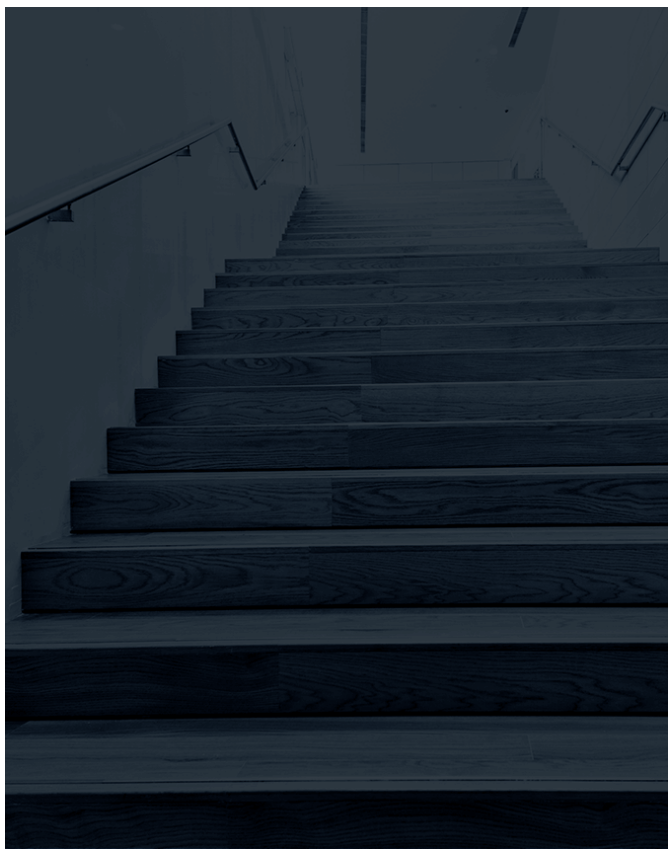
STAIR WIDTH REQUIREMENTS FOR COMMUNAL AREAS IN FLATS

For the purposes on this article, consideration has been given to the following guidance:



Approved Documents:

B Vol 2 Fire Safety in buildings other than dwelling houses (English and Welsh versions) K Protection from falling collision and impact (English and Welsh versions)
M Access to and the use of buildings Vol 1 Dwellings (England)
M Access to and the use of buildings Vol 2 Buildings other than dwellings (England) M Access to and the use of buildings (Wales)

British Standards:

BS 9991 Fire safety in the design, management and use of residential buildings BS 8300 Design of buildings and their approaches to meet the needs of disabled people. BS5395-1 Stairs ladders and walkways. Code of practice for the design, construction and maintenance of straight stairs and winders.

Background

As land and construction costs increase, developers are under increasing pressure to maximise usable space and minimise redundant space in buildings. This inevitably puts more pressure on the availability of communal circulation space within apartment blocks.

The design and approval process for stairs should ensure that people’s movement in and around buildings is safe and accessible. In order to address the questions, what is safe and what is accessible, it is important to look at all related guidance and not just one area in isolation.

Often one set of guidance then refers to another. In some circumstances, different sources of guidance can appear to conflict with one another. All of which can complicate our interpretation, possibly leading to safety issues, uncertainty and inconsistency.

This can detrimentally affect the building user and puts our organisation at risk of claims. The inconsistency increases risks to our clients in design, construction, completion and could ultimately affect our clients’ willingness to use us.

