the specification of a single large area of public open space' (Barton *et al.*, 1995). There is a fine model at Letchworth designed by Unwin for this method of siting small groups of housing. The homes arranged around the perimeter of the block have individual gardens and, in some cases, there is also a communal vegetable garden or allotments in the internal court (see Figures 9.25 to 9.27). The traditional morphology of the medieval European town on which Unwin based many of his own writings, is still a sound basis for developing a form of insulae suited to the needs of the sustainable city.

BUILDING FORM

There are two types of energy used in buildings (Vale and Vale, 1993). The first is the energy used to construct the building, which becomes the energy capital, analogous to the capital value of the completed property. The second is energy revenue or energy used to service, operate and maintain the building. In any decision to demolish, rebuild or refurbish a building, both types of energy-consumption in each option should be assessed and, in theory, the decision should favour the development that is most economic in the expenditure of energy, particularly from non-renewable energy sources. There are a number of design principles which help in this delicate balancing act and which assist in achieving energy conservation in buildings. The first principle of sustainable building is a preference for – and a presumption in favour of – the conservation of buildings and their adaptation to new uses. An extension of this principle is a strong preference for the re-use and recycling of building materials and components in the construction of new buildings and infrastructure, as opposed to the use of new materials and components straight from the factory or quarry. The second principle requires the use of local or regional materials where possible and particularly, where those materials require low energy inputs in fabrication, transportation to the site and in the construction process itself. The third principle is to avoid those materials that cause environmental damage such as the destruction of the tropical rain forest, or which leave behind scars on the landscape. The fourth principle is to relate buildings to the local environment and particularly to the local climate: for example, in a cold climate to insulate the building effectively; to reduce to a minimum the amount of external wall surface; to orientate the building towards the sun; to provide a buffer on the cold north face; and to build conservatories on the sunny façades. The fifth principle is to design flexible buildings that will stand up to the test of time. Buildings should be designed to accommodate many types of activities and uses beneath the same roof, so that floor plans can be adapted for different purposes during their lifetime. Finally, new buildings should be located on public transport routes and with close connections to other parts of the urban infrastructure. Wherever possible, buildings should be erected on urban infill sites, providing the site is not of ecological importance. Buildings should fit into the street block as perimeter development and complement the local street scene, with most development being two, three to four storeys high and therefore without the need for lifts.

CONCLUSION

The requirements of sustainable development can be accommodated within the current agenda in urban design. Some current preoccupations of the urban designer, such as the form of urban space, the vitality and identity of urban areas, qualities of urbanity, respect for tradition and the preferences for developments of human scale, can all be encompassed within the schema of sustainable development. Sustainable development and urban design are closely linked. However, good urban design is not sufficient, alone, for the delivery of sustainable development: whole sets of actions in other fields such as governance, bioregional planning, alternative technologies, rural and economic development may have greater significance for achieving sustainable development. The aim of sustainable development gives functional legitimacy to the process of urban design, but the delivery of sustainable development is dependent more upon the regional form of governance rather than upon a particular city form. Sustainable development is more likely to occur when local communities take responsibility for their own particular environment, though to take such responsibilities seriously effective power must return to local communities. It is effective public participation that is also the foundation of good urban design.