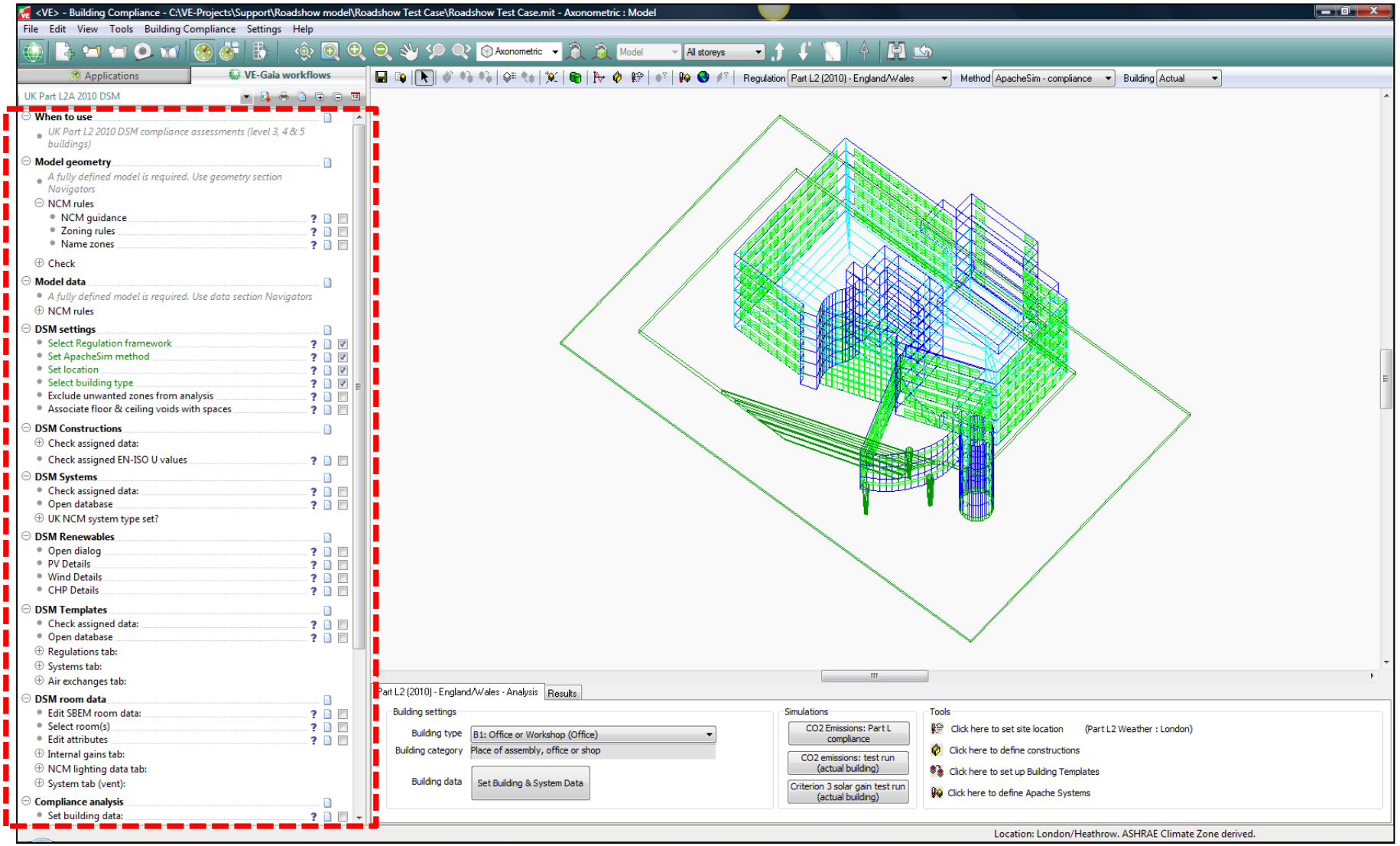

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