6.6.1 Compliance

The design, specification and construction of parapet walls shall meet the performance requirements of this section.

6.6.2 Information to be provided

The Designer shall provide sufficient design details to demonstrate it meets the requirements of this section.

A full set of design drawings and specifications should be made available to the Warranty provider and all other interested parties prior to the associated works starting on site. This may include:

1. Details of all proposed materials to be used in the construction of the parapet wall, including but not limited to:
   a. Details of proposed coping or capping.
   b. Details of DPC material to be used under coping or capping.
   c. Details of material to be used for supporting the DPC under the coping or capping.
   d. Details of cavity tray to be used.
2. A full set of detailed drawings including section details and the dimensions of the parapet wall.
3. Manufacturer or Engineer should provide a site specific fixing specification for the coping or capping. This should detail type, size, spacing and method of fixing to the substrate. Details of corrosion protection should also be provided where applicable.
4. Details of any technical assessment (third party product conformity certificates) for any components used for the construction of the parapet wall.

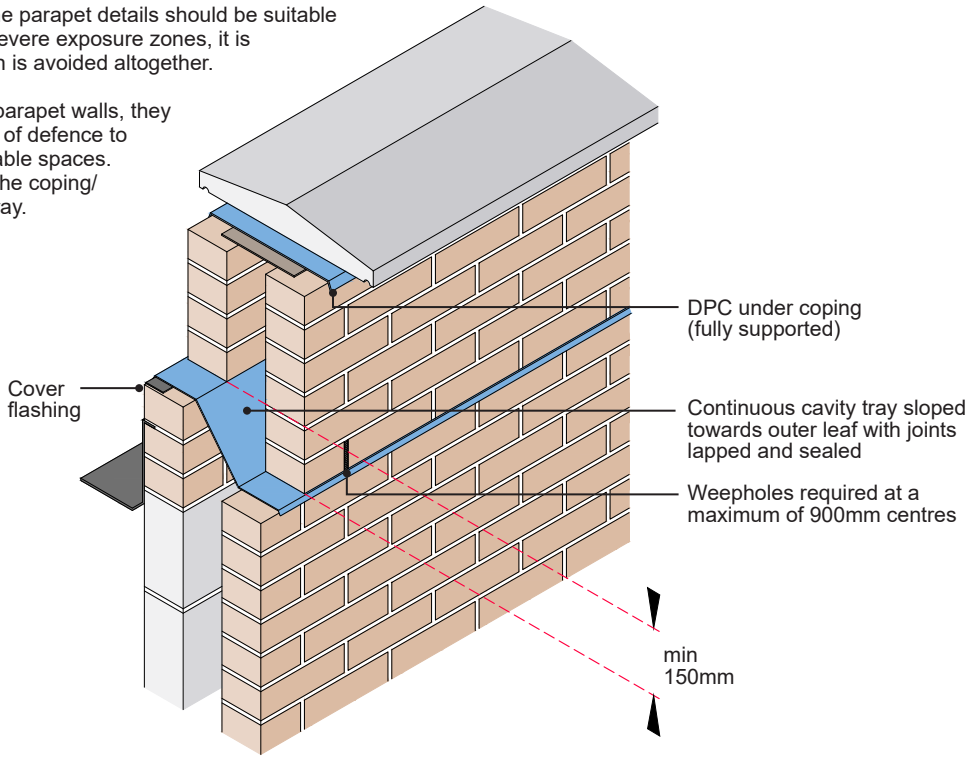
The Warranty surveyor, at their discretion, may also request supporting information that demonstrates suitability for use of any materials or systems contained within the above.

6.6.3 Material suitability and protection against water ingress

The materials used in the construction of the parapets walls shall be suitable for the location and exposure. Parapet walls should be detailed to prevent moisture ingress to the inside of the home.

The materials used in construction of the parapet details should be suitable for the location and exposure. In very severe exposure zones, it is recommended that parapet construction is avoided altogether.

Due to the inherent exposed nature of parapet walls, they should be specified with at least 3 lines of defence to protect against moisture entering habitable spaces. The 3 lines of defence should include, the coping/ capping, supported DPC and a cavity tray.



6.6.4 Structural stability

Parapet walls shall be designed (by an Engineer) and constructed to be structurally stable and resist all associated loads. Parapet walls shall also satisfy the relevant requirements of the Building Regulations.

6.6.5 Copings and cappings

Copings and cappings shall be specified to:

- Prevent rainwater entering the cavity or the inside of the home.
- Protect the top of the parapet.
- Shed rainwater clear of the surfaces beneath.

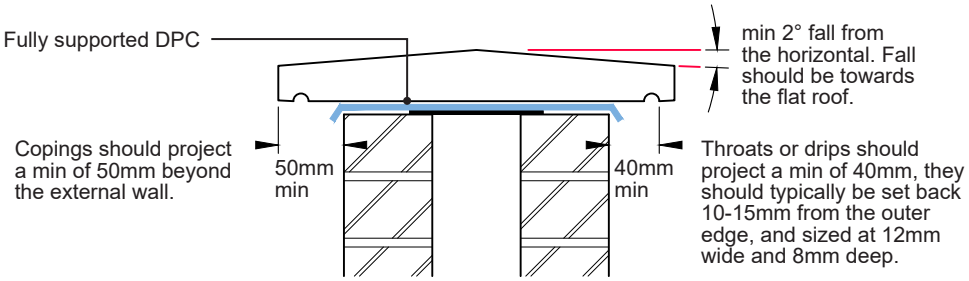
Copings

All copings and cappings should be of a suitable material specification for the position and exposure conditions, be laid on a fully supported DPC and have a sufficient projection (with a drip) from the parapet wall under.

