



EAVES GUTTER INSTALLATION RECOMMENDATIONS

INTRODUCTION

When it comes to the correct height to install an eaves gutter, there is varying advice on the most appropriate options. In this document the MGMA examines the factors that need to be taken into account when installing eaves gutters and outlines the pros and cons of each option to help specifiers make an informed decision on the best choice for their application/project.

BACKGROUND AND STANDARDS

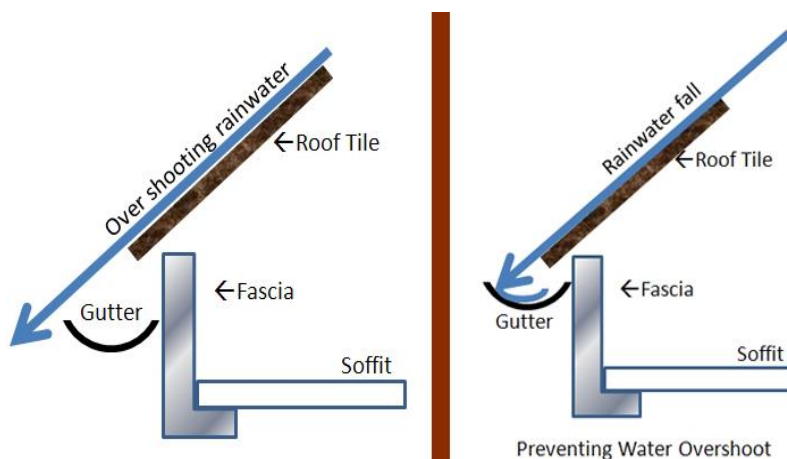
The spread of water as it leaves the roof edge can vary considerably depending on the rainfall intensity, type of roof surface and the pitch of the roof. BS EN 12056:3-2000 (*Gravity Drainage System Inside Buildings (roof drainage, layout and calculation)*) recommends that eaves gutters should be fitted in such a position that they intercept the flow at the roof edge and that gutters are fitted centrally under the roof edge and close beneath it. Gutters can be installed level or with a nominated gradient of 1:600.

The standard also states that 'gutters are to be securely fixed to prevent them being dislodged by ladders or strong winds' however, there is no mention of protecting the gutters from the velocity impact of sliding snow. BS EN 12056:3-2000 suggests that snow guards should be fitted where sliding snow may cause injury to people or damage structures below.

The gutter should not be positioned at a level which causes rainfall to overshoot the gutter that is, too low, or where it could be damaged by the high velocity impact of sliding snow.

RAINWATER OVERSHOOT

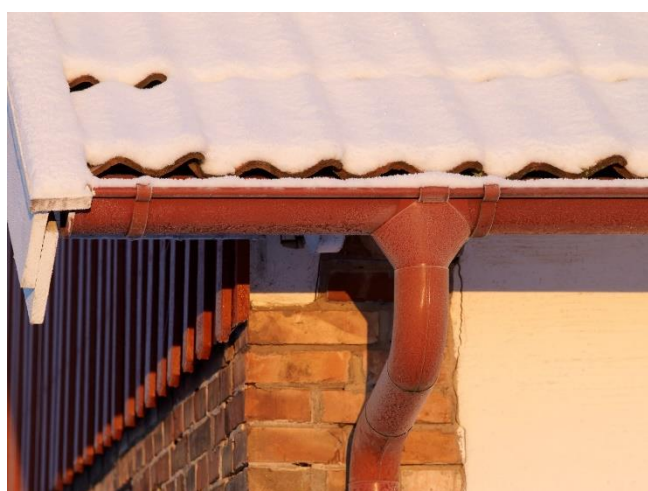
Different types of roof surfaces will create either more or less projection of discharge at the roof edge; for example, water will flow faster down a standing seam metal roof than a stone tiled roof. Currently there is no formula available that can establish the projection of water flow from the edge of different roof pitches, heights and roofing materials to enable the installation of the correct width of gutter.



