

Property A-01-02

Data source SAP calculations

Scenario 1	Heating	ASHPs
	DHW	ASHPs plus solar thermal panels

SAP output:

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12a. Carbon dioxide emissions - Individual heating systems including micro-CHP
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Energy          Emission factor      Emissions
kWh/year        kg CO2/kWh          kg CO2/year
Space heating - main system 1      605.6126      0.5190      314.3130 (261)
Space heating - secondary          0.0000      0.0000      0.0000 (263)
Water heating (other fuel)        730.9224      0.5190      379.3487 (264)
Space and water heating                    693.6617 (265)
Space cooling                          21.5115      0.5190      11.1645 (266)
Pumps and fans                        261.0829      0.5190      135.5020 (267)
Energy for lighting                  374.3742      0.5190      194.3002 (268)
Total CO2, kg/year                    1034.6284 (272)
Dwelling Carbon Dioxide Emission Rate (DER) 11.5900 (273)

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Scenario 2	Heating	Gas boiler
	DHW	Gas boiler

SAP output:

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12a. Carbon dioxide emissions - Individual heating systems including micro-CHP
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Energy          Emission factor      Emissions
kWh/year        kg CO2/kWh          kg CO2/year
Space heating - main system 1      1044.7261     0.2160     225.6608 (261)
Space heating - secondary          0.0000      0.0000      0.0000 (263)
Water heating (other fuel)        2492.8588     0.2160     538.4575 (264)
Space and water heating                    764.1184 (265)
Space cooling                          0.0000      0.5190      0.0000 (266)
Pumps and fans                        241.0829     0.5190     125.1220 (267)
Energy for lighting                  374.3742     0.5190     194.3002 (268)
Total CO2, kg/year                    1083.5406 (272)
Dwelling Carbon Dioxide Emission Rate (DER) 12.1300 (273)

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	Heat pump		Gas	
	Heating (kWh/year)	DHW (kWh/year)	Heating (kWh/year)	DHW (kWh/year)
A-01-02	606	731	1045	2493
Fuel cost (£/kWh)	0.13	0.13	0.04	0.04
Operational cost (£/year)	78.8	95.0	41.8	99.7
Total cost per fuel (£)	173.8		141.5	

Assumptions	
Electricity price	0.04 £/kWh
	0.13 £/kWh