

KEEPING THE HEAT IN

A challenge to architects and builders

by Alwyn Marriage

THE CONSTRUCTION INDUSTRY is a very major contributor to the UK's energy use, and therefore to the production of greenhouse gases. About half of all our energy is accounted for just by servicing buildings, and this is still rising. **The average UK home is responsible for more CO₂ emissions per year than an average car.** Taking a broader picture, buildings world-wide are probably responsible for around a third of total CO₂ emissions.

Over the last couple of decades many architects have risen to the challenge of designing more sustainable buildings, both in the form of homes and of commercial buildings. The advent of developments such as BedZed and the Hockerton Housing Project have already contributed significantly to our chances of lowering CO₂ emissions. It is now up to developers, planning departments, builders' merchants and the general public to start demanding these new, more stringent standards in all new buildings. With over a million new homes being built in the next few years, high standards of energy efficiency will make a significant impact.

We're falling behind

However, despite initial interest in sustainable housing, and a good deal of trumpeting about being world leaders on climate change, the UK is getting left behind in raising standards for new buildings. For example, while we are planning to bring in a rather weak and ill-defined 'Code of Sustainable Building', zero energy developments are being planned in Portugal, Shanghai, Canberra and Johannesburg.

Even if we were to bring in a far-reaching scheme for raising sustainable building standards, however, our propensity for damaging the environment would be far from over; for however many new low energy buildings are created in the next few

years, we have a persistent and serious problem in heating our existing housing stock. In view of the fact that space heating accounts for 58% of our domestic energy use and 50% of carbon dioxide emissions, how can we prevent heat from seeping out into the atmosphere? Double glazing can be added to windows, ever thicker insulation piled into the roof space, and houses with cavity walls can pump insulation between the walls. But cavity walls have been in existence only since the early twentieth century, and by far the greater proportion of our domestic housing was built before their use became standard. Obviously, it is not possible to put cavity wall insulation into non-cavity walls.

This is disappointing for two reasons. First and foremost because huge amounts of energy are seeping out through the walls of our houses; and secondly because if it were possible to



ALWYN MARRIAGE

use older buildings rather than creating new ones we would make significant carbon savings through avoiding the embodied energy of new houses. Research into the efficiency of various walls has produced the surprising result that it would, in fact, be better for the environment if we were to pull down

The BedZed development has set the standard for sustainable new-build housing.