5 Maintenance and Repair

5.1 MAINTENANCE

ROUTINE MAINTENANCE

Flat roofs should be designed to avoid the need for maintenance as far as this is possible, but inevitably some items of maintenance will occur. As a matter of good housekeeping the building owner should arrange for an inspection of all roofs and details at least once a year. A simple inspection by maintenance personnel will suffice, but a number of manufacturers or specialist contractors will provide maintenance inspections on an annual contract. The inspection should follow a routine, to include the following:

GENERAL

Inspect for debris, leaves, nails, surplus building materials and stored goods. These should all be removed.

Note the general condition of the roof and incidence of ridges and blisters. It is not normally necessary to cut away or repair ridges or blisters unless they are in areas where regular traffic could cause damage, in which case repair should be carried out by a specialist contractor.

DRAINAGE

Inspect the gutters and outlets individually, clean gratings or wire cages and renew where necessary.

ROOF EDGE DETAILS

Inspect flashings, trims, cappings and arrange for repair if they are loose, or if they have slipped out of position. Inspect the pointing which holds flashings and arrange for loose pointing to be repaired.

CHIPPING SURFACE

If there are bare patches arising from displacement of loose chippings it will normally be sufficient to sweep them back into position. When the chippings have been displaced by wind scour, or traffic which is likely to be repeated, the chippings should be rebonded with a suitable bituminous mastic.

REFLECTIVE PAINT SURFACES

If a paint coating has been included in the original specification, this should be renewed as necessary to restore the protective or reflective qualities. Regular and comprehensive re-coating programmes will be required and this should have been agreed between the designer and the building owner during the design stages of the roof.

In the case of mastic asphalt, a reflective paint coating may have been applied to reduce the surface temperatures and improve the weathering characteristics of the asphalt during the settling down period in the first few years. In this case, re-coating may not be necessary.

REPORTING PROCEDURES

In the case of leakage, an established reporting procedure is essential and the staff responsible should be clearly identified. This may seem obvious, but great frustration builds up when leakage is not dealt with and nobody seems responsible for doing anything about the problem. It is surprising how often a roof will be allowed to leak for years with no action taken. This early tolerance of small problems can culminate in the sudden demand for complete re-roofing.

A roofing contractor is placed in a very difficult situation if he is called in to look at a building which is reported to have been leaking for a long time. He should be called in as soon as the leakage has occurred, and be told exactly where the leak is entering the building, and if possible how long it takes from the onset of rain to the observation of leakage.

The building owner may prefer to call in a local roofing service known to be reliable, but in the first few years of the life of the roof it will be best to call in the original builder or roofer who will have records of the work done and experience of the original contract. It may also prove from inspection that failure is the result of a defect which should be repaired free of charge.

FAULT TRACING

The roofing contractor should first make an internal inspection and take measurements to enable the position of direct leaks to be pinpointed at roof level. If the reason for leakage is not immediately obvious at roof level, it will be necessary to observe the possible runs of water to the entry point. For example, if water is entering at a gutter run, the whole area of roof between the gutter and the ridge may need to be searched for the fault.

A systematic approach is essential, not only to find the fault, but also the cause of the problem.

The search for a fault will include consideration of possible condensation or defects in walls,damp proof courses, windows, openings and flashings. If the fault is in the waterproofing, the search will be for a split or rupture. The most likely places to search are the bottom of skirtings, the waterproofing above panel joints and purlins, alongside gutters or at outlets and trims.

A record of the original roofing specification including the method of bonding, type of insulation and type of deck will provide valuable clues in the search for the fault, particularly if it seems that the design of the specification has not followed good practice. For example, large numbers of roofs have failed because the waterproofing was poor quality felt fully bonded to chipboard. Here it is almost certain that the split will be above a panel joint, and it will be necessary to trace and inspect the lines of the joints.

A split in the roofing is sometimes easy to spot, but in cases of difficulty treading over the suspect area systematically may pump water or air bubbles back up through the split to give a visible indication of the position. If this fails, test cuts should be made at intervals up the slope of the roof from the leakage point

to trace the flow of water under the membrane or under the insulation back to the source.

The surfacing can make investigation more difficult and surfacings which are easily removable are an advantage when inspection and repair are necessary. Loose laid paving slabs on proprietary corner supports are easily set aside, but concrete tiles which are fully bonded in bitumen makes a major task of the inspection and repair. Similarly where hot applied gritting solutions have been used the stone chippings can be almost impossible to remove, and inspection and repair becomes more difficult.

BUILT-UP ROOFING

High performance polyester base roofing is extremely resistant to splitting and very few cases are known to occur. If it is known that a polyester roofing specification has been used on a roof, it is very unlikely that any splits will be found in the membrane, and it is most likely that any leakage would be due to faults at details, particularly details which would allow rainwater to by-pass the membrane altogether, such as a faulty damp course or faulty flashings.

It is therefore important to check from records, or by inspection, whether polyester base materials have been used. As a guide, roof waterproofing installed prior to 1975 is not likely to incorporate polyester base materials, and may well prove to be at or near the end of its useful life. Roofs installed since 1985 are very likely to contain polyester felts, or similar high performance materials, and the waterproofing qualities of the membrane itself should be extremely good. Fault tracing on these roofs should seldom be required, and should concentrate on flashings, cappings, damp courses, ventilation, pipes and outlets. All of these are easy to repair.

ASPHALT

Asphalt has not changed greatly over the years other than the relatively recent introduction of modified asphalt. All types have an excellent performance.

Fault tracing should include an inspection of all corners or junctions in the vicinity of any reported leakage. Small cracks at the base of skirtings or other joints and bay joints are often to be seen and are not generally a cause for concern, but should be treated as suspect if in the vicinity of reported leakage. The asphalt will not be deteriorated, and repair is simple.

Impact damage on asphalt normally shows as a curve or half moon shape, and again repair is simple and no harm will have been done to the general integrity of the roof.

Cold shock cracking is extremely rare and would be due to a freak sudden drop of temperature to a clear night sky in a region known for particularly cold nights and on asphalt which is not protected. A single crack would occur, probably right across the roof. It is very obvious, easy to repair, and very unlikely to happen again. It is not a sign of faulty materials or workmanship.