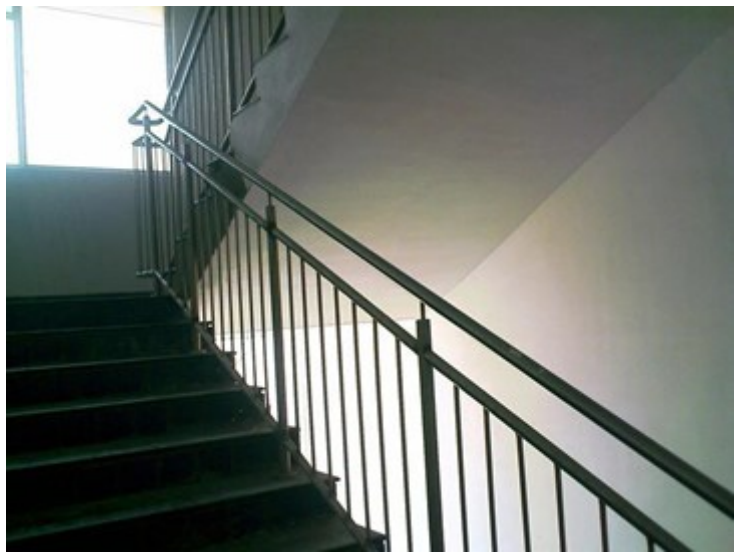
> "*in a few cases, the guidance in AD M differs from the recommendation in BS8300. Compliance with the recommendations in the BS, therefore, while ensuring good practice, is not necessarily equivalent to compliance with the guidance in AD M.*"
>
> (ADM Vol 1 2015)

Staircases should allow safe access, escape and fire rescue access where needed and the minimum requirements for these elements are covered by the Building Regulations.

So what is the required minimum stair width required in an apartment block?

In design compliance for buildings the minimum stair width will be the minimum to satisfy Building Regulations B (or BS9991), M and K, all at the same time.

For fire escape purposes from small blocks of flats BS9991 requires a 750mm wide stair.



Approved Document M Vol1 (England) refers to a 'general access' stair for common areas in flats, where a lift is not provided and a 'utility stair' if a lift is provided. AD M points to AD K for further guidance.

Table 1.1 Rise and going

	Rise*		Going*	
	Minimum (mm)	Maximum (mm)	Minimum (mm)	Maximum (mm)
Private stair[1,2]	150	220	220	300
Utility stair	150	190	250	400
General access stair[3]	150	170	250	400

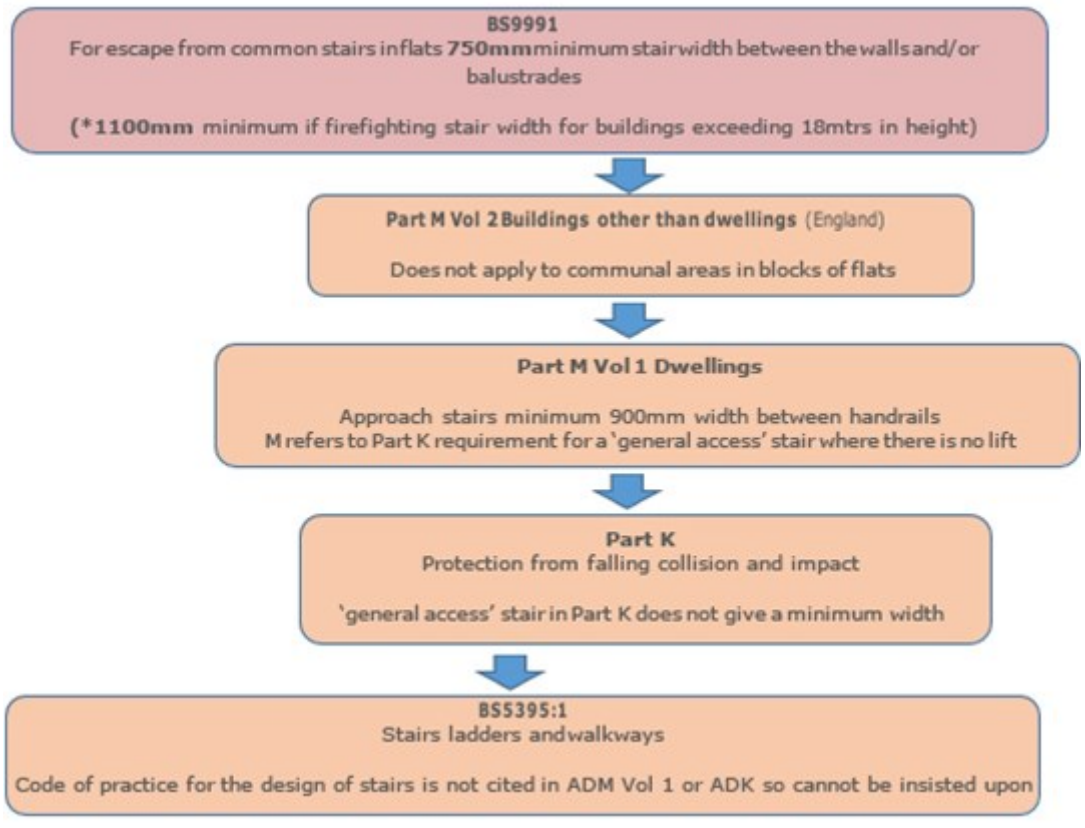
Notes:
[1] The maximum pitch for a private stair is 42°.
[2] For dwellings, for external tapered steps and stairs that are part of the building the going of each step should be a minimum of 280mm.
[3] For school buildings, the preferred going is 280mm and rise is 150mm.