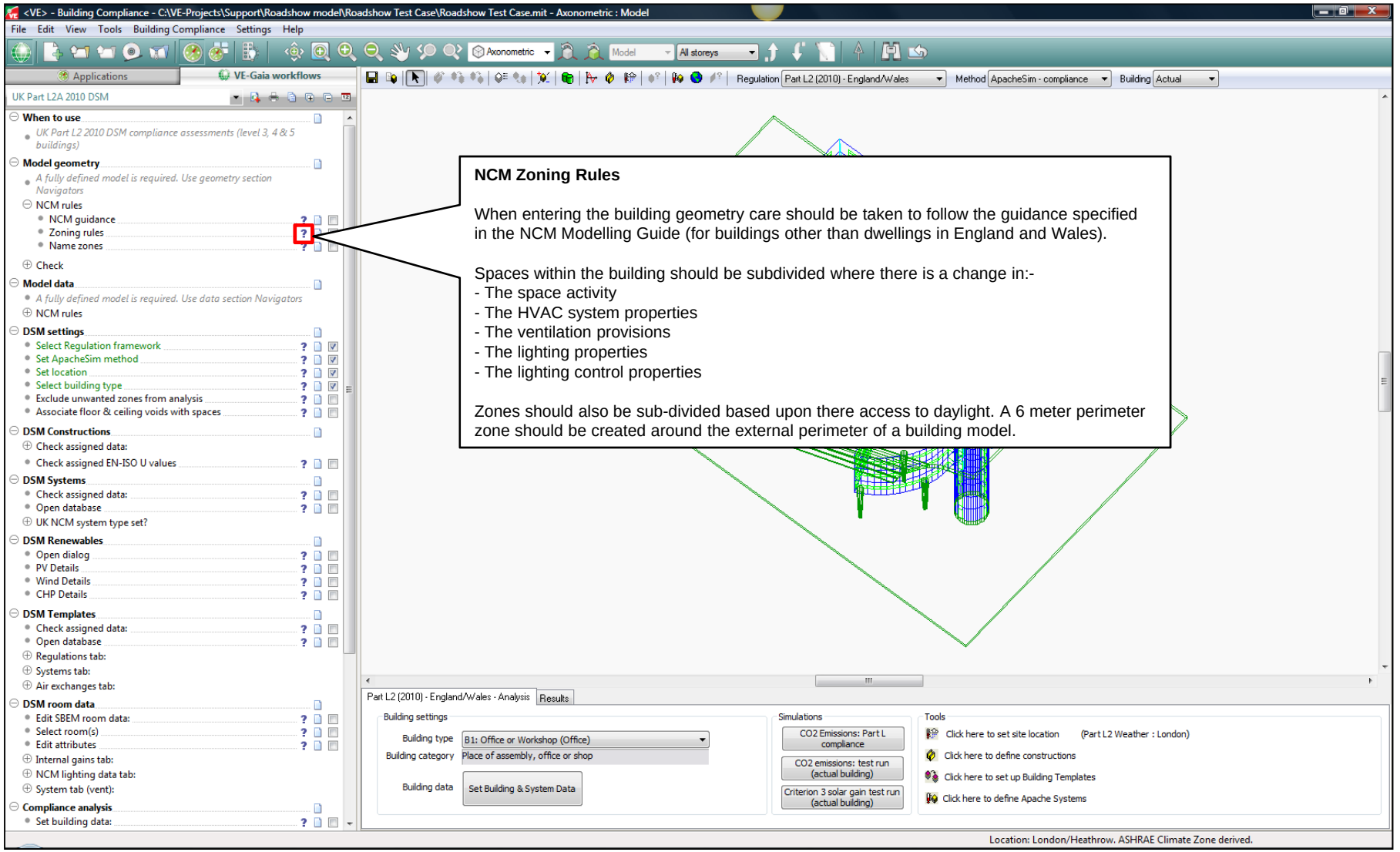
