

FLAT ROOFS EXPLAINED

A complete guide to domestic flat-roof design, construction and care



Figure 1 — Warm flat roof with its weatherproofing, insulation, outlet and supporting structure exposed.

NINE-PART PUBLICATION EDITION

Principles · Systems · Membranes · Drainage · Structure · Installation · Regulations · Defects

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About this guide

This guide explains conventional flat roofs for low-rise housing in England. It is intended for clients, designers and site teams who need to understand roof type, waterproofing selection, falls and outlets, structure, vapour and air control, insulation, fire performance, detailing, safe access and maintenance. Approved structural calculations, condensation analysis, drainage design, system certification, manufacturer details, planning conditions and Building Control requirements always take precedence.

SCOPE A flat roof is a coordinated assembly, not just a waterproof covering. The deck, falls, vapour control, insulation, waterproofing, outlets, upstands, penetrations, edge details, fire performance and maintenance access must be designed as one system. Figures are explanatory and must not be scaled.

Part 1 – Introduction: What Is a Flat Roof?

A low-pitched weatherproof roof designed to drain

A flat roof is a roof with a shallow fall rather than a truly level surface. It relies on a continuous waterproofing system laid over a stable substrate and detailed to discharge water safely at outlets, gutters or edges. Its performance depends on the complete build-up: structure, deck, air and vapour control, insulation, waterproofing, drainage and junctions.



Figure 1 — Principal layers and outlet of a modern domestic warm flat roof.

1.1 Principal components

Component	Primary role
Waterproofing	Forms the primary barrier against rainwater and standing water.
Insulation	Limits heat loss and helps control internal surface temperature.
Vapour control / air barrier	Restricts moisture diffusion and air leakage from the building.
Deck and structure	Provide a stable substrate and carry permanent, imposed and wind actions.
Falls and drainage	Route water to maintainable primary outlets and emergency overflows.