Bioclimatic or climate responsive design combines the study of climate, biology and ecology with urban scale masterplanning and building design in order to enhance the environment, improve living conditions and reduce energy consumption.

Climate responsive design can lead to significant reductions in heating and cooling loads to buildings and the creation of more comfortable outdoor spaces throughout the year.

Bioclimatic solutions are complex and every project and every site will generate its own set of design principles.

- In hot and humid environments we aim to reduce the urban heat island effect. In cold and dry climates we try and create it.
- In summer in Europe we want to draw wind in to help keep cool. In winter we want to keep it out and extend our warmer seasons.
- In equatorial areas the sun is directly overhead and we design to create shade. In polar areas the sun may not rise about the horizon in winter and the design driver is maximising the benefits of natural light.
- Today, in London we want to harness the sun’s heat in our homes. In the future we will want to use the sun’s energy to keep our homes cool.

This is a varied and changing context. Bioclimatic design provides the tools to develop specific, robust and future proofed low carbon design solutions for our neighbourhoods, towns and cities. In collaboration with Joachim Eble Architektur and other international and local experts, John Thompson & Partners is at the forefront of this design approach.
2006

SHAHAMA & BAHIA
ABU DHABI
HOT & DRY

Recent “Emirati” housing development has not learnt from the vernacular and does not respond well to the climate. The results can be seen to have led to a significant decline in health, life expectancy and community and a significant increase in carbon emissions. Our approach was to work with the local community to bring a fresh approach to the design of neighbourhoods.

Aims
- Set out wide vegetation-free wind corridors harnessing wind from the sea
- Create narrow covered streets to generate shade and promote walking
- Configure layouts to channel wind in and through individual blocks
- Design wind catchers into building sections
- Prioritise thermal mass for daytime cooling and nighttime warming

2008

GRAYLINGWELL PARK
UK
WARM & HUMID

Ground breaking projects start by re-thinking the fundamentals. At Graylingwell Park in Chichester this re-think resulted in the vision for an exemplary new neighbourhood focused around a former Victorian Hospital. When complete, this development will be the largest net zero carbon development in the UK, fuelled by a state of the art combined heat and power plant and integrated photovoltaic panels.

Aims
- Maximise southerly orientation by the creation of east-west streets
- Widen streets to allow for solar penetration
- Give every home 25m² of south facing roof area to generate all its electricity needs
- Maximise south facing glazing incorporating moveable solar shading

2011

SUZhou ECOTOWN
CHINA
HOT & HUMID

Situated in a low lying area close to a large lake, the project takes its inspiration from the local historic Water Towns. Combining a network of canals and lakes with a design that harnesses the cool summer winds and blocks the cold winter winds can make for a place that is more energy efficient, more thermally comfortable and more suited to its context.

Aims
- Wind corridors channel the cool summer breezes
- Buildings are orientated to minimise solar exposure
- Canals combined with wind corridors help to cool the air
- Tree lined boulevards shade buildings and streets and can help to channel breezes