STROMA SERVICES FOR HOUSING

BUILDERS, DEVELOPERS & PROVIDERS

Building Sustainability & Compliance

STROMA® TECHNOLOGY

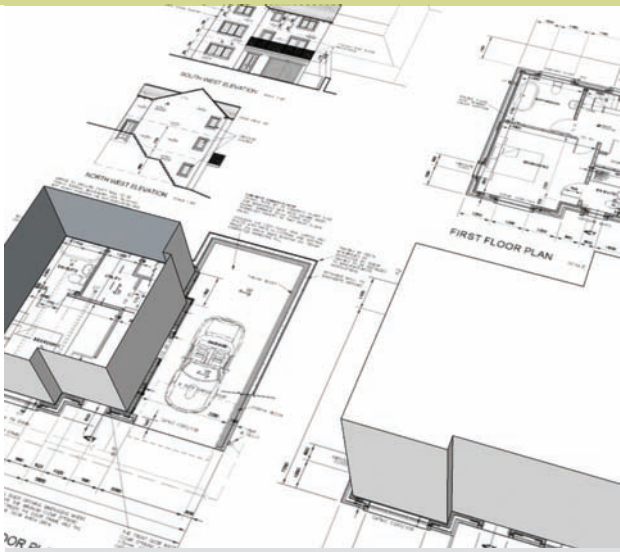
www.stroma.com

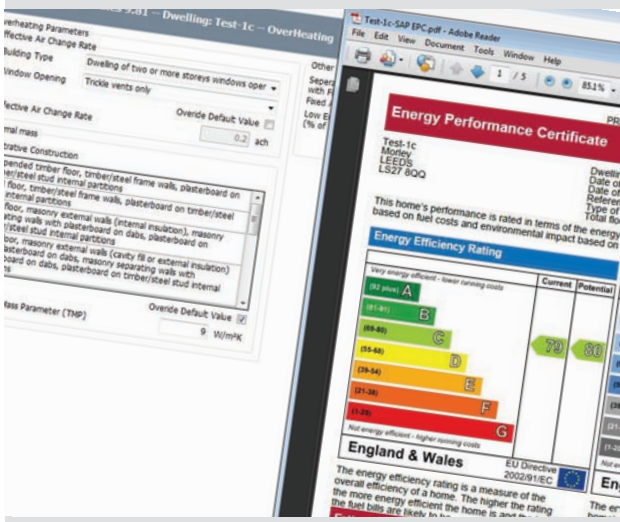
House builders, developers and providers are faced with the challenge of meeting increasingly onerous requirements related to building sustainability and energy efficiency.

Whether for new build or retrofit, private or social housing, Stroma can identify the optimal measures for achieving legislative compliance and meeting carbon reduction and energy efficiency targets, within budget and without sacrificing occupier comfort.

Operating throughout the UK and Ireland, Stroma adopts a co-ordinated approach to measuring and proactively improving building performance. Whether the requirement is for ad hoc advice or an integrated multi-discipline compliance solution, we can deliver.

Stroma Services for Housing Brochure Contents





Code for Sustainable Homes (CSH) Assessments and Advice

CSH is increasingly being used to benchmark sustainability for new housing developments, with Housing Associations and many Planning Authorities requiring CSH Level 3 as a minimum.

Stroma is experienced in undertaking CSH Assessments and also in providing the necessary consultancy services to achieve target CSH levels. Our scope of services covers strategic advice; design advice; pre-assessments and post-construction assessments.

If involved at design stage, we identify various measures which, incorporated seamlessly into the construction process, can facilitate cost-effective and efficient achievement of the target CSH level. This minimises the risk of having to take expensive and time-consuming measures post-construction in an attempt to achieve the desired rating.

CSH ENE7 Reporting

Under CSH, the Ene7 criterion provides up to two credits for the use of local or zero carbon technologies. As an independent energy specialist, Stroma can undertake a feasibility study and offer impartial advice on the most practical and financially-viable approach for meeting the relevant criteria to gain credits under Ene7 and assist in securing the target CSH level.

EcoHomes Assessments, Advice and Pol 4

Although CSH replaced EcoHomes for new build in 2007, EcoHomes continues to be used as an assessment tool for refurbished housing in England, Wales and Northern Ireland (and for all housing in Scotland).

