Creative Energy Consulting Ltd

Are you looking to make a positive impact on the environment and to optimise energy efficiency, improve thermal comfort, or evaluate the performance of your building's thermal systems? Then we can help.

Our Thermal Modelling service offers advanced simulation and analysis techniques to assist you in understanding and optimising the thermal behaviour of your projects.

Our team of experienced sustainability professionals specialises in providing comprehensive consulting services tailored to meet your unique needs. Our team of experienced engineers specialises in thermal modelling using cutting-edge software and industry-standard methodologies. We provide comprehensive solutions for a wide range of applications, including Educational, commercial, industrial, and institutional buildings.

Founded in 2021, Creative Energy Consulting is a family run business and are experts in non-Domestic low-carbon consulting and energy assessment for both regulated and unregulated Energy/Carbon.

Our Services

EPC

Energy Performance Certificates play a crucial role in promoting energy efficiency and sustainability in buildings. They provide valuable information to property owners, tenants, and potential buyers, enabling them to make informed decisions to reduce energy consumption, lower costs, and minimise environmental impact.

Daylight Modelling

We Utilise specialised simulation software IESVE module Radiance to assess the impact of different design strategies, such as window sizes, glazing properties, shading devices, light shelves, or interior reflectance, on the daylighting performance. The simulations can help determine the most effective design choices to maximise daylighting benefits and minimise glare or excessive solar heat gain.

Operational Energy NABERS/TM54

By utilising CIBSE and NABERS methodologies for operational energy simulation, building owners, operators, and energy professionals can assess and improve the energy performance of buildings. These approaches provide valuable insights into energy consumption patterns, identify areas for optimisation, and help guide decision-making to achieve greater energy efficiency and sustainability.

SBEM

SBEM plays a vital role in ensuring that non-domestic buildings in the UK meet the energy efficiency standards set by the Building Regulations. By using this software tool, energy assessors and professionals can evaluate and optimise the energy performance of buildings, leading to reduced energy consumption, lower carbon emissions, and increased sustainability.

LZC Feasibility Studies

LZC feasibility studies, also known as Low or Zero Carbon feasibility studies, assess the viability and practicality of incorporating low or zero carbon technologies in a project or development. These studies aim to evaluate the potential for reducing carbon emissions, increasing energy efficiency, and utilising renewable energy sources.

Detailed Plant Energy Modelling

We use ApacheHVAC to create an energy model of the building and its HVAC systems. This involves inputting building characteristics, such as geometry, construction materials, and occupancy patterns, as well as detailed specifications of the HVAC components, including equipment types, capacities, control strategies, and setpoints.

Façade Analysis

Utilising façade analysis enables us to advice designers and engineers to assess and refine the building's façade design to achieve better energy performance, occupant comfort, and sustainability. IESVE allows for detailed energy modelling of the building's façade, considering factors such as insulation, glazing types, shading devices, and air leakage. The software can simulate the building's energy consumption and predict its overall energy efficiency based on different façade configurations.

Thermal Comfort

By utilising dynamic simulations for thermal comfort analysis, designers and engineers can make informed decisions to optimise building design, HVAC systems, and control strategies. These simulations enable a more comprehensive understanding of how various factors interact and affect occupant comfort, leading to the creation of buildings that provide optimal thermal conditions throughout the year.

CIBSE Loads Analysis

By conducting CIBSE Loads Analysis, designers and engineers can accurately determine the heating and cooling requirements of a building, helping them select appropriate HVAC equipment and system configurations. This analysis ensures that the building's mechanical systems are properly sized, resulting in energy-efficient and cost-effective designs while providing optimal thermal comfort for occupants.

What is Net Zero

Net Zero is a ground breaking concept that aims to create a sustainable future by balancing energy consumption and renewable energy generation. It involves reducing energy demand, optimising efficiency, and utilising renewable energy sources to achieve a net-zero carbon footprint.

Achieving net-zero is a complicated process due to several interrelated factors and challenges. Here are some of the key issues: Energy Demand and Diversity, Complex Energy Systems, Existing Building Stock, Cost and Financing, Policy and Regulation, Behaviour and Occupant Engagement and Monitoring and Verification

Overcoming these challenges requires collaboration among stakeholders, continuous technological advancements, supportive policies, and public awareness and engagement. Net-zero is a complex process that demands an integrated approach and comprehensive strategies across multiple domains to achieve sustainable and resilient energy systems.

Lets do this together!

CREATIVE ENERGY CONSULTING

CREATIVE ENERGY'S 5 C'S TO NET ZERO

1 COLLATE

To start your journey on the pathway to achieving Net Zero status, we help you identify a suitable net zero target for your project, for example this could be CRREM, NABERS or UKGBC. During the collate stage we will undertake a site visit, conduct a Net Zero audit, and identify any opportunities and develop a net zero pathway. We then undertake a review of the audit to better understand its findings and implications for the building owners and occupiers.

2 CONSTRUCT

We construct a dynamic thermal model that acutely represent the buildings geometry, thermal mass, climatic weather patterns, operational usage, and renewable energy generation. During the construct stage we develop an accurate energy and carbon baseline for comparison to the Net Zero targets defined at the collate stage. The baseline performance is then analysed against the target trajectory where we identify intervention opportunities.

3 COLLABORATE

During the collaborate stage the intervention opportunities identified at the construct stage are reviewed with the wider design team and stake holders. This review helps us all to better understand the building's current operation and any future plans of works needed to achieve a Net Zero status. Some of the key interventions that are at our forefront are optimisation, efficiency, fabric, deep retro fit and renewables. Net-zero goes beyond operational energy efficiency. It involves considering the entire lifecycle of a building or system, including the embodied energy of materials, construction processes, and end-of-life considerations.