* The normal relationship between the dimensions of the rise and going is: twice the rise plus the going (2R + G) equals between 550mm and 700mm.

For existing buildings the dimensional requirements in Table 1.1 should be followed, unless due to dimensional constraints it is not possible. Any alternative proposal should be agreed with the relevant building control body and included in an access strategy (refer to Approved Document M).

Approved Document K does not give guidance on the width of a 'general access stair', only for rise and going as above.

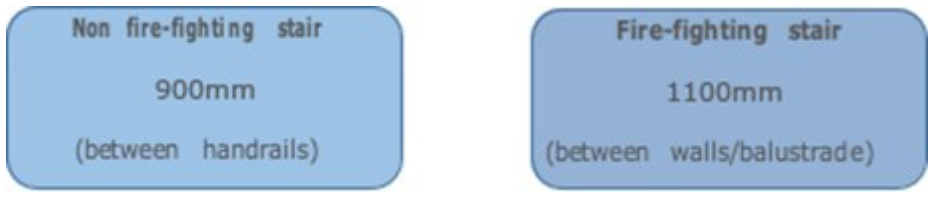
Interpretation



Conclusion

If the stair design complies with the Approved Documents, then it is deemed to satisfy the Building Regulations. Any higher standard than this adopted for Building Regulation compliance, such as BS5395, could be challenged by a developer. Accordingly, in normal circumstances, the acceptable stair width for apartment blocks would be as follows:

Minimum Stair Width for Communal Stairs in Flats



PREFORMED LINTEL CAVITY TRAYS

The correct construction of cavity trays is crucial to preventing water ingress. Cavity trays, including weep holes and stop ends, prevent the build-up of water within a cavity wall and allow the water to escape through the outer leaf.

This guidance is applicable to masonry cavity walls in buildings less than 18m in height.

In critical locations within low rise cavity masonry walls where the risk of water ingress is particularly high, the cavity tray detailing is complex and relies on a high level of workmanship, it is recommended that in a proprietary cavity tray system is installed.