Stroma can carry out EcoHomes assessments or provide advice and consultancy to help housing providers meet their target EcoHomes rating. We can undertake feasibility studies, in accordance with EcoHomes Policy 4, which outline the most appropriate and financially-viable retrofit strategies for a specific project.

SAP Calculations, EPCs and PEAs

The 2010 revisions to Part L of the Building Regulations pose a number of challenges to house builders, not least the requirement to achieve a 25% reduction in emissions based on 2006 levels; as calculated by the new SAP2009.

Stroma's team of energy assessors is well-equipped to deliver this service, having carried out thousands of SAP calculations for major house builders and contractors throughout the UK and Ireland.

Moreover, we can go well beyond the basic SAP assessment process, by helping to influence optimal Part L (and CSH) compliance by advising on appropriate fabric and building-services strategies.

Our track-record in the Part L1A assessor role has been attained on diverse developments, including challenging high-rise buildings and high sustainability projects.

Thermal Bridge Calculations and ACDs

The 2010 changes to Part L1A have elevated the importance of the assessment of thermal bridging. The use of Accredited Construction Details (ACDs) will (when fully implemented) yield significant advantages within SAP2009 calculations.

The development of ACDs will need to be by accredited persons. Stroma's team of thermal modellers, who will be accredited in due course, are able to model both simple and complex details in both 2D and 3D. Using the industry-leading Heat 2/3D software package, details can be modelled, linear thermal transmittance values (Ψ) calculated and temperature factors created for use within SAP.

Daylight Calculations

Daylight simulations can assist designers in maximising the use of natural daylight, while minimising solar heat gain. Ultimately this enables our clients to deliver buildings that are fit-for-purpose and provide high levels of occupant comfort, while optimising the building's energy efficiency.

Stroma uses photometric simulations to determine both daylight factors and uniformity ratios; this information can then be used for entry into Part L calculations, for CSH credits appraisal, or simply to review environment quality and comfort.

Flood Risk Assessments

Our team of qualified, hydrological engineers can offer flood risk assessments for planning applications in accordance with PPS25 and/or to satisfy CSH criteria. All CSH sites require a flood risk assessment report under Sur1, regardless of the flood zone that the development is located in. We can also offer flood risk assessments to gain up to two further non-mandatory credits under Sur2.

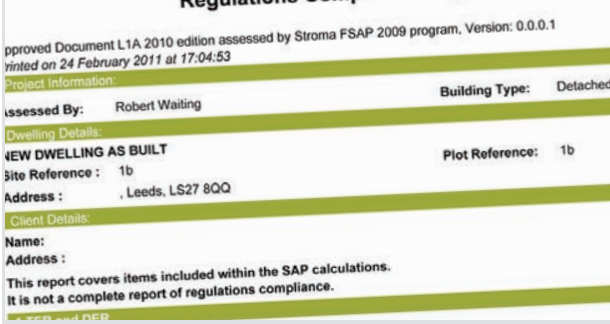
Ecological Reports

We can undertake ecological reports, including site surveys, to assist developments in both meeting planning requirements and gaining credits under CSH (Eco1, Eco2, Eco3 and Eco4).

Our ecologists meet the requirements of Suitably Qualified Ecologists and are all Members of The Institute of Ecology and Environmental Management (IEEM).

Water Efficiency Calculations for Part G

Stroma carries out the water efficiency calculations required for new dwellings to comply with Building Regulations Part G, in accordance with CLG's national calculation methodology.

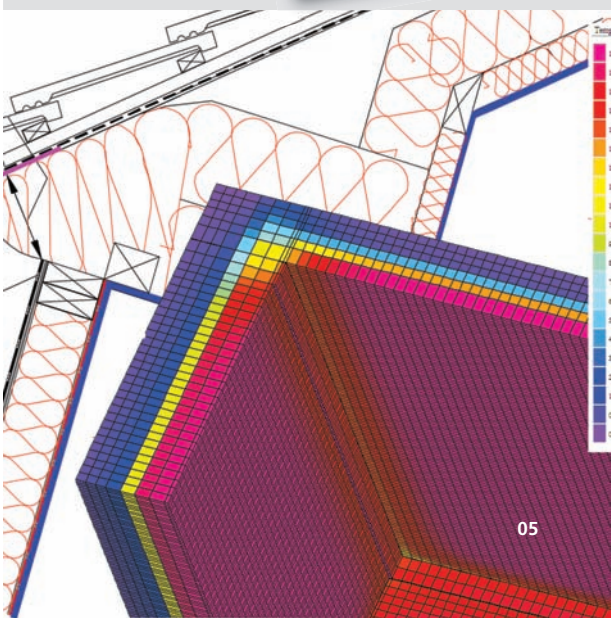


Planning Compliance Consultancy (Including Merton Rule)

Stroma can ensure that a development is on target to gain planning approval by providing feasibility reports to demonstrate that a development meets the relevant Local Authority Core Strategy/Local Development Framework criteria relating to renewable energy technologies and sustainable development.

