

CODE FOR SUSTAINABLE HOMES

GUIDE TO MEET CODE LEVELS 3 & 4



A specification guide to meeting Code for Sustainable Homes Levels 3 and 4.

Please note, this is meant as a guide only. Each site and design will alter the scoring, therefore you will need to get a full Code Pre-Assessment report carried out prior to work commencing on site.

Please contact us should you require a free no obligation quote for SAP, Code for Sustainable Homes, or any other service that we offer.

Therm Energy Ltd

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www.thermenergy.co.uk info@thermenergy.co.uk

CODE LEVEL 3

TYPICAL SPECIFICATION TO MEET CODE LEVEL 3 (NO SOLAR)

<u>Construction and Insulation</u>	
<u>Element</u>	<u>U-Value</u> (W/m²K)
<u>Exposed Wall</u> 102.5mm facing brick (or rendered/clad block) outer leaf + 100mm cavity with 50mm Celotex or 100mm Dritherm 34 insulation + 100mm Celcon Standard 3.6N block inner leaf + plasterboard on dabs internal finish.	0.25
<u>Party Walls</u> (if applicable) : Robust Detail E-WM-17 100mm medium dense concrete block (1350-1600kg/m³) inner and outer leaf (or Plasmor Aglite Ultima) + 75mm cavity with 75mm Isover Party Wall Roll SD + plasterboard (9.8kg/m²) on dabs finish both sides (edges fully sealed).	0.00
<u>Ground Floor</u> Screed or chipboard + 100mm Celotex GA4000 or FF4000 insulation + suspended beam and block concrete floor.	varies
<u>Upper Floor</u> Suspended timber (with 200mm mineral wool quilt where exposed - eg over garages).	0.22
<u>Roof</u> (roof voids) Tiles on battens + trussed timber rafters + 400mm mineral wool insulation quilt (100mm between joists + 300mm over).	0.11
<u>Roof</u> (sloping ceilings) 100mm Celotex GA4000 insulation (between rafters) + 35mm or 40mm Celotex TB4000 insulation (under rafters).	0.18
<u>Windows/Doors/Rooflights</u> PVC-u or timber or thermally-broken metal or composite frame double-glazed + 16mm cavity (argon gas fill) + soft coat low-E glass, or similar to achieve U-value of 1.60W/m²K, or Window Energy Rating (WER) Band C.	1.60
<u>Detailing</u> Accredited construction details (robust details : limiting thermal bridging and air leakage) adopted : see www.planningportal.gov.uk . The dwelling must be constructed to this standard, and the relevant forms must be completed as building work progresses.	
<u>Air Tightness</u> Design air permeability is TBCm³/h/m² at 50 Pa - to be achieved by air pressure test (Therm Energy Ltd can provide this service).	
<u>Global Warming Potential</u> (GWP) All insulation materials, including cylinder, pipes, loft hatch and doors, have a GWP less than 5.	
<u>Heating, Ventilation & Renewables</u>	
<u>Main Heating System</u> (option 1) Conventional (mains) gas-fired central heating with radiators and/or underfloor heating. Condensing boiler (A rated), NOx < 40mg/kWh.	
<u>Main Heating System</u> (option 2) Air source heat pump (ASHP) or ground source heat pump (GSHP) with radiators and/or underfloor heating (preferably UFH).	
<u>Secondary Heating System</u> None (or wood burning stove if possible - wood only).	

Heating Controls

Time and temperature zone controls (with delayed start room thermostats) + boiler interlock + enhanced load or weather compensator.

Ventilation

Background ventilators & intermittent extract fans, or passive stack ventilation (Approved Document F1, 2010).

Renewables

None (other than heat pump if heating system option 2 above).

Other

Water Use (internal)

Water consumption 105 litres/person/day or less (water efficient fittings and appliances will be required). For example, water use not to exceed : taps 5 litres/min, showers 8 litres/min, bath 145 litres capacity (to overflow), toilets dual-flush (6/4 litres).

Water Use (external)

Water butt (150 or 200 litres, depending upon size of dwelling) on firm base with child-proof lid and tap, connected to rainwater downpipe with automatic overflow to main drainage system. Colour must be opaque.

Surface Water (run-off & flood risk)

Peak rate of run-off to watercourses is no greater for the developed site than it was for the pre-developed site. A suitably qualified engineer or consultant will need to carry out calculations and provide design (engineer or consultant to be appointed at design stage).

Lighting (internal + external space lighting)

100% of light fittings are dedicated low-energy (lamp luminous efficacy > 45 lumens/circuit watt, total output > 400 lamp lumens).

Home Office/Study

Suitable room/space. Area to have openable window, 2 power sockets, and 1-2 telephone points (1 if broadband/cable available).

Drying Space (internal or external)

Adequate and suitable secure space with posts and footings (or fixings) capable of holding 6m+ of drying line.

