

Practice Principles

Exclusively Low Environmental Impact Design Since 1992

Design Philosophy

Gale & Snowden seek to create buildings that rest harmoniously with nature rather than fighting against it. Our designs are sympathetic to people's needs, and mindful of the wider ecology. So the buildings we create consume the least possible energy, cause the lowest levels of pollution, and make the lightest possible environmental footprint.

We employ a practical and imaginative approach to the need for light, space and air in simple structures, bounded by natural materials such as wood and slate. The resultant buildings feel comfortable and healthy to be in, uplifting and inspirational. Their efficiency means low energy and water bills as well as frugal carbon emissions and low environmental impact.

Materials are chosen for their low embodied energy, are derived from sustainably managed or recycled sources, are non-toxic and are produced as locally as possible.

Attention to detail and the incorporation of passive design features such as superinsulation, thermal mass, orientation, vapour permeability, passive solar gain, and ventilation, all characterise our creative approach.

Gale & Snowden have adopted our own environmental standards which are applied to all projects. These include a minimum level of insulation, air tightness, material selection and healthy design features.

Key Environmental Principles In Our Designs

Design features that we at Gale & Snowden incorporate into our architecture aim to achieve maximum savings in energy and water running costs and include:

Site layout Terracing of buildings to reduce surface heat loss. A mid terrace house loses 30-50% less heat than an end of terrace or a semi detached house. Standardised detailing and prefabrication can then benefit the construction programme and budget.

Low energy building design The emphasis is to ensure that Gale & Snowden's buildings use as little energy as possible. Current Building Regulations place too much emphasis on low carbon strategies and technologies which is at the expense of low energy building design. By first concentrating on low energy design

reducing the need for heating, cooling and lighting the requirement for expensive renewable technologies can be designed out and will only be used to meet the most frugal of demands.

Solar orientation The combination of very high levels of thermal insulation and thermal mass will result in such good thermal performance that properties will not necessarily require much passive solar gain. Properties can therefore be orientated such that the main bedrooms face east to enjoy the morning sun, and the living rooms to benefit from the sun in the afternoons and evening. Gardens are orientated to the south to benefit from full sun.

Maximising natural daylight Maximising the levels of natural daylight enhances well being whilst minimising electrical lighting demand. This is achieved by the use of appropriately designed rooflights, glazing and windows giving the homes a light and airy feel. Light coloured finishes on walls, ceilings and floors further help to reflect light. Gale & Snowden can incorporate 3d daylight modelling to ensure optimum daylight levels are met without compromising overheating in summer and heat loss in winter.

Low energy lighting As part of the integrated design approach, lighting design not only considers the latest low energy light fittings such as CFLs and LEDs but also takes account space shape and form, colour rendering, daylight design and the function of each space.

High thermal performance High levels of insulation, triple glazed timber windows and doors are specified on our current designs to achieve the following U Values with thermal bridge free construction:

Floor	0.10 W/m ² K
Walls	0.10 W/m ² K
Roof	0.10 W/m ² K
Windows / doors	0.7 – 1.0 W/m ² K

Thermal mass Thermal mass is incorporated in the internal walls and general structure which helps to reduce daily and seasonal fluctuations of internal temperatures. Thus assisting in reducing both overheating in summer and heating loads in winter.

Airtight construction Gale & Snowden are experts at constructional detailing that maximises air tightness. Cur-

rent Gale & Snowden schemes are being designed to an air tightness of 0.75 m³/(h.m²) @ 50 Pa and 0.6 ach/hr @ 50Pa to AECB Gold and Passivhaus standards.

Space heating Buildings are designed to require minimum space heating and providing they are lived in with some moderate internal gains from people and equipment very little heating is required. During exceptionally cold periods heat loads can be met either by mechanical ventilation heat recovery (MVHR), or a small renewable energy source such as coppiced timber or ground source heat pump.

Ventilation Gale & Snowden ensure via thermal and ventilation modelling that spaces receive sufficient ventilation for healthy indoor environments. Designs employ a variety of means for achieving this. Passive means, such as stack ventilation or cross-flow ventilation through opening windows and high level openings or simple mechanical means such as low energy mechanical heat recovery ventilation. Ventilation design also incorporates strategies and methods for reducing draughts and cold spots and for reducing overheating such as utilising building mass and night cooling.