Additionally Stroma can provide reports to discharge specific planning conditions relating to renewable energy generation; For example by demonstrating that 10% of a development site's energy demand is met from on site renewable energy technologies as required under the Merton Rule.

We can evaluate proposed construction details and recommend practical measures for meeting the requirements, cost-effectively. We can also provide a range of reports including flood risk assessment and ecology.



Housing Stock Assessment and Improvement

Stroma Technology has a mix of in house capabilities that can be usefully brought to bear in the housing improvement effort.

These skills include the following:

- Particular expertise in fabric performance measurement using various methodologies, such as co-heat testing, heat flux testing, air-tightness testing and thermography
- All forms of energy assessment in all its forms (DEA, SAP, CSH, Dynamic Simulation Modelling, etc)
- Experience in housing refurbishment design (see case studies on page 8)
- Engineering expertise in building services and renewables design

With an in house team of co-located architectural designers, building services engineers and energy consultants, we can develop and deliver an integrated solution to satisfy any brief.

Air-Tightness Testing and Consultancy

Through Part L, the Government is improving energy efficiency in the built environment by stipulating, amongst other things, that specific levels of air-tightness for new buildings are both achieved and verified via the air-tightness testing process.

This has become ever more important under Part L 2010, as house builders attempt to achieve the required 25% energy reduction on 2006 levels.

Having provided air tightness testing and consultancy on over 10,000 projects, Stroma is a leading UKAS-accredited testing body ideally placed to facilitate compliance.

We can deliver design reviews, CPD seminars for site-based or office staff, audits/inspections, preliminary testing, leakage diagnosis and final acceptance testing. We are also a BINDT-approved training body for air testers.

Acoustic Testing and Consultancy

Our experienced team delivers UKAS-accredited acoustic and sound insulation testing to meet all regulatory standards, or simply to meet the client's specification.

They can contribute throughout the lifecycle of a project, from initial design review through to post-completion testing. In addition to sound insulation testing for Part E and other sector-specific standards, we also perform environmental monitoring to PPG24, BS 4142 and BS 5228 standards.

With over 20 years of experience in the field collectively and experience of carrying out literally thousands of acoustic tests, in buildings of all conceivable sizes and types, Stroma is suitably qualified to provide advice on compliance requirements for the applicable regulations and on the design and construction strategies to meet them.

Product Performance Testing

Our independent performance testing of products and systems can establish their ability to meet required criteria.

We can undertake:

- Laboratory testing to determine the air-permeability of products or product assemblies, such as doors, windows, cladding systems and materials
- Noise emissions testing of operating mechanical systems including LAeq Levels and octave band frequency analysis
- Laboratory performance testing of HVAC systems

Renewable Technologies Design and Project Management

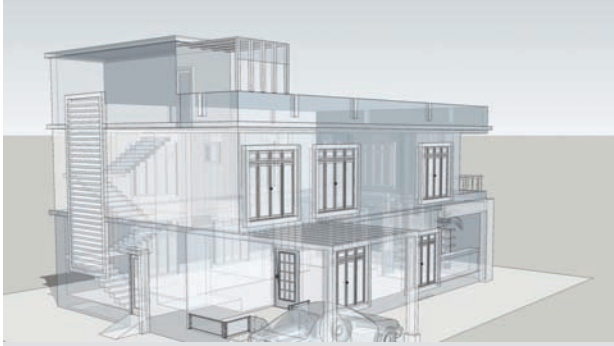
The Stroma Group can also offer an integrated service for the procurement, design and implementation of renewable energy and low-zero carbon technologies. We can apply our wide expertise to a range of project types, whether for new build or retrofit.

At the feasibility stage, our experienced team can provide strategic advice and consultancy to identify the most appropriate low-zero carbon technologies to meet specific client needs.