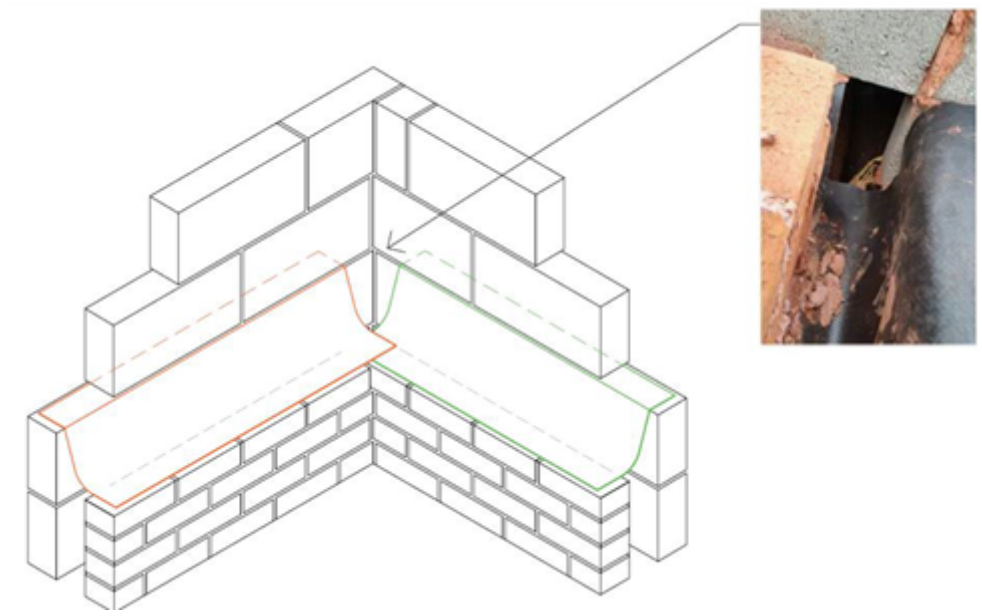


Figure 1: Incorrect installation at a corner junction

Figure 1 has been produced to give the photograph taken by one of our site surveyors some further context. In the photograph, you can see an attempt to form a cavity tray using a flexible type DPC around a corner. However, the end of each sheet could not be turned up at the corner intersection, resulting in a clear passage for moisture ingress to the cavity below. This is a common corner detail that many developers get wrong.

The construction of stepped cavity trays and cavity trays around corners relies on a high level of workmanship to install and work correctly.

As such, it is recommended that in low rise cavity masonry walls a proprietary cavity tray system should be used for all stepped abutments or lower storey abutments and where cavity trays continue around corners.

By using a propriety cavity tray system, the risk associated with forming cavity trays in these areas is reduced.

This also meets the recommendations of BS8215 Design and installation of damp proof course in masonry construction section 6.7 which states:

‘because changes of direction of a cavity tray are more complicated than joints and would involve complex bending and folding if fabricated on site, it is recommended that prefabricated corner units are used’.

The BS also reiterates the importance of ensuring the preformed trays are correctly sealed to the continuing trays.

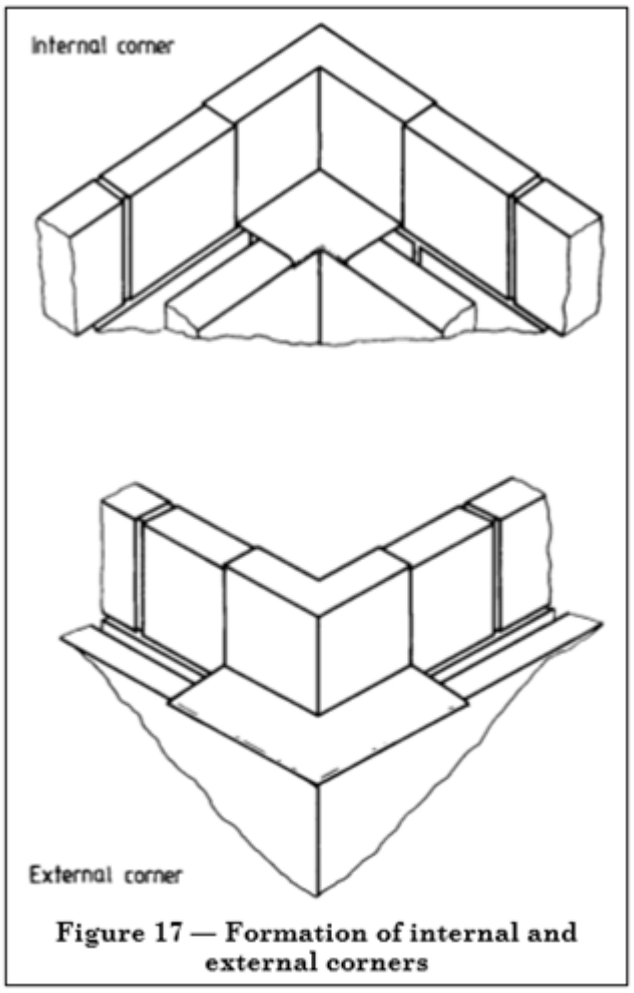
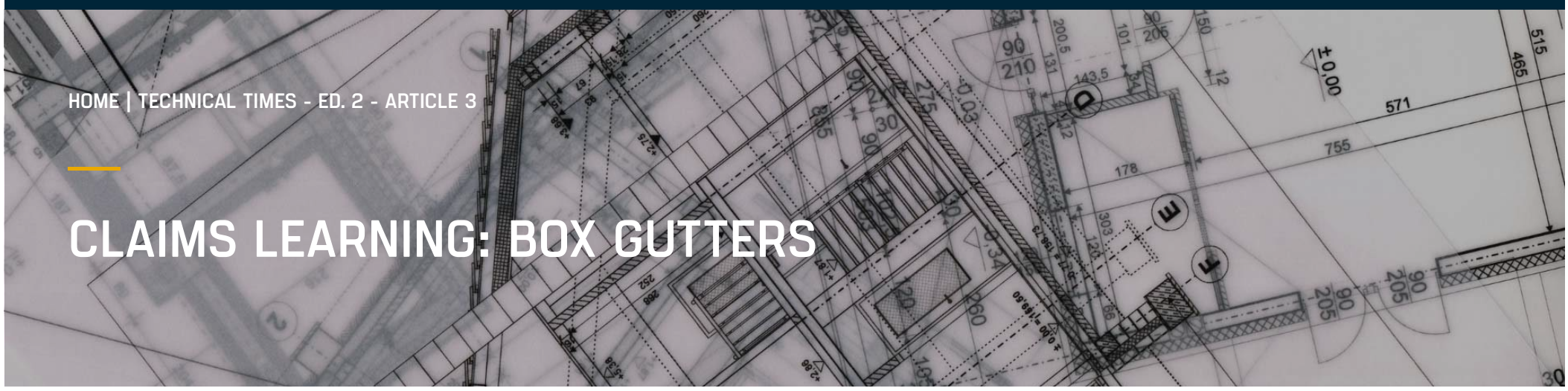