Cool larders In some of our schemes we incorporate a ventilated larder that is an insulated cupboard kept cool by the supply of air chilled via underground clay pipes. The cool larders can be used to store fresh food such as vegetables, fruit and salads. This should reduce the size of fridge required, for meat and dairy products.

Renewable energy strategies Once buildings have been designed for minimal energy use the remaining requirement can be met via renewable energy systems. Gale & Snowden's expertise in renewable energy design and strategy ensures that the optimum system is used to suit the site and users needs whether this be PV, biomass or wind.

Low water use and rain water collection Low water use appliances are specified throughout. Typically this might be 3/6 litre dual flush WCs, reduction valves, low water use showers and taps. This reduces the demand for mains water. Specifying low water use showers and taps will also minimise the demand for hot water.

Filtered rain water can be collected in underground tanks. The filtered rain water can be used for WC flushing, washing machines and outside garden use.

Employing water saving and collection strategies should enable close to a 60% reduction in water use for a typical household.

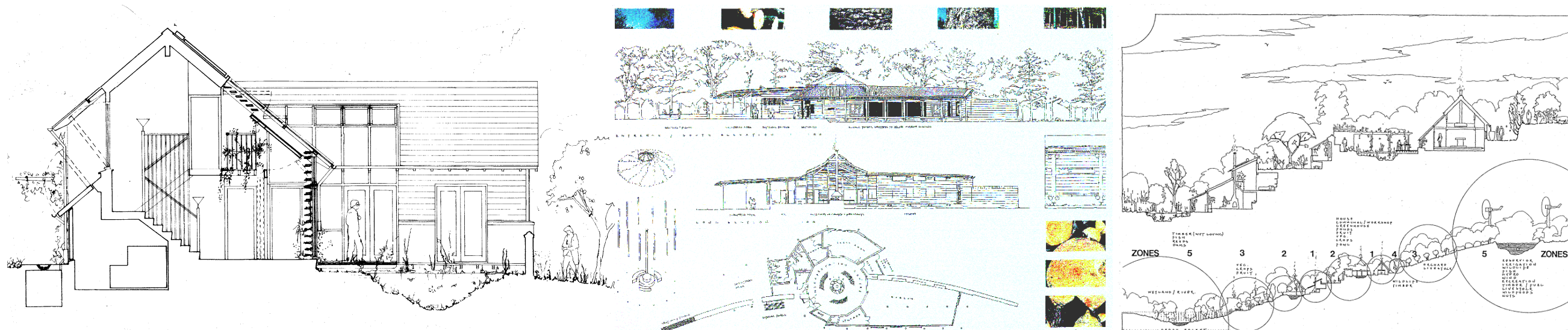
Low maintenance We specify natural, durable and low maintenance finishes. For example untreated green oak cladding which is used in some of our schemes, requires minimal aftercare.

Healthy buildings & environments Gale & Snowden Architects design buildings in accordance with good practice to achieve healthy environments through the careful selection of non-toxic materials and through healthy design principles such as:

- Specification of hard floor surfaces throughout (tiles, marmoleum, timber) to avoid dust mites
- Energy efficiency and adequate and natural ventilation to ensure thermal comfort.
- Adequate provision of daylight
- Organic paints, stains and waxes throughout.
- Minimum use of VOCs
- Avoid using PVC with careful product selection.
- A 'breathing' construction so that vapour migrates through the fabric in a controlled way, achieved by careful specification.
- Minimising the building's environmental impact by the adoption of sustainable materials featuring low-embodied energy, derived from the most locally available sustainable sources.
- Reduction in low level EMFs via radial wiring and other Good Practice design principles

External landscape Gale & Snowden design integrated ecological and highly productive landscapes based on Permaculture principles – see A3 sheet on Permaculture design. The Practice have landscape architects, species specialists, town planners and work closely with specialist consultants such as aquaculture consultants.

architects • engineers
 integrated sustainable design
 mechanical engineering
 renewable engineering
 energy modelling
 healthy building design
 permaculture design
 research & development



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