Our expertise encompasses:

- Solar PV Systems
- Solar Thermal Collectors & Hot Water Storage
- Air Source Heat Pumps
- Ground Source Heat Pumps
- Wind Turbines
- Underfloor Heating
- Whole-house Ventilation with Heat Recovery

Alternatively, they can manage every stage - from initial design and consultancy, to supply and installation, to commissioning, operation and maintenance – to deliver a bespoke 'turnkey' solution.



Our key strength is our proven expertise in general building services design, such that we can deliver designs that fully integrate with existing (or proposed) conventional services.

We also have particular expertise in regulations such as Building Regulations Parts F and L, CSH and BREEAM, Merton Rule and schemes such as Feed in Tariff and the Renewable Heat Incentive.

Case Studies

Project: 'Verde' Carbon Challenge Site, South Bank Peterborough

Client: Morris Homes

Requirements: An exemplar development incorporating c. 450 homes, green spaces, and mixed use elements. As one of the flagship Carbon Challenge sites, all homes on the site must meet the highest CSH level: Level 6.

As an independent CSH consultant, Stroma Technology is advising the developer on appropriate ways to meet this challenging requirement. A number of innovative renewable technology strategies have been explored at the site, including the use of biomass-fuelled combined heat and power (CHP).

The Carbon Challenge is the Government's programme to deliver exemplar, sustainable communities as test beds for the construction industry, ultimately accelerating its response to the Government's requirements for all new homes to be zero-carbon by 2016.

The developments must also meet additional, stringent requirements related to design quality and occupier comfort.

Project: Colne Valley Refurbishment, Huddersfield

Client: Connect Housing

Requirements: The refurbishment of existing three and four bedroom properties, to include environmental performance upgrades. The client's focus is on user comfort and reducing energy bills and water use.

The refurbishment works present the opportunity to make substantial improvements to the environmental performance of the properties. The building fabric insulation, air-tightness and the thermal performance of windows and doors were addressed first see how much the properties could be improved before considering renewable technologies.

Our agenda is to address performance, not compliance, and therefore pre- and post-air-tightness testing, dynamic simulation modelling (DSM) and co-heat tests are proposed.

Although these tests are not stipulated by legislation, our methodology aims to demonstrate, assess and build on credible test data.

Project: Technology Strategy Board's 'Retrofit for the Future' Competition (TSB)

Client: Connaught

Requirements: to develop sustainable, yet practical and financially viable, refurbishment solutions for poorly performing social housing which can be rolled out for similar housing types across the UK.

Stroma Design was engaged by Connaught Partnership to act as leading consultant on eight retrofit projects as part of TSB's £3.5 million scheme, the purpose of which was to address the energy efficiency of existing social housing and develop bespoke improvement strategies for meeting government targets.

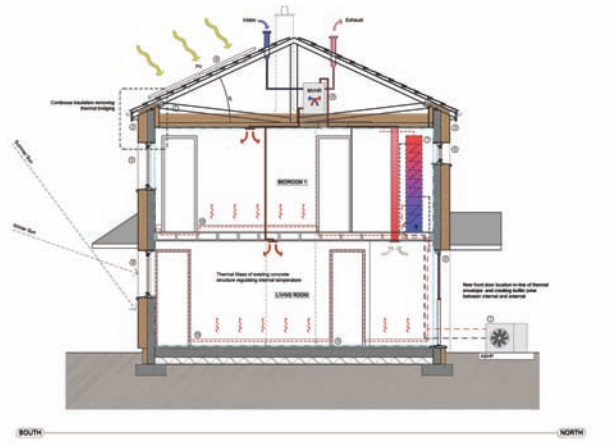
The intention was to create a suitable approach for the refurbishment of social housing stock across the UK, which was then monitored to verify performance. It was also hoped that the process would help to form a network of efficient and reliable suppliers for housing associations and registered social landlords.

Stroma's low carbon retrofit solution involved a fabric first approach reducing energy demand and wastage through building fabric improvements before considering the integration of renewable energy technologies for additional benefit, together with a rigorous and robust design process.

Technology Strategy Board
Driving Innovation

Connaught

Being acutely aware of the financial implications for housing providers, Stroma also looked at funding models to make the targets achievable and the process financially viable.