Figure 2: Figure 17 taken from BS8215 demonstrating prefabricated trays used at corners

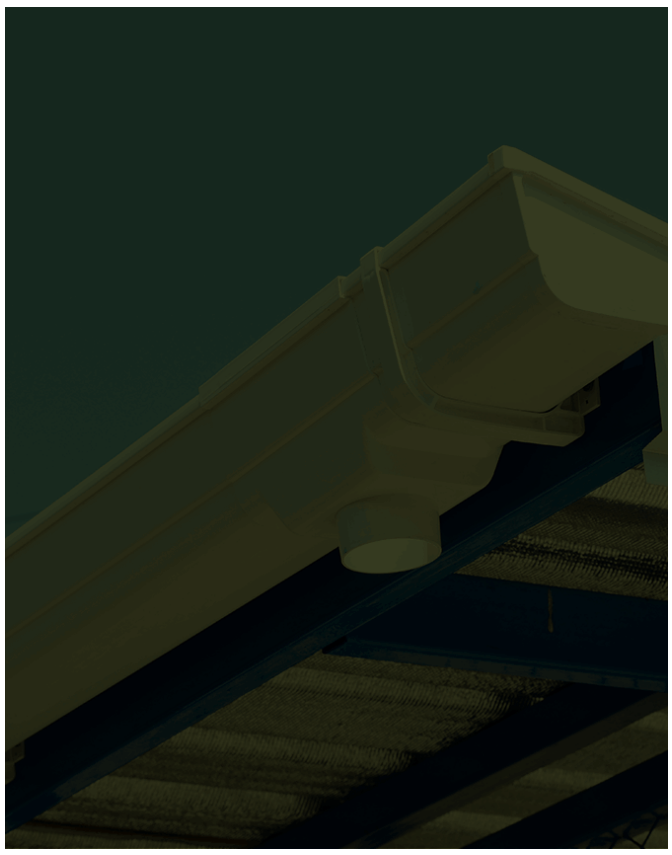
The use of preformed cavity trays reduces the risk in these areas, however it is still important that the cavity trays are the correct trays for the position and that the trays are positioned correctly in the wall with the bed joint raked out to allow installation of the flashing (see Technical Times article
HORIZONTAL CAVITY TRAYS OVER HORIZONTAL ROOF ABUTMENTS

for further information).



