

10687 The Hornsey Town Hall supplemental energy plan

The purpose of this document is to provide the updated energy report for Hornsey Town Hall to be submitted as part of the Supplementary Energy Plan.

Scheme details

The site is located within the Crouch End Conservation area in the London Borough of Haringey. It comprises of five buildings; 3-storey mixed use Hornsey Town Hall Building, mixed use 2-storey Broadway Annex, three residential blocks (Block A, Block B and The Mews), arranged around private and public realms available to the users.

Background

An energy strategy for Hornsey Town Hall was completed at Planning stage (118766/LP/180214) which met the requirements of the London Plan and current policy at the time of writing in 2017. The London Plan 2016 using carbon factors from L1A2013.

The energy strategy was used as a basis for the design at Hornsey Town Hall. The carbon emission savings proposed for the site are shown in the table below alongside the values achieved at pre-occupation stage, which have been calculated based on actual design specification and performance.

Building	Description	Carbon saving – Planning energy report	Carbon saving – Updated energy report
Block A	Residential New Build under L1A 2013	49.6%	44.15%
Block B	Residential New Build under L1A 2013	50.5%	54.63%
The Mews	Residential New Build under L1A 2013	51.1%	36.67%
Hornsey Town Hall	Mixed use refurbishment (Grade II Listed) under L2B 2013	Improvement on energy performance wherever practically possible	This has been achieved through fabric improvements and MEP
Broadway Annexe	Mixed use refurbishment under L2B 2013 for commercial and L1B 2013 for residential	Improvement on energy performance wherever practically possible	This has been achieved through fabric improvements and MEP

It should be noted that the baseline for the scheme has increased since planning stage, this is not unusual and could be due to the planning report not fully representing all units in the early stage. The post construction results have included all dwellings and commercial units at 'As Built' stage. The increased in baseline has resulted in an overall increase in residual carbon to meet the 'zero carbon' target through the offset payment.

Be Lean

	SWECO report	Whitecode
Floors	0.12	0.12
Exposed floor	0.12	0.12
External wall	0.17	0.17
Internal wall	N/A heated corridors ¹	0.20
Flat roof	0.13	0.18
Windows	1.40 g value 0.55	1.3 g value 0.42 ³
Doors	1.30	1
Air permeability	3	4
Thermal bridging*	0.15 default ²	ACDs and bespoke

Note 1 – Heated corridors were assumed at planning stage, however the corridors are unheated, and therefore the wall between the flats and corridors are insulated.

Note 2 – Default thermal bridging assumed at planning stage did not take into account the psi values achieved through careful junction design

Note 3 – G-value of the windows was reduced to deal with overheating which was assessed against TM59

Be Clean

- Communal CHP plant with back up boiler

Be Green

- PV panels distributed as shown below

Block A – 18.9kWp

Block B – 41kWp

The tables below show the regulated carbon at each stage of the hierarchy, comparing the SWECO report with the current design.

Block A

	Carbon dioxide emissions for domestic buildings (tonnes CO ₂ per annum)	Carbon dioxide emissions for domestic buildings (tonnes CO ₂ per annum)
	SWECO report	Whitecode
Baseline: Part L 2013 of the Building Regulations compliant development	85.8	107.4
After energy demand reduction (be lean)	79.8	100.2
After heat network/CHP (be clean)	55.6	68.6
After renewable energy (be green)	43.2	59.9

Table 1: Carbon emissions after each stage of the Energy Hierarchy

	SWECO report		Whitecode	
	(tonnes CO ₂ per annum)	(%)	(tonnes CO ₂ per annum)	(%)
Be lean: savings from energy demand reduction	5.91	6.9%	7.2	6.7%
Be clean: savings from heat network/CHP	24.29	30.4%	31.6	30.4%
Be green: savings from renewable energy	12.32	22.2%	8.6	14.3%
Cumulative on-site savings	42.52	49.6%	47.40	44.15%
Total Target savings – GLA's Target	85.75	100%	107.4	100%
Regulated Annual surplus	-43.23		-59.97	

Table 2: Regulated carbon dioxide savings from each stage of the Energy Hierarchy

Block B

	Carbon dioxide emissions for domestic buildings (tonnes CO ₂ per annum)	Carbon dioxide emissions for domestic buildings (tonnes CO ₂ per annum)
	SWECO report	Whitecode
Baseline: Part L 2013 of the Building Regulations compliant development	44.6	50.92
After energy demand reduction (be lean)	41.0	47.60
After heat network/CHP (be clean)	28.7	32.65
After renewable energy (be green)	22.1	23.10

Table 3: Carbon emissions after each stage of the Energy Hierarchy

	SWECO report		Whitecode review	
	(tonnes CO ₂ per annum)	(%)	(tonnes CO ₂ per annum)	(%)
Be lean: savings from energy demand reduction	3.67	8.2%	3.32	6.52%
Be clean: savings from heat network/CHP	12.28	30%	14.95	31.4%
Be green: savings from renewable energy	6.56	22.9%	9.54	29.37%
Cumulative on-site savings	22.52	50.5%	27.82	54.63%
Total Target savings – GLA's Target	44.63	100%	50.92	100%
Regulated Annual surplus	-22.11		-23.10	

Table 4: Regulated carbon dioxide savings from each stage of the Energy Hierarchy

Mews residential

	Carbon dioxide emissions for domestic buildings (tonnes CO ₂ per annum)	Carbon dioxide emissions for domestic buildings (tonnes CO ₂ per annum)
	SWECO report	Whitecode
Baseline: Part L 2013 of the Building Regulations compliant development	13.5	10.47
After energy demand reduction (be lean)	7.9	9.84
After heat network/CHP (be clean)	7.9	6.64
After renewable energy (be green)	6.6	6.63

Table 5: Carbon emissions after each stage of the Energy Hierarchy

	SWECO report		Whitecode	
	(tonnes CO ₂ per annum)	(%)	(tonnes CO ₂ per annum)	(%)
Be lean: savings from energy demand reduction	5.67	41.9%	0.63	6.0%
Be clean: savings from heat network/CHP	0	0%	3.21	30.62%
Be green: savings from renewable energy	1.25	15.9%	0.01	0.05%
Cumulative on-site savings	6.92	51.1%	3.85	36.67%
Total Target savings – GLA's Target	13.54	100%	10.47	100%
Regulated Annual surplus	-6.62		-6.62	

Table 6: Regulated carbon dioxide savings from each stage of the Energy Hierarchy

The difference in carbon emissions for the Mews was due to swapping from an air source heat pump for heating and hot water as proposed at planning stage, to connection to the site wide CHP plant.



Carbon offset payment

The carbon offset calculated below is for the entire scheme based on the As Built performance, with an allowance for the 10% management fee.

	Annual Shortfall	Cost per tonne	Shortfall	Plus 10% management
Block A	59.97	£2,700	£161,919	£178,110.90
Block B	23.10	£2,700	£62,370	£68,607.00
The Mews	6.62	£2,700	£17,874	£19,661.40
Total			£242,163	£266,379
Fee paid				£211,221
Remaining payment				£55,158

Table 7: Carbon offset payment

As per the s106 agreement the carbon offset fee of £211,221 has already been paid, which leaves an outstanding figure of £55,158 to be paid.