



BUILDING PHYSICS

Construction Technology Experts

**Dynamic Simulation Modelling (DSM)
Part L Compliance (UK and Ireland)
NSAI Approved Thermal Modelling
BBA Certified U-value and Condensation Risk Calculations
Building Energy Assessments (SAP, DEAP, SBEM)**

CONSTRUCTION TECHNOLOGY AT WORK FOR YOU

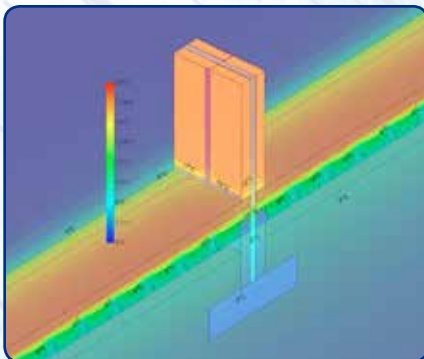
COST EFFECTIVE

We provide a range of Building Physics services for builders, developers and all construction product and system manufacturers with a number of world market leaders among our current clients.

Our in-house team can provide a complete suite of superior specialist services, from full structural engineering design and framing, to specification development through detailed analysis of thermal bridging, hygrothermal analysis, elemental U-value calculations and dynamic simulation modelling related to energy, acoustic and fire performance design of offsite building systems and construction products.

We are also BREEAM and LEED accredited and can manage all of your BREEAM/LEED requirements. By offering these integrated services provided by our foremost industry experts, and through the use of our innovative holistic approach to building design and specification, we can ensure savings in construction costs by eliminating costly over specification while still providing full compliance.

This gives our clients much enhanced overall value and a competitive advantage in their respective markets.



FELDA HOUSE, WEMBLEY,
20 STOREY MODULAR BUILDING WHICH IS
BREEAM EXCELLENT

BUILDING PHYSICS SOLUTIONS

Our Services include:

- ▶ Dynamic Simulation Modelling
- ▶ Thermal Bridge Modelling
- ▶ U-value Calculations
- ▶ Condensation Risk Analysis
- ▶ Building Energy Assessments
- ▶ Fire Testing Design and Project Management
- ▶ Acoustic Testing Design and Project Management
- ▶ BREEAM AP and Assesments.

REDUCE THE RISK OF COSTLY BUILDING DEFECTS WITH APPROPRIATE THERMAL AND DYNAMIC MODELLING

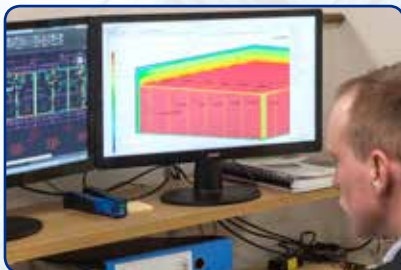
DYNAMIC SIMULATION MODELLING (DSM)

Used to produce accurate geometric models of complex buildings at early design stage, to assess and value engineer solutions, generate suitable specifications and provide technical data in relation to:

- ▶ Building Fabric Performance
- ▶ Energy Use and Renewable Technology
- ▶ Ventilation and air movement
- ▶ Overheating
- ▶ Daylighting analysis
- ▶ CO₂ Emissions
- ▶ Part L Compliance
- ▶ BREEM performance

THERMAL BRIDGING ANALYSIS

Our in-house NSAI registered thermal modellers provide thermal bridging analysis in accordance with BR 497 and IP1/06, providing Psi (Ψ) values for use in heat loss H_{TB} calculations in both BER and SAP assessments.



U-VALUE CALCULATIONS

Our U-value calculations and condensation risk analysis are BBA Certified under the competent person's scheme.



BUILDING REGULATIONS AND COMPLIANCE

APD L1A and L2A (UK)
TGD L (IRL)

THIRD PARTY CERTIFICATION

Our Building Physics Engineers are

- ▶ Registered with BBA
- ▶ Registered with NSAI
- ▶ Certified CIBSE Level 5 Dynamic Modellers
- ▶ Covered by ISO 9001 certified QMS systems
- ▶ And use check-the-checker process

**INNOVATION AND EXPERTISE
COMBINED TO PROVIDE
OPTIMUM SOLUTIONS**

FABRIC FIRST APPROACH CRITICAL FOR COMPLIANCE WITH BUILDING REGULATIONS

DID YOU KNOW...

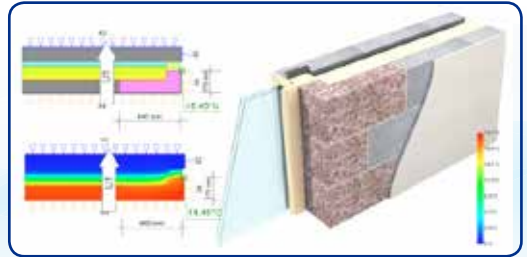
In BER calculations, if bespoke junctions are used, an extremely penalising Thermal Bridging Factor (TBF) of 0.15 W/m²K must be used in the absence of Thermal Modelling. If ACDs are used, a TBF of 0.08 W/m²K can be used. There is a clear advantage in carrying out Psi value calculations and manually calculating the TBF for BER calculations, as the defaults of 0.15 W/m²K or 0.08 W/m²K can usually be greatly improved upon.

In SAP calculations, heat loss through thermal bridging is included in the overall Dwelling Fabric Energy Efficiency Calculation (DFEE) along with the plane element heat loss (U-values for walls, floors, roofs, doors and windows), the DFEE must be better than the Target Fabric Energy Efficiency (TFEE)

By calculating the Psi values there is a double benefit:

1) It avoids the need to over-compensate with extra insulation on the main building fabric to make up for poor default Psi values, thus making significant savings.

2) Surface Condensation Risk is examined during the modelling process and mould growth potential can therefore be designed out of these details, reducing cold bridging, avoiding defects and potential post-construction remedial costs, embarrassment, and claims against designers and developers.



Our other areas of expertise include those listed below.

- ▶ Structural Engineering Design
- ▶ Offsite Structural Engineering
- ▶ Quality Engineering
- ▶ Offsite BIM and Framing
- ▶ Value Engineering
- ▶ Turnkey Design Solutions
- ▶ Product Development & Third Party Certification
- ▶ Project Management of Fire and Acoustic Testing

Evolution Innovation's Services are backed by Independent Third Party Certification and Competency Qualifications



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