Stroma Services

Stroma Technology

General Consultancy and Testing Services

- Air-tightness testing and consultancy
- Sound insulation and acoustic testing and consultancy
- Server room fire integrity testing
- Thermographic surveying
- Fire risk assessments and RRO compliance
- Product performance testing
- Legionella risk assessments
- Environmental assessments

Energy Management and Carbon Reduction Consultancy *(Existing Buildings)*

- Carbon Reduction Commitment (CRC EES) consultancy
- Energy management and consultancy
- Energy audits, funding and feasibility consultancy
- aM&T software training and sales (SystemsLink)
- Air-conditioning surveys
- Residential and commercial Energy Performance Certificates (EPCs)
- Display Energy Certificates (DECs)
- Level 5 DSM (Dynamic Simulation Modelling)

Energy and Sustainability Consultancy *(for New-Build)*

- BREEAM assessments and advice
- Code for Sustainable Homes (CSH) assessments and advice
- Code for Sustainable Homes ENE7 reporting
- SAP calculations and EPCs (for residential developments)
- SBEM/ DSM calculations and EPCs (for non-residential developments)
- Daylight calculations
- Thermal bridge calculations
- Flood risk assessments
- Ecological reports

Energy Brokering and Bureau Consultancy Services

- Electricity and gas procurement (direct agent of all major energy companies)
- Co-ordination of the contract process through to 'go live'
- Invoice validation and co-ordination of refunds
- Provision of smart metering
- Client contract renewals

Stroma Design

Sustainable Design Services

- Traditional architectural services
- Sustainable retrofit design and advice
- Independent planning (Merton Rule) and compliance consultancy
- Planning compliance consultancy
- Client design advisors
- Design for CSH compliance
- Design of integrated Renewable Energy Systems
- Renewables project management from feasibility to installation

Stroma Contracting

On-site Contracting Services

- Passive fire protection to structural steelwork
- Fire stopping to service penetrations
- Whole building air-sealing
- Server room fire integrity sealing
- Acoustic compliance (installation of acoustic barriers)

Stroma Certification

Stroma Certification delivers several Government approved training courses, software and certification schemes, which complement legislative development and the changing building industry requirements.

Non-Domestic

- Non Domestic Energy Assessment (NDEA)
- Public Building Assessment (DEC)
- Air-conditioning Energy Assessment (ACEA)

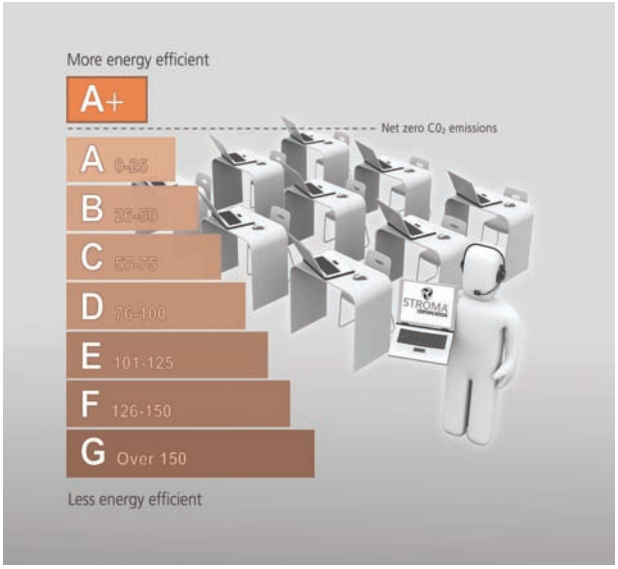
Domestic

- Code for Sustainable Homes (CSH)
- On Construction Energy Assessment (OCEA)
- Domestic Energy Assessment (DEA)
- Home Energy Advisors (HEA)

Other

- Thermal Modelling - New
- Fire Risk Assessment
- Renewable Energy
- Carbon Management
- Air-tightness Testing

All courses are certified by either ABBE, City & Guilds or BPEC; by which Stroma comply with the exacting standards to train to the required level to be successful in their application to the qualifying body.



BEST ASSESSOR TRAINING PROVIDER 2010

Building Sustainability & Compliance

Available Brochures

On Site Contracting Services
New Build Commercial Properties
Consultancy Services
Existing Property Services
Technical Facilities Management
Stroma Certification

CONTACT DETAILS

For further information please call
0845 621 11 11 or email info@stroma.com.

Stroma Head Office, Pioneer Way, Castleford,
West Yorkshire, WF10 5QU
www.stroma.com

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