4 CALIBRATE

Creating a digital twin involves calibrating the simulation model to match the real-world building's performance and behaviour. This process ensures that the digital twin accurately represents the physical building and can be used for various analyses, optimisations, and monitoring. Integrating the calibrated model into a digital twin platform or software that enables real-time monitoring, analysis, and optimisation. This integration allows for ongoing performance evaluation, predictive maintenance, energy management, and decision-making based on the digital twin's insights.

5 CONTINUITY

During the continuity stage we can recognise and respond to changes in performance, objectives, and targets. This is an ongoing basis, where we continue to monitor and analyse site performance, periodically reviewing and responding to the impacts of interventions made, changes in the buildings use, and changes to industry targets and benchmarks.

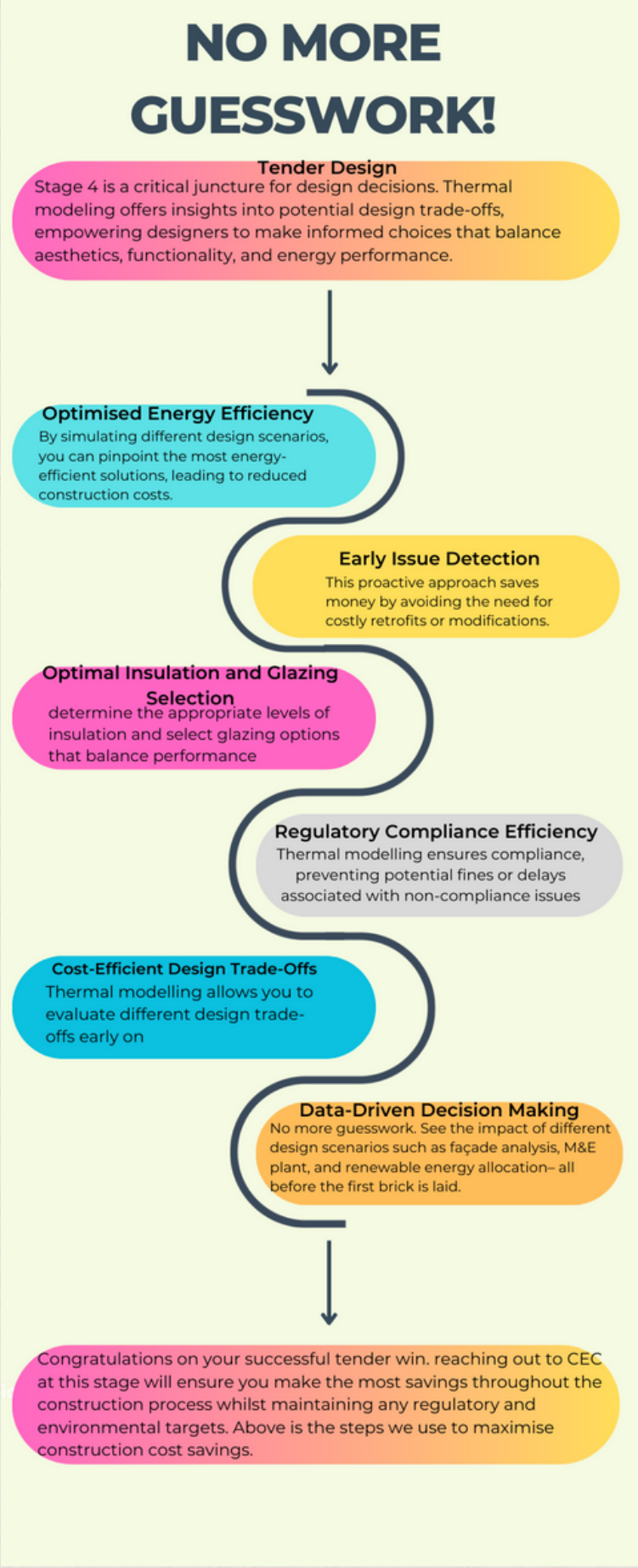
Due Diligence & Value Engineering

No more guesswork! Our data–driven approach empowers you to make decisions based on solid evidence.

Thermal modelling at RIBA Stage 4 offers numerous benefits that can directly contribute to saving money over the lifecycle of a building. Here's how incorporating thermal modelling at this stage can lead to cost savings:

- **Optimised Energy Efficiency:** Thermal modelling helps **identify** opportunities to enhance **energy efficiency** in building systems and materials. By simulating different design scenarios, you can pinpoint the most energy-efficient solutions, leading to **reduced construction costs.**
- **Early Issue Detection:** Identifying and addressing potential thermal-related issues early in the design phase can **prevent costly fixes** during construction or post-occupancy. This proactive approach **saves money** by avoiding the need for costly retrofits or modifications.
- **Optimal Insulation and Glazing Selection:** Through thermal modelling, you can determine the appropriate levels of insulation and select glazing options that balance performance, aesthetics, and cost-effectiveness. This **prevents overspending** on materials that provide marginal benefits.
- **Regulatory Compliance Efficiency:** Meeting energy efficiency regulations and codes is essential. Thermal modelling **ensures compliance**, preventing potential fines or delays associated with non-compliance issues.
- **Cost-Efficient Design Trade-Offs:** Thermal modelling allows you to **evaluate** different design **trade-offs** early on. This **prevents costly modifications** later and ensures that design decisions align with budget constraints without compromising on performance.

By investing in thermal modelling prior to the construction phase, you're setting the foundation for a building that performs optimally in terms of energy efficiency and regulatory compliance. These benefits directly translate into project cost savings and aid in the timely delivery of construction projects, making it a wise decision from both a financial and sustainability perspective.



Contact

Opening Hours

Mon - Fri

08:00 am – 18:00 pm

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