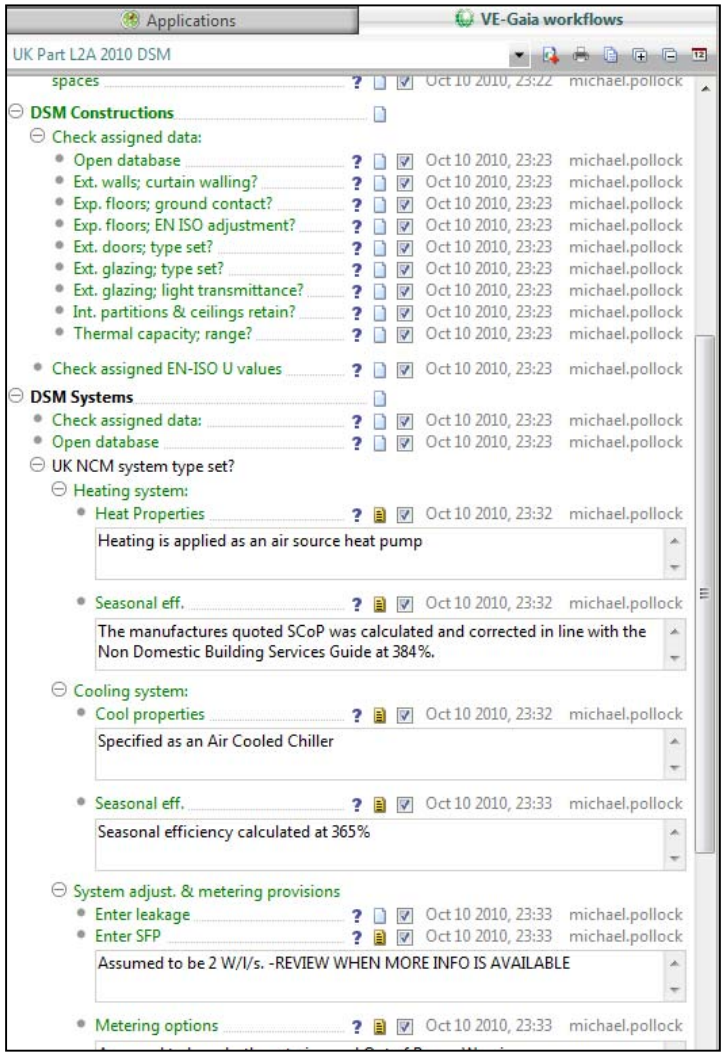
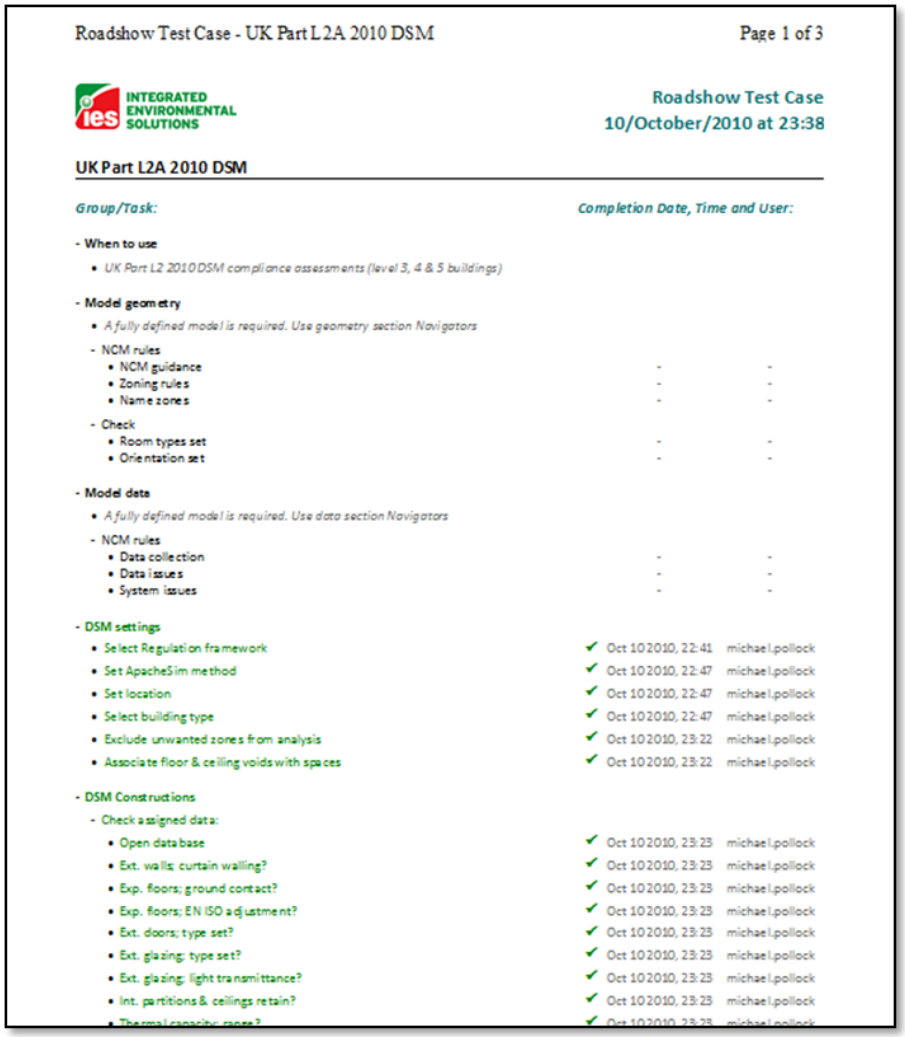