CLAIMS LEARNING: BOX GUTTERS

In this article we are looking into a claim relating to ingress of water due to inadequately designed box gutters and substandard workmanship, on a project for which the roof and gutters were replaced during the conversion of a former coach house into a new dwelling.



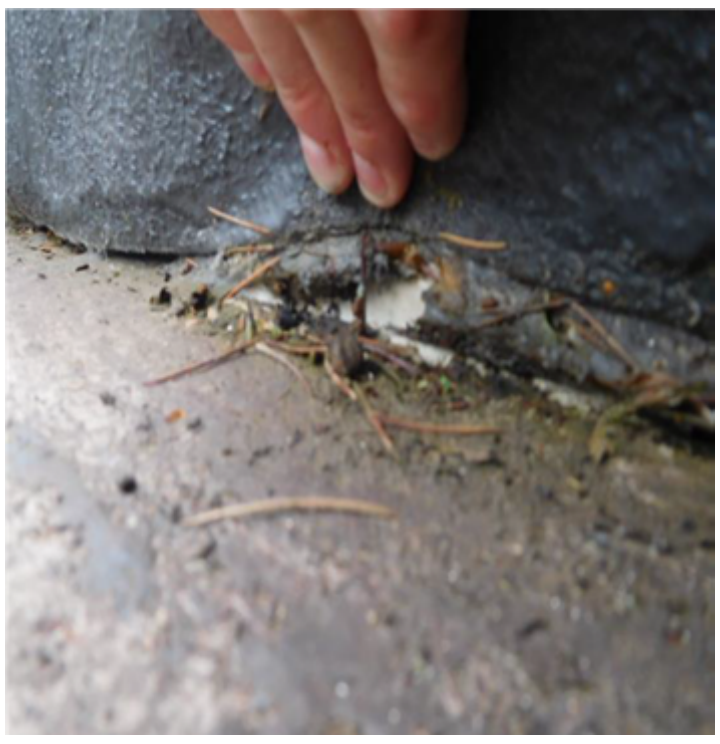
The property discussed in this article is a period coach house which is believed to be some 100 years old, with conversion works carried out in about 2007. The property is a two storey detached house with slate tiled roof sections and a glazed atrium roof which runs through the centre of the property. In addition to this, the tiled roofs and atrium are separated by two runs of flat/stepped valley gutter, which drain from back to front and down into lower secret box gutters at each side of the glazed front entrance.

The secret box gutters to each side of the atrium have been constructed with inadequate falls, with virtually no upstand to either side of the gutter. The outlets are inadequate to cope with the volume of water discharging from the adjacent roofs into the secret box gutters and therefore, under periods of heavy rainfall, the gutters flood up over the inadequate upstands and the water tracks into the property. The image to the left shows the lack of fall and ponding of the gutters.

During the investigation into the leaking roof, inspections showed very poor workmanship generally when the roof was recovered. In particular, the standard of workmanship in the vicinity of the secret gutter was extremely poor.

There have been a number of attempts to repair the secret box gutters as can be seen by this image, but fundamentally the roof needs to be stripped in the vicinity of the secret box gutters and new box gutters constructed with adequate upstands, falls and drainage outlets.

When the original secret box gutter was designed, it should have been regarded as a flat roof interface to pitched roof. The **Premier Guarantee Technical Manual** 7.10.9.1: Figure 7 shows a typical detail. This would have given a minimum 150mm upstand to the box gutter.



Of drainage of flat roofs, section 7.10.5 of the Premier Guarantee Technical Manual states:

“Drainage design should be based upon calculations in accordance with BS EN 12056 Part 3 given a design head of water (typically 30mm). Rain water outlet capacity should be taken from properly certificated information provided by manufacturers, and the resulting number and layout of outlets should allow for obstruction and drag due to any additional surface finishes, such as walkways.

