tion as a direct result of a radical environmental strategy.

At the Inland Revenue offices, Nottingham, 1995, Michael Hopkins demonstrated how considerations of heating, cooling and lighting were major factors in generating a plan form well-removed from a prevailing deep-plan orthodoxy. In the event, a medium-rise courtyard type prevailed as a direct consequence of this strategy, but also suggesting an appropriate model for extending an existing 'grain' of the city onto redundant inner-city sites. At the onset of the design process it was decided to avoid air conditioning, but to harness ambient energy and natural lighting as much as possible. The outcome is a narrow plan which gives views through (opening) windows to internal courtyards or to external public 'boulevards'. Moreover, masonry piers supporting exposed precast concrete floor slabs provide substantial thermal mass to maintain an equable internal environment (**Figure 4.55**). The expression of these massive piers and the barrel-vaulted floor slabs which they support help us to 'read' the building but also provide a repetitive rhythm and 'scale' to the elevations. Moreover, the light shelves which reflect daylight deep into the plan and the low-level louvres which prevent the penetration of winter sun are also used to impart an intensity to the scale of the building. Cylindrical thermal chimneys extract air from the offices, accommodate the stairs, and offer an external 'marker' to the points of entry (**Figure 4.56**). The result is a satisfying correspondence of plan type, structural and environmental types, formal outcome and detailed architectural expression.

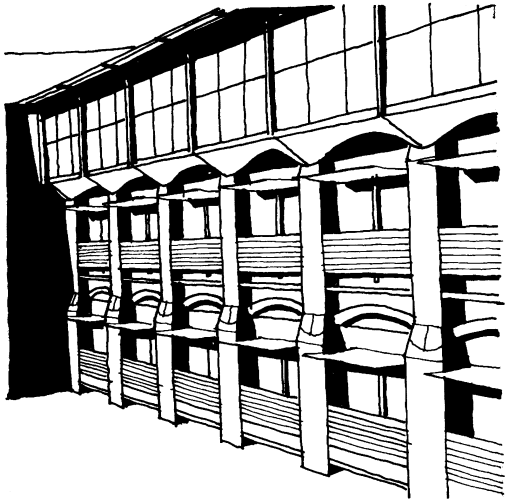

Figure 4.55 *Michael Hopkins and Partners, Inland Revenue Offices, Nottingham, 1995. From* Architectural Review *5/95, p. 37.*

WILL IT BE GREEN?

So far we have established how specific tectonic decisions regarding structure, construction, or environmental performance may affect the formal outcome of our building design, but what of the much broader issue of sustainabil-

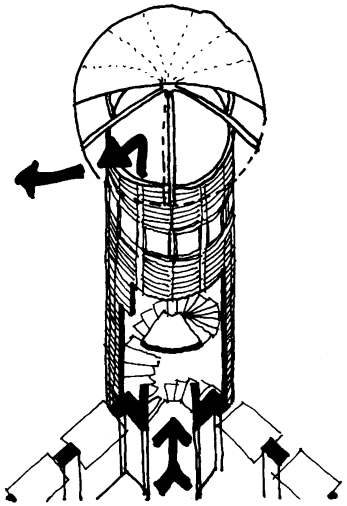

Figure 4.56 *Sir Michael Hopkins and Partners, Inland Revenue Offices, Nottingham, 1995. Thermal chimney. From* Architectural Review *5/95, p. 35.*

ity and its potential for influencing architectural form?

Attitudes towards achieving a sustainable environment gathered considerable momentum during the latter quarter of the twentieth century. Consequently, architects practising in this century now view sustainability as a central plank of their professional skills, and a necessary addition to those traditions already aggregated.

But what do we mean by sustainability? At its broadest, a sustainable environment will be healthy for its inhabitants, will be economic during its life span, and will be capable of adapting to society's changing needs. Many buildings throughout history have, indeed, satisfied these criteria and may be deemed sustainable, but conversely, many (particularly from the twentieth century) have not. Instead they have met with premature obsolescence and, in many cases, demolition.

But for the architect, much of sustainability surrounds the minimising of fossil fuel consumption with an attendant reduction of greenhouse gas emission (of which carbon dioxide represents the main component), which contributes to global warming. The orthodoxy of deep-plan, mechanically air-conditioned buildings which relied on high levels of permanent artificial lighting, and often used materials of high embodied energy (**Figure 4.57**), has been replaced by buildings designed for natural lighting and ventilation, which harness alternative forms of energy such as solar or wind power (**Figure 4.58**). This suggests a design regime where climate and site can fundamentally influence primary design decisions. Moreover, such buildings will conserve energy and will be constructed of re-usable materials with minimal environ-

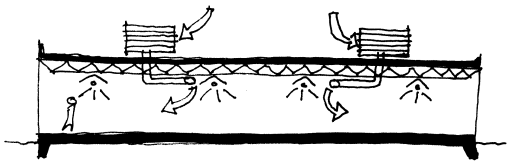

Figure 4.57 *Deep-plan orthodoxy.*