<VE Compliance> Navigator





Criterion 3 – Limiting the Effects of Solar Gains in Summer

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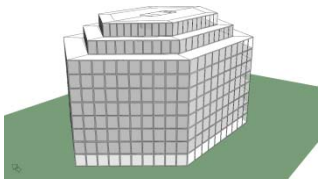
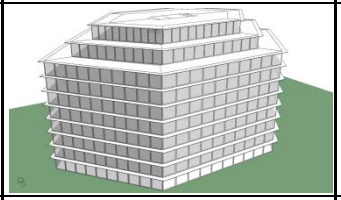
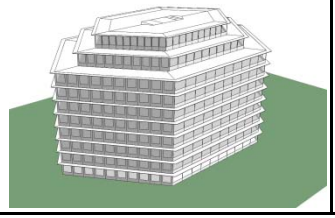
Building		Glazing to Wall Area fraction	Part L2A 2006 Criterion 3		Part L2A 2010 Criterion 3
			Method A (Gains<35W/m^2)	Method B (<1% hrs above 28˚C)	Solar Gain Check
Helix Building **Naturally Ventilated**		13%	54.88 W/m^2	7.4%	49.5% below Benchmark
Prestige Office **Air Conditioned**		80%	N/A	N/A	174.4% above Benchmark
Prestige Office with 1.5 m Overhang & Solar Control Glass, **Air Conditioned**		80%	N/A	N/A	27% above Benchmark
Prestige Office with 1.5 m Overhang & Solar Control Glass, **Air Conditioned**		70% N &S 50% E & W	N/A	N/A	15.9% below Benchmark

Criterion 3 – Limiting the Effects of Solar Gains in Summer

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Criterion 3 - solar gain check

Space (included in analysis)	Floor	Glazing as % floor area	Glazing category	Predominant orientation[8]	Solar gain limit[1]		Shading data[7]			
					Pass/Fail	Solar gain / limit [2,3]	Glazing g value[4]	Internal blinds used?[5]	External shades used?[5]	Local shading devices used?[5]
Sort A-Z	Hi/Lo	Hi/Lo	Sort A-Z	Sort A-Z	Sort A-Z	Hi/Lo	Sort A-Z	Sort A-Z	Sort A-Z	Sort A-Z
Apply		40.0				1.1	0.5			
L0_Circulation	000	63	N/A	W	Pass	0.00	0.40	No	No	No
L1_Circulation	001	63	N/A	W	Pass	0.00	0.40	No	No	No
L0_Office_South	000	25	Side Lit	S	Pass	0.68	0.40	No	No	No
L0_Office_South_East	000	50	Side Lit	S	Pass	0.65	0.40	No	No	No
L0_Office_East	000	25	Side Lit	E	Pass	0.81	0.40	No	No	No
L0_Office_North_East	000	50	Side Lit	NE	Pass	0.56	0.40	No	No	No
L0_Office_North	000	25	Side Lit	N	Pass	0.50	0.40	No	No	No
L0_Office_Core	000	0	Side Lit	N/A	Pass	0.33	0.00	No	No	No
L1_Office_South	001	25	Side Lit	S	Pass	0.68	0.40	No	No	No
L1_Office_South_East	001	50	Side Lit	SE	Pass	0.66	0.40	No	No	No
L1_Office_East	001	25	Side Lit	E	Pass	0.82	0.40	No	No	No
L1_Office_North	001	50	Side Lit	N	Pass	0.56	0.40	No	No	No

tual model - Criterion 3

Backward Compatibility

- Inevitable requirement over coming months to use 2006 Regulations
- Save As function to convert Models back to 6.1.1
- Enables models generated in 6.2 to run generate a 2006 Regs EPC