Cycle Storage

Adequate secure, convenient, and weather-proof storage to be provided in a garage (on racks) or shed. Storage must be of the correct size (the lock must be a mortice deadlock or sash lock to BS3621 for doors > 44mm thick, or "sold secure" padlock etc).

Energy-Labelled White Goods

Fridges and freezers = A+ rated. Washing machines and dishwashers = A rated. Washer/tumble-dryers (optional) = B rated. Information on the EU Energy Efficiency labelling scheme (minimum standard) to be provided.

Energy Display Device (may not be required in some cases)

Device that shows electricity and primary heating fuel consumption data (must include time, current mains energy consumption in kw and kw/hours, current emissions in g/kg CO2, current tariff, current cost in sterling, account balance, data - usage and historic).

Waste (recyclable non re-cyclable waste) external

Correctly sized container(s) total (assuming collection once per week), on hard level surface, with disabled access.

Waste (re-cyclable waste) internal

Local Authority collection scheme (sorted prior to collection). 3 bins (min 7 litres+ each, total min 30 litres+) to be provided in the kitchen, or utility room, or connected garage with internal access door (bins must be fixed in place, not free-standing).

Composting

Individual home composting facility in dedicated position (with access to disabled person), with an information leaflet.

Home User Guide

Home user guide (non-technical) to be provided to the end owner/occupier of the dwelling(s). Guide to provide information on the operation and environmental performance of both the dwelling(s) and surroundings.

Note 1 : This must be available in different formats, ie foreign language, braille, large print, or audio cassette/CD, where required.

Note 2 : Therm Energy Ltd can produce the guide for a cost of £215 + VAT (1 dwelling). Additional dwellings are £35 + VAT each.

Lifetime Homes

Principles of Lifetime Homes (16 criteria) fully adhered to. www.lifetimehomes.org.uk

Security (recommended, but not essential)

A member of the local police (ALO or CPDA) to be appointed as early as possible to advise on security, with their recommendations to be incorporated into the design of the dwelling. www.securedbydesign.com

Ecology

This will vary with each site. An ecology report may be required in some (suitable) cases.

Note 1 : This is a typical specification that would meet Code Level 3 requirements in most cases. However, each development would need to be assessed individually on its own merits to ensure the correct number of points (57) is achieved.

Note 2 : The above only provides basic detail in some cases. A Code Pre-Assessment Report (or the Code Technical Guide) will provide further details and guidance on the various criteria.

CODE LEVEL 4

TYPICAL SPECIFICATION TO MEET CODE LEVEL 4

<u>Construction and Insulation</u>	
<u>Element</u>	<u>U-Value</u> (W/m²K)
<u>Exposed Wall</u> 102.5mm facing brick (or rendered/clad block) outer leaf + 100mm cavity with 50mm Celotex FF5000 or 100mm Dritherm 32 insulation + 100mm Celcon Solar 2.9N block inner leaf + plasterboard on dabs internal finish.	0.23
<u>Party Walls</u> (if applicable) : Robust Detail E-WM-17 100mm medium dense concrete block (1350-1600kg/m³) inner and outer leaf (or Plasmor Aglite Ultima) + 75mm cavity with 75mm Isover Party Wall Roll SD + plasterboard (9.8kg/m²) on dabs finish both sides (edges fully sealed).	0.00
<u>Ground Floor</u> Screed or chipboard + 100mm Celotex GA4000 or FF4000 insulation + suspended beam and block concrete floor.	varies
<u>Upper Floor</u> Suspended timber (with 200mm mineral wool quilt where exposed - eg over garages).	0.22
<u>Roof</u> (roof voids) Tiles on battens + trussed timber rafters + 400mm mineral wool insulation quilt (100mm between joists + 300mm over).	0.11
<u>Roof</u> (sloping ceilings) 100mm Celotex GA4000 insulation (between rafters) + 35mm or 40mm Celotex TB4000 insulation (under rafters).	0.18
<u>Windows/Doors/Rooflights</u> PVC-u or timber or thermally-broken metal or composite frame double-glazed + 16mm cavity (argon gas fill) + soft coat low-E glass, or similar to achieve U-value of 1.50W/m²K, or Window Energy Rating (WER) Band A.	1.40
<u>Detailing</u> Accredited construction details (robust details : limiting thermal bridging and air leakage) adopted : see www.planningportal.gov.uk . The dwelling must be constructed to this standard, and the relevant forms must be completed as building work progresses.	
<u>Air Tightness</u> Design air permeability is TBCm³/h/m² at 50 Pa - to be achieved by air pressure test (Therm Energy Ltd can provide this service).	
<u>Global Warming Potential</u> (GWP) All insulation materials, including cylinder, pipes, loft hatch and doors, have a GWP less than 5.	
<u>Heating, Ventilation & Renewables</u>	
<u>Main Heating System</u> (option 1) Conventional (mains) gas-fired central heating with radiators and/or underfloor heating. Condensing boiler (A rated), NOx < 40mg/kWh.	
<u>Main Heating System</u> (option 2) Air source heat pump (ASHP) or ground source heat pump (GSHP) with radiators and/or underfloor heating (preferably UFH).	
<u>Secondary Heating System</u> None (or wood burning stove if possible - wood only).	

