

## CONTROLLING COSTS

Cost control is vital as fossil fuels become scarcer. Buildings are big energy consumers when it comes to heating, domestic hot water and electrical demands. Lower consumption and strict energy standards are therefore a must in new and refurbished buildings.

# BG - YOUR PARTNER FOR ENERGY AND BUILDING SERVICES ENGINEERING

Services and reference projects for building audits, building physics and building services engineering (HVAC/Sanitary/Electrical)



### BUILDING AUDITS

Energy costs keep rising. As we spend 90 per cent of our time inside buildings, the challenge is to provide healthy and comfortable living spaces. BG has developed broad interdisciplinary experience in building audits, which includes the following services:

- Energy audits to cut unnecessary costs
- Property portfolio audits to assess the condition of buildings
- Solar systems to protect the environment
- Building energy labelling

### BUILDING PHYSICS

Many problems can occur in buildings: overheating, mould, mildew, moisture and thermal bridges. BG regularly acts as an expert to settle liability issues, find solutions and above all prevent such problems already at the planning stage. Our services are based on a wide-ranging expertise:

- Certification of conformity with legal construction requirements
- Building services engineering for healthy, ecological and comfortable living spaces
- Expert reports on problems, solutions and liability

### BUILDING SERVICES ENGINEERING - HVAC/SANITARY/ELECTRICAL

It is now standard practice to implement intelligent, cost-effective and ecological building services. For both new builds and refurbishments, BG submits several options for the successful implementation of energy efficient, ecological and value-for-money services. Our services include:

- All HVAC/Sanitary/Electrical services in compliance with SIA standard 108
- Energy supply and distribution design
- Energy optimisation
- Modelling
- Expert coordination of HVAC/Sanitary/Electrical projects

## BUILDING AUDITS AND DISTRICT HEATING



### BUILDING AUDITS

#### Audit of Vaudoise Assurances' property portfolio in Switzerland:

Building and energy audits for Vaudoise Assurances' portfolio (123 buildings): legal compliance in relation to safety, building state of repair, energy performance and building expansion potential. Development of 25 year investment plan to maintain net asset value.



#### Audit of Immobassura's property portfolio in Switzerland:

Comprehensive audit of Immobassura's property portfolio (30 buildings): legal regulations, safety, building state of repair, energy performance and feasibility of building expansion. Development of 15 year investment plan.



### MONTANA-RANDOGNE DISTRICT HEATING

The planned district-heating network comprises:

- 4,700 m of pre-insulated main pipes
- Approx. 2,000 clients
- 4.8 MW biomass heating plant
- 5.7 MW natural gas heating plant

During the first phase, from the Ycoor skating rink to Montana school, a natural gas heating plant with a heat output of 1.5 MW will be connected to the district heating network. The grid will be then progressively extended and the biomass heating plant implemented.

Challenges faced during the project:

- Working in a built-up area (requirement to use helicopter transport)
- Multiple simultaneous projects (Ycoor skating rink, redevelopment of Montana's town centre, etc.)
- Deadlines for energy supply to end clients

With an energy supply of 26,000 MWh/year, the district heating network is the main component in the energy mix for the "Haut-Plateau" community. BG has been contracted by the Crans-Montana Energy Company to undertake the planning, tendering and first stage completion of this project.

## BUILDING SERVICES ENGINEERING



### RENOVATION OF HEATING SYSTEMS FOR VAUDOISE ASSURANCES

Vaudoise Assurances decided to replace the heating systems in eight buildings to safeguard the value of its property portfolio.

BG used its previous in-house audit for Vaudoise to assess the heating systems that required replacement. In addition to the heating systems, the structural fabric of the utility space was assessed for safety, remaining life span and regulation conformity. An action and investment plan was developed on the basis of

these findings. The main reason for renewing the heating systems was their age and the need to bring them into compliance with the most recent standards and laws.

The work was carried out according to Vaudoise Assurances' specification and based on BG's recommendations. The client's specific requirements were to consider all local sources of energy (solar, district heating, natural gas, heating oil) and ensure compliance with fire safety standards.



### REFURBISHMENT OF LA CIGALE TO MINERGIE-P ENERGY STANDARD

#### Project description and implementation:

- Two buildings with 273 apartments that would be occupied during the renovation work
- Coordination with architects to establish the heating requirements of the new building envelope
- Complete replacement of oil heating system with heat pumps, solar thermal collectors and latent heat storage
- Installation of ventilation system
- Hot water circuit to shorten waiting

time and reduce energy consumption Bâtiment Minergie-P standard.

- Minergie-P energy standard label for building
- Awarded Swiss Solar Prize 2014
- Awarded Geneva Canton prize for Sustainable Development

#### BG's services:

Energy experts, audit of existing building, technical and economic feasibility of different scenarios, all HVAC/Electrical in compliance with SIA standard 108.

