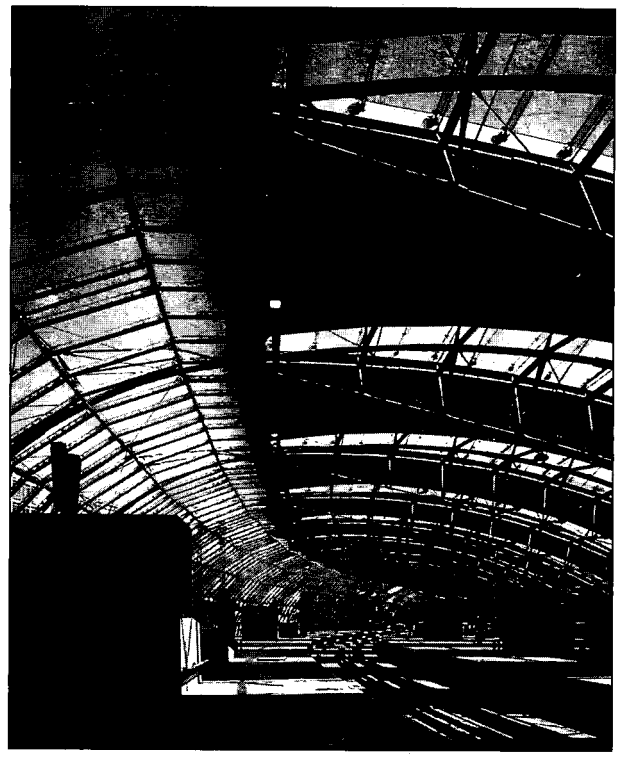

Figure 7.4 *Waterloo International Terminal, London*

Figure 7.5 *Chur Station, Switzerland*

ACTIONS - Glazing

The designer should detail the connections between the frame and glazing so that they are able to:

- accommodate allowed deviation of the steelwork whilst accommodating onerous tolerances for the glazing
- accommodate differential (thermal) movements in service.

7.6 Brickwork restraints

For general information concerning the design of brickwork, reference should be made to specialist literature. Only interface elements between the brickwork and steel members are considered in this Section.

Several examples of the wide range of proprietary frame ties are shown in Figure 7.6. These may be either zinc coated, or made from stainless steel, to prevent corrosion. The form of some ties encourages the collection of mortar droppings which can, if excessive, form a moisture 'bridge' across the cavity.

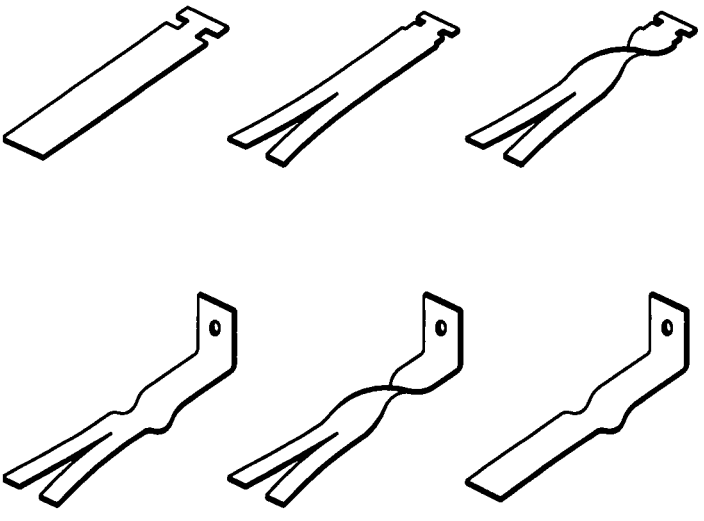

Figure 7.6 *Typical brickwork frame ties*

The designer should specify a method of fixing which allows vertical adjustment, to accommodate differences in level between the brickwork and steel. If bolts are used to fix the ties, vertical slotted holes should be drilled in the steel members during fabrication. Alternatively, self-drilling/tapping screws can be used for steel up to 20 mm thick, with ties up to 3 mm thick. Shot-fired connectors allow rapid fixing, but require skilled operatives and supervisors to ensure sufficient penetration of the nail to provide correct anchorage of the tie. A versatile method of attachment is to fix slotted tracks to the steelwork, either in the shop or on site, so that ties can be moved up and down the tracks as required. Care must be taken during transportation and on site, to ensure that the tracks are not damaged. When vertically flexible ties are used, they should not be bent excessively upwards. This