Heating Controls

Time and temperature zone controls (with delayed start room thermostats) + boiler interlock + enhanced load or weather compensator.

Ventilation

Background ventilators & intermittent extract fans, or passive stack ventilation (Approved Document F1, 2010).

Renewables

Solar pv (electric) - area of panels depends upon size of dwelling and other factors.

Other

Water Use (internal)

Water consumption 105 litres/person/day or less (water efficient fittings and appliances will be required). For example, water use not to exceed : taps 5 litres/min, showers 8 litres/min, bath 145 litres capacity (to overflow), toilets dual-flush (6/4 litres).

Water Use (external)

Water butt (150 or 200 litres, depending upon size of dwelling) on firm base with child-proof lid and tap, connected to rainwater downpipe with automatic overflow to main drainage system. Colour must be opaque.

Surface Water (run-off & flood risk) 4 credits

Peak rate of run-off to watercourses is no greater for the developed site than it was for the pre-developed site. A suitably qualified engineer or consultant will need to carry out calculations and provide design (engineer or consultant to be appointed at design stage).

Lighting (internal + external space lighting)

100% of light fittings are dedicated low-energy (lamp luminous efficacy > 45 lumens/circuit watt, total output > 400 lamp lumens).

Home Office/Study

Suitable room/space. Area to have openable window, 2 power sockets, and 1-2 telephone points (1 if broadband/cable available).

Drying Space (internal or external)

Adequate and suitable secure space with posts and footings (or fixings) capable of holding 6m+ of drying line.

Cycle Storage

Adequate secure, convenient, and weather-proof storage to be provided in a garage (on racks) or shed. Storage must be of the correct size (the lock must be a mortice deadlock or sash lock to BS3621 for doors > 44mm thick, or "sold secure" padlock etc).

Energy-Labelled White Goods

Fridges and freezers = A+ rated. Washing machines and dishwashers = A rated. Washer/tumble-dryers (optional) = B rated. Information on the EU Energy Efficiency labelling scheme (minimum standard) to be provided.

Energy Display Device

Device that shows electricity and primary heating fuel consumption data (must include time, current mains energy consumption in kw and kw/hours, current emissions in g/kg CO₂, current tariff, current cost in sterling, account balance, data - usage and historic).

Waste (recyclable non re-cyclable waste) external

Correctly sized container(s) total (assuming collection once per week), on hard level surface, with disabled access.

Waste (re-cyclable waste) internal

Local Authority collection scheme (sorted prior to collection). 3 bins (min 7 litres+ each, total min 30 litres+) to be provided in the kitchen, or utility room, or connected garage with internal access door (bins must be fixed in place, not free-standing).

Composting

Individual home composting facility in dedicated position (with access to disabled person), with an information leaflet.

Site Waste Management Plan (SWMP)

Plan must be implemented to include benchmarks, procedures and commitments for diverting at least 50% of waste from landfill (ideally 85% of waste diverted from landfill).

Construction Site Impacts

Monitoring, reporting, and achieving best practice policies, plus 80% of timber is responsibly sourced or reclaimed/re-used.

Home User Guide

Home user guide (non-technical) to be provided to the end owner/occupier of the dwelling(s). Guide to provide information on the operation and environmental performance of both the dwelling(s) and surroundings.

Note 1 : This must be available in different formats, ie foreign language, braille, large print, or audio cassette/CD, where required.

Note 2 : Therm Energy Ltd can produce the guide for a cost of £215 + VAT (1 dwelling). Additional dwellings are £35 + VAT each.

Lifetime Homes

Principles of Lifetime Homes (16 criteria) fully adhered to. www.lifetimehomes.org.uk

Security

A member of the local police (ALO or CPDA) to be appointed as early as possible to advise on security, with their recommendations to be incorporated into the design of the dwelling. www.securedbydesign.com

Ecology

This will vary with each site. An ecology report will be required (scoring 4-5 credits).

Note 1 : This is a typical specification that would meet Code Level 4 requirements in most cases. However, each development would need to be assessed individually on its own merits to ensure the correct number of points (57) is achieved.

Note 2 : The above only provides basic detail in some cases. A Code Pre-Assessment Report (or the Code Technical Guide) will provide further details and guidance on the various criteria.