<VE> Overview

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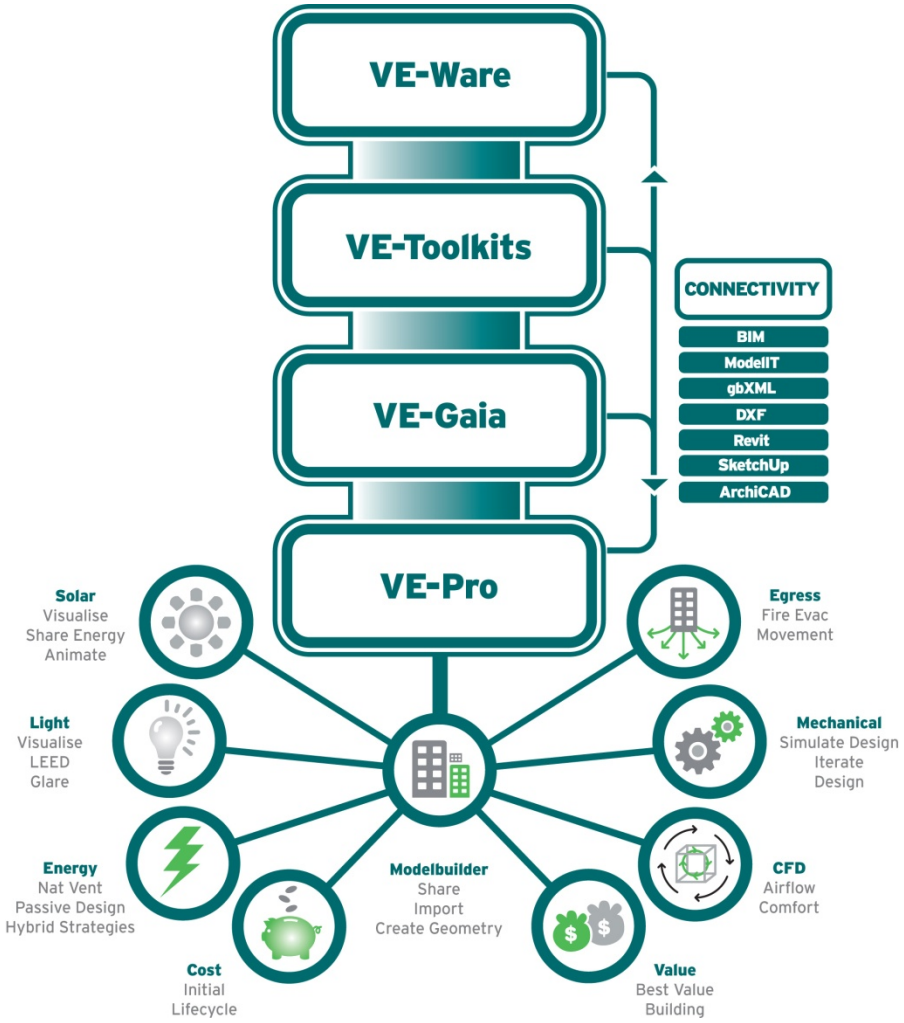

<VE> 6.2 Approval

- DSM Approval received on the 1st October 2010
- At this time the ONLY tool approved for 2010 Part L Regulations

Communities and Local Government

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Web Site: www.communities.gov.uk

1 October 2010

Dear Mr Gough,

I refer to your application for your software, Integrated Environmental Solutions Virtual Environment (v6.2.0) DSM class software, for Part L compliance only, to be approved by the Secretary of State in its current state and form.

Having considered the information provided by you, and having had the software tested by AECOM, as set out in the attached letter, I am satisfied that the software meets the criteria which have been developed for the approval of DSM class software for Part L compliance.

I am authorised by the Secretary of State to confirm that Integrated Environmental Solutions Virtual Environment (v6.2.0) has been approved, in its current state and form, as software for producing DSM class software for Part L compliance only.

This approval only relates to Integrated Environmental Solutions Virtual Environment (v6.2.0) DSM class software and any later variant or version of your software will need to be submitted separately for approval.

A copy of the AECOM letter is attached for ease of reference.

Yours sincerely,

ANDY DE LORD

Enc. AECOM letter (1 October 2010)