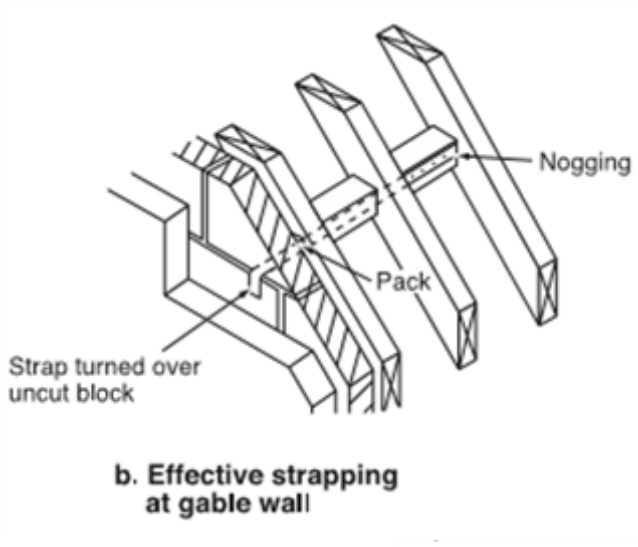
It is not generally necessary to provide separate box gutters where two planes of roofing intersect, or where a single plane falls to an abutment. In the latter case, there will be no fall between outlets, so consideration should be given to creating these in the structure or insulation. Box gutters are slow, difficult to construct and introduce unnecessary complexity. The need to maintain a fall in gutters and comply with the energy requirements of the Building Regulations may be difficult to achieve.”

KNOWLEDGE REFRESH: LATERAL RESTRAINT OF GABLES

In this article, we'll take a look at the common issue of gable end lateral restraint straps being installed incorrectly. A couple of things to remember when it comes to installation are:

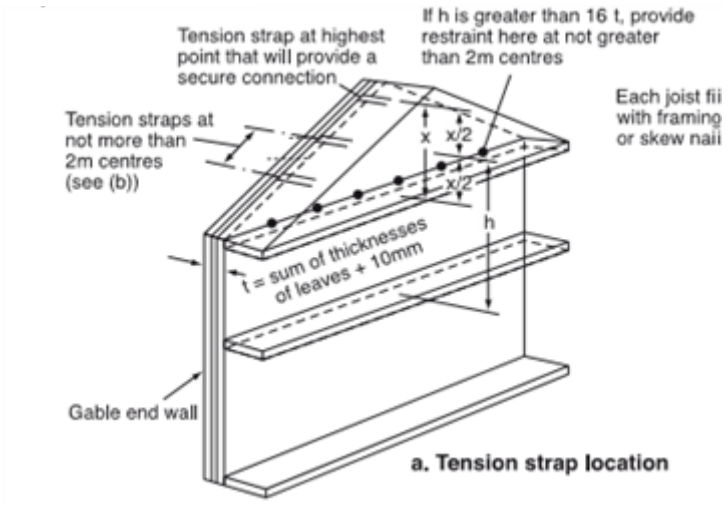
- Check that lateral restraint straps are provided at maximum 2m centres.
- Check that the lateral restraint strap is turned over an uncut block.

Part A of the Building Regulations and BS8103 are that lateral restraint straps are provided at a maximum spacing of 2m, to the head of the gable wall, as shown below:



b. Effective strapping at gable wall

However, it's been noted recently that these regulations are not always followed, particularly when pre-fab roof trusses are being installed.



a. Tension strap location

Lateral restraint straps are being placed at the node points of trusses, regardless of the spacing between the node points. If the spacing between node points is less than 2m then there is no issue, however often the spacing between node points is greater than 2m centres, particularly on larger properties. Where this is the case, additional strapping would be needed for Part A and BS8103 to be met.

The images below show a row of new properties being built with the roof framing in place, where the distance between the lateral restraint straps could be measured at greater than the maximum 2m centres.

Something to consider is that the Building Regulations and BS 8103 do not stipulate that lateral restraint straps should be provided on the node points/longitudinal bracings only, but that they can be provided anywhere along the rafter line, at maximum 2m centres. It should also be noted that the strap hook should be turned over a full block and not partial or cut blocks.

The practice of only installing lateral restraint straps at node points, regardless of their centres, is something we are seeing more and more of, despite it not meeting the Building Regulations and BS 8103, so it is certainly something to keep an eye on.