Unit 209: Drainage systems

Outcome 4 (part 2)

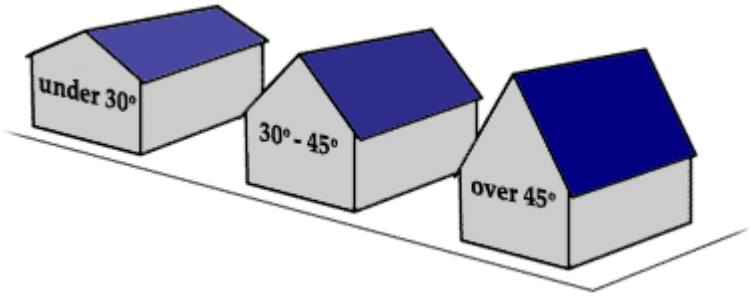
Install and test above ground systems

Rainwater systems

Roof area

There are two important factors to consider with the roof area.

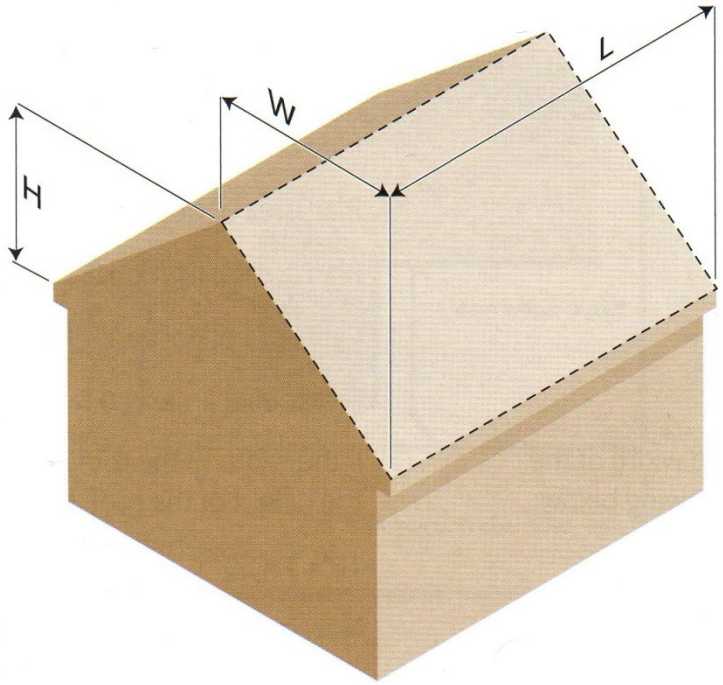
1. The actual size of the roof area.
2. The angle of the roof area.



Rainwater systems

Roof area

These two factors will affect the amount of rainwater collected and the velocity at which the water enters the guttering.



Rainwater systems

Outlet position

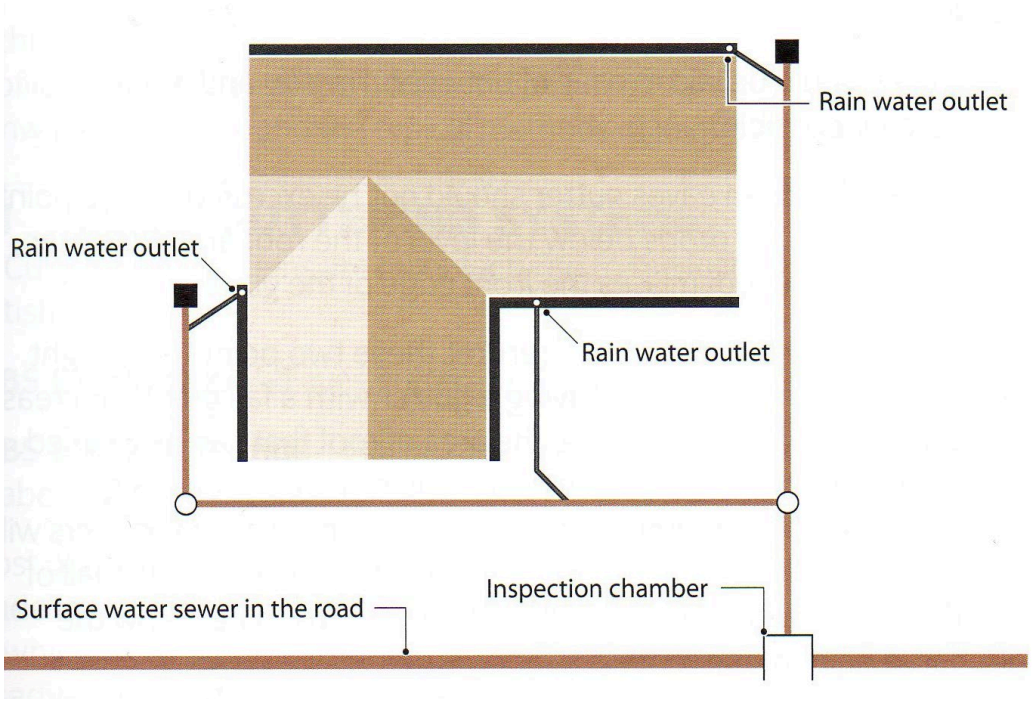
This is a running outlet and is the connection between the gutter and the downpipe. It is designed to cope With water flowing from two directions.

The position of the running outlet is usually based on the location of the drains of the property.

The more outlets on the system, the less distance the rainwater has to travel in the gutter and the greater discharge efficiency the system has.

Rainwater systems

Outlet position



Rainwater systems

Manufacturers vary in the running outlet design and its flow rate. Always check the manufacturer's data sheet to find out the flow capacity.

To find out how many outlets a roof line may require, simply divide the expected flow rate of the roof area by the flow rate for the outlet. This is given in the manufacturer's technical literature.

Rainwater systems

The fall of the gutter

BS EN 12056 states that:

1. Gutters should be laid to a fall of between 1-3mm per metre length.
2. The gradient of the eaves gutter should not allow the rainwater to run off the roof and miss the gutter.

Rainwater systems

The fall of the gutter

Most manufacturers interpret this standard as a fall of:

1:600

(1mm drop every 600mm length)

25mm in 15m

This is now an accepted ratio in the trade, and allows the flow of rainwater to the running outlet in an efficient manner. It will also keep the gutter relatively silt free.

Modern systems will work even if there is little or no fall. This is used more often on large, commercial roof lines.

Rainwater systems

Changes in direction

Changes in direction in a gutter system cannot be avoided but will affect the efficiency of the flow of water. Too many changes in direction without an outlet should be avoided.

- Straight runs give maximum flow rate
- Do not install an outlet too close to a change in direction
- If a lot of changes in direction are unavoidable, reduce the fall ratio