EXAMPLE OF CODE FINAL CERTIFICATE

THE CODE FOR SUSTAINABLE HOMES
FINAL CERTIFICATE
(Issued at the Post Construction Stage)



ISSUED TO:
Test House, 1 Test Street,
Test Town, Test County
TE1 5T1

The sustainability of this home has been independently assessed at the Post Construction Stage and has achieved a Code Rating of 5 out of 6 stars under the October 2010 version



Above
Regulatory
Standards

Current
Best
Practice

Highly
Sustainable
Net Zero Carbon

The next page sets out how this home achieved its rating in the nine categories.


Licensed Assessor Mr A S Sessor	Assessor Organisation The Assessors
Client G L lent Ltd	Developer D E Veloper Inc
Architects Art I Tects	Certificate Number TEST – Certificate No 1
Date 12 Never 2010	Signed for and on behalf of Code Service Provider



This certificate remains the property of Code Service Provider and is issued subject to terms and conditions. It is produced from data supplied by the licensed Code assessor or certified competent person under Scheme Document 001/10. To check the authenticity of this certificate please contact Code Service Provider.

**Code Service
Provider Logo**

THE CODE FOR SUSTAINABLE HOMES
FINAL CERTIFICATE
(Issued at the Post Construction Stage)



Certificate Number: **TEST – Certificate No 1**
Score: **XXX**

What Your Code Star Rating Means

Combined Score	36-47	48-56	57-67	68-83	84-89	90-100
Stars	1	2	3	4	5	6

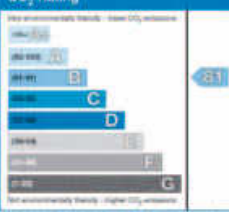
The Code for Sustainable Homes considers the effects on the environment caused by the development and occupation of a home. To achieve a star rating a home must perform better than a new home built to minimum legal standards, and much better than an average existing home

How this home scored

Category	Percentage of Category Score attained	What is covered in the category
Energy	90	Energy efficiency and CO ₂ saving measures
Water	25	Internal and external water saving measures
Materials	86	The sourcing and environmental impact of materials used to build the home
Surface Water Run-off	43	Measures to reduce the risk of flooding and surface water run-off, which can pollute drains
Waste	100	Storage for recyclable waste and compost, and care taken to reduce, reuse and recycle construction materials
Pollution	77	The use of insulation materials and heating systems that do not add to global warming
Health & Wellbeing	18	Provision of good daylight quality, sound insulation, private space, accessibility and adaptability
Management	58	A Home User Guide, designed in security, and reducing the impact of construction
Ecology	37	Protection and enhancement of the ecology of the area and efficient use of building land

Further detailed information regarding The Code for Sustainable Homes can be found at www.communities.gov.uk/cshcode

CO₂ Rating




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The CO₂ rating is a measure of a home's Carbon Dioxide (CO₂) emissions. This rating is shown on your Energy Performance Certificate as the Environmental Impact Rating. This Certificate is available from the sales, and also includes information on how you can improve the home's performance.

The Code measures the sustainability of a home as a complete package, and takes into account other aspects of energy use as well as water sustainability issues, such as water and waste.

The CO₂ Environmental Impact Rating is shown here for information only and does not form part of The Code for Sustainable Homes. Neither does it affect the assessment or registration in the scheme of this number.

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**Code Service
Provider Logo**

EPC Number: 9999-9999-9999-9999-9999

SERVICES : 2012

SAP Calculations

- > New Build Dwellings (and conversions)
- > Domestic Extensions (where glazing exceeds 25% of floor area)
- > Prices start at £75 + VAT (multiple dwellings such as large blocks of flats) or £225 + VAT for single dwelling

SBEM Calculations

- > New Buildings and Extensions (non-dwellings)
- > Prices start at £335 + VAT

EPC (Energy Performance Certificate)

- > New Build Dwellings (and conversions)
- > Prices start at £45 + VAT

Code for Sustainable Homes

- > Pre-assessments from around £450 + VAT (not inc site registration, certification, or site visits)

PLANNING Calculations

- > Thermal assessment calculations to satisfy planning (eg 10% reduction in energy use)
- > Prices start at £265 + VAT

Air Pressure & Sound Testing

- > New build dwellings
- > Prices start at £250 + VAT (air leakage testing) and £450 + VAT (sound testing)

Water Calculations (Part G)

- > New dwellings, from £75 + VAT (when carried out at the same time as SAP)

Note 1 : Air pressure and sound testing tends to be regional - ie south-east only.

Note 2 : Prices are correct at time of publication (January 2012). For further information see our website. We will be happy to provide a written fee quotation upon request (and receipt of drawings).

Note 3 : Prompt service offered by friendly and efficient fully accredited assessors.

Note 4 : Bank Details : Account No = 68070425 Sort Code = 08-92-50.