

The logo consists of the letters 'BG' in a bold, white, sans-serif font, centered within a solid green square.

**BG**

The background image shows a low-angle view of a modern building's facade, characterized by a grid of dark, perforated metal panels. A bright sun is visible in the upper left quadrant, creating a lens flare effect against a clear sky. The bottom portion of the image is overlaid with a solid green gradient.

**BUILDING AUDITS  
BUILDING PHYSICS**

# A HEALTHY BUILDING AN OPTIMISED ENERGY

RESPECTING THE  
ENVIRONMENT BY  
OPTIMISING ENERGY  
CONSUMPTION

FINDING EFFECTIVE AND  
INNOVATIVE LOW-COST  
SOLUTIONS

SAVING ENERGY WITHOUT  
COMPROMISING COMFORT

A building encompasses several different aspects, such as energy supply, personnel health and safety, fire safety, deterioration and structural problems.

Faced today with an increasing scarcity of fossil fuel resources, optimising our energy consumption has become essential. The building sector is one of the most important consumers of energy. Low energy consumption and high energy standards are today therefore obvious solutions. BG Consulting Engineers provides assistance to its clients in the development of environmentally friendly buildings without making a compromise in the level of comfort. In addition, BG brings strong expertise in the area of building deterioration and security related evaluations, whether for single buildings or real estate portfolios.

## BUILDING AUDITS

Considering the constantly increasing cost of energy and the fact that we spend 90% of our lives inside of buildings, guaranteeing a healthy and comfortable indoor living environment is of key importance. It is from this perspective that BG Consulting Engineers has developed a multidisciplinary audit expertise that includes the following services:

- **Energy audits, to avoid unnecessary costs:** development of energy consumption data and subsequent energy saving investment scenarios with cost evaluations, and establishing the energy balance before and after renovation.
- **Real estate portfolio audits, to assess the general state of buildings:** regulation compliance evaluation, verification of adherence to security standards, assessment of the state of building deterioration, assessment of potential to increase usable space, calculation of DCF and provision of a complete real estate management tool.
- **Solar systems, to protect our climate:** project studies to determine the characteristics of the future installation, calculation

of annual production, provision of different investment scenarios, construction permit request, management of tender process, implementation and handover, follow-up and performance validation.

- **Labelling, to place value on actions and establish a sustainable strategy:** client assistance, preparation and submission of the necessary documents.

## BUILDING PHYSICS

Several problems can arise related to the physical defects of a building, such as overheating in summer, mould and humidity problems and significant thermal bridges. BG Consulting Engineers, as recognized experts, are often contracted to investigate these problems, to provide solutions, to establish liability, and above all to ensure that these issues are already avoided at design stage. BG therefore provides the following range of services:

- **Construction permitting, to ensure compliance with regulations:** preparation of the energy-related section of a building permit, collaboration with the architects and the project owner to minimize the building's energy consumption, maximise the usage of local renewable energy resources and avoid the above-mentioned risks related to building physics.
- **Building physics, to guarantee a healthy, ecologic and comfortable indoor environment:** simulations of summer thermal comfort, thermal bridge and steam migration calculation, simulations of interior lighting.
- **Expert assessment, to identify problem causes, establish liability and find solutions:** on-site inspection, analyses, reporting.





## RENEWABLE ENERGY RESOURCES



### DESIGN AND PROJECT MANAGEMENT OF THE INSTALLATION OF 10 PHOTOVOLTAIC SYSTEMS (4.3 MWP) IN GENEVA

DCTI contracted BG to install photovoltaic solar systems in 10 buildings in Geneva. Our services included the general design of the installation, tendering, management of the construction work, sign-off of the installations, follow up and validation of performance.



### INSTALLATION OF 70 M<sup>2</sup> OF THERMAL SOLAR PANELS IN GRAND-LANCY

BG participated in the following phases: project management, project planning, PolySun simulations, building permit request documentation, tendering, monitoring of works, installation sign-off, and energy monitoring.



### WOOD BIOMASS DISTRICT-HEATING IN CHAMPAGNE

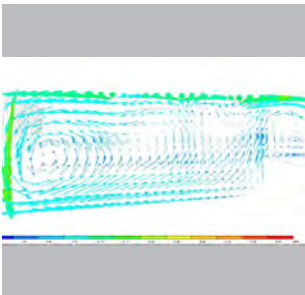
Connection of buildings to the city's wood biomass district-heating network: recommendations to the architect on the development of the substations, calculating the dimensions of the comprised elements, coordination of the participating companies, construction management and sign-off of works.



### RENEWABLE ENERGY ANALYSES

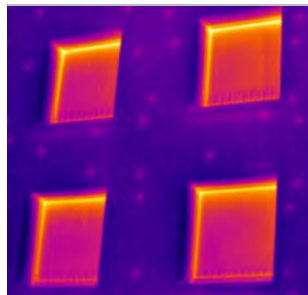
Analyses to determine the possibility of replacing fossil energy sources with renewable and local resources for individual buildings, communities and industrial sites.

## BUILDING PHYSICS AND EXPERT ASSESSMENTS



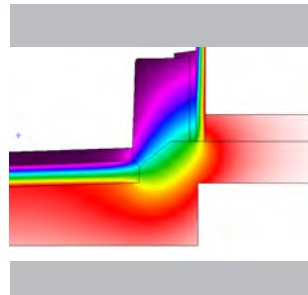
### REPOSOIR COMPLEX IN NYON

CFD (Computational Fluid Dynamics) simulation of the fitness center: simulation with programs combining thermal simulations with fluid flow dynamics to verify comfort under extreme operating conditions.



### THERMOGRAPHIC ANALYSES

Detection of construction defects with a thermographic analysis. Detection of thermal bridge, insulation and air-tightness problems.



### THERMAL BRIDGE SIMULATIONS

Finite element simulations: thermal-bridge and thermal transmission calculations, condensation and mould risk assessment.



### EXPERT ASSESSMENTS

Problem analysis: on-site visits, measurements, drilling, diagnostics, determination of liability, proposal of corrective measures and management of the construction work.