BS 5534:2014 (*Slating and tiling for pitched roofs*) states that roof tiling should project a minimum of 50mm from the vertical face of the fascia board. The projection should align with the centre line of the gutter and therefore this will establish the minimum width of gutter. However, there is no guidance as to the height of the gutter relative to the roof edge.

SLIDING SNOW

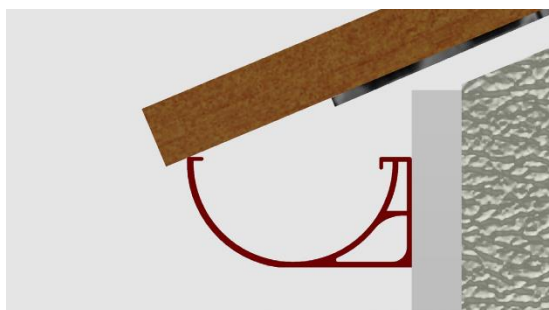
Changes to Part L of the Building Regulations have resulted in more highly insulated roofs and this has the potential to cause problems in heavy snowfall, particularly where the gutters are installed at a high level. When the thaw sets in, the snow will slide down the roof taking with it anything in its path, namely gutters fitted too high under the roof edge. Prior to the installation of a highly insulated roof, the snow would merely melt as it fell onto the roof surface.



The correct position and height of the gutter needs to be carefully determined, for example, whilst a lower level fitted gutter is less susceptible to sliding snow, it could result in wind driven rainwater going between the back of the gutter/roofline which can lead to water damage to the building fabric. A gutter fitted at a higher level will alleviate this problem.

Each option has its benefits and drawbacks and more often than not the building design, gutter type and fixing will dictate how the gutter should be installed (see below). Architects, installers and building owners should discuss the options available and to ensure that all parties agree on the best possible solution.

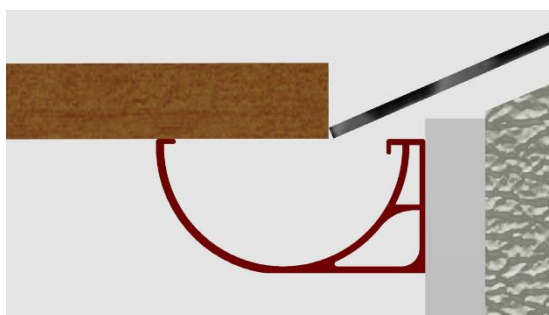
Low level gutter



A straight edge can be placed along the pitch of the roof to determine the position of the fascia bracket

Advantage: Less risk of damage by sliding snow
Disadvantage: The lower the gutter is installed in relation to the roof edge; the higher the risk is of wind driven rain and overshooting rainwater

High level gutter



Use a spirit level against the lowest point of the roof tile to determine the position of the fascia bracket

Advantage: Protection against wind driven rain
Disadvantage: High risk of damage by sliding snow

Design factors

There are several factors which will determine the final position of the gutter for example, fascia board depth, bracketry and the overall aesthetics.

TESTING

As general guidance, on completion of an installation it is recommended that all gutter outlets should be blanked off and the gutter filled to the overflow level. After a period of five minutes, the installation should be checked for leakage. Discharging the flood test water into rainwater pipes will identify any leaks in rainwater pipe joints. Any joints that fail should be taken apart, all sealant cleaned off, then re-sealed and re-tested.

Further advice and guidance is available from any MGMA member company whose details can be found on the MGMA website at www.mgma.co.uk.

REFERENCES

BS EN 12056-3:2000 *Gravity drainage systems inside buildings. Roof drainage, layout and calculation*

BS 5534:2014 *Slating and tiling for pitched roofs*

MGMA Guidance Document GD 03 *Rainwater drainage design BS EN 12056:3-2000*

MGMA Guidance Document GD 18 *Eaves gutter design flow chart*

Note:

The content of this document supersedes the information given in MGMA Guidance Document, *Lower level gutter installation recommendations, July 2014*

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