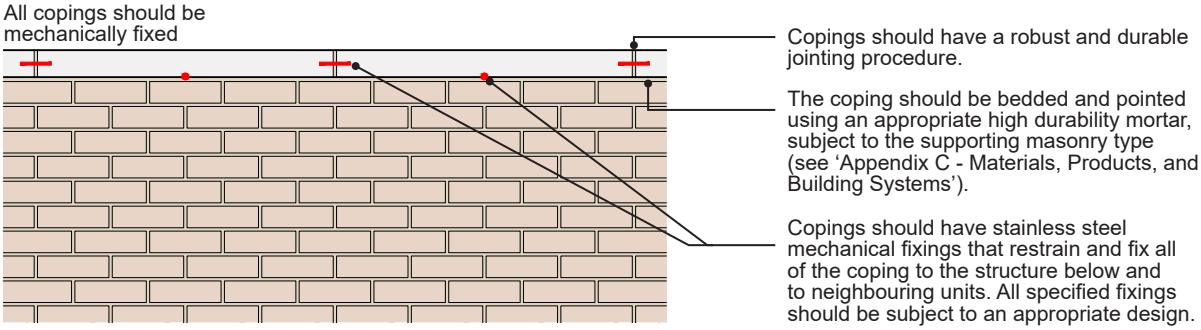
Copings should:

- Be frost resistant.
- Be mechanically fixed.
- Incorporate weather tight detailing to junctions with other elements of structure e.g. coping terminations abutting perpendicular walls.

Vertical movement joints in the supporting structure below should be carried through the parapet and copings. DPCs and cavity trays must be continuous at the movement joint. In addition there should be consideration for the coping manufacturer's requirements for the provision of movement of the coping itself (e.g. thermal expansion).



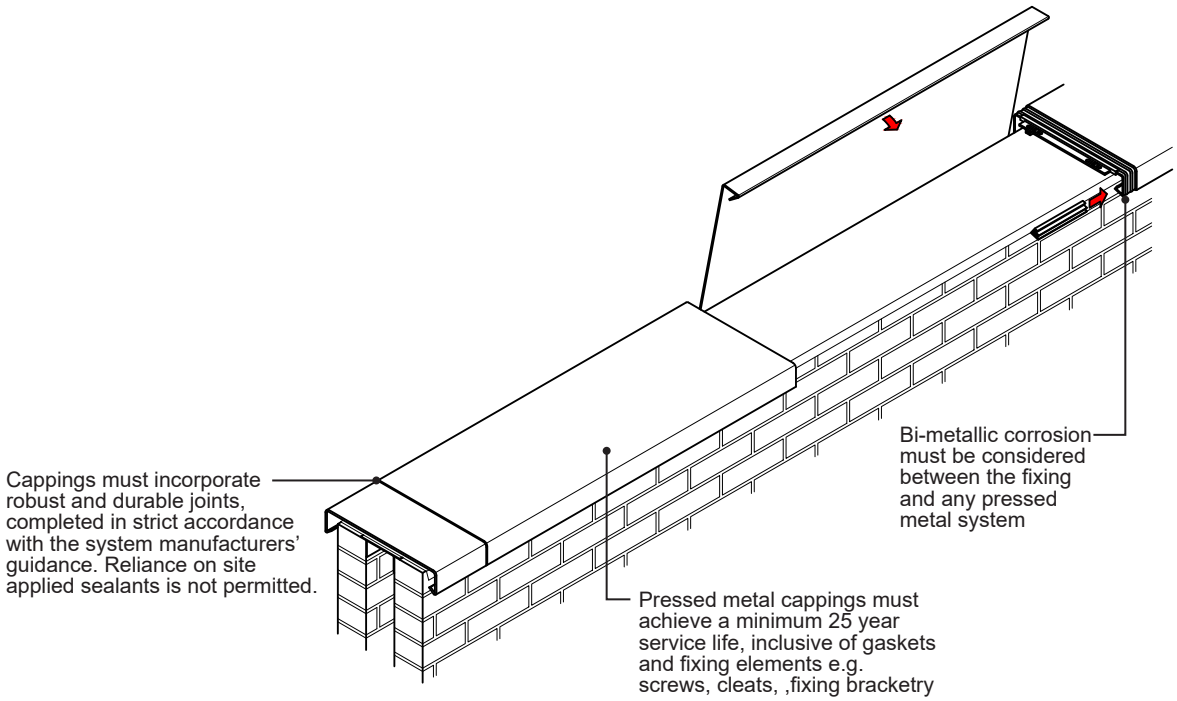
Fixing of copings onto horizontal parapets



Pressed metal cappings

The following should be satisfied for pressed metal cappings:

- They should be suitably durable for the exposure conditions and any potentially aggressive environments (coastal locations, industrial zones, etc.) Pressed metal cappings must achieve a minimum 25 year service life, inclusive of gaskets and fixing elements e.g. screws, cleats, fixing bracketry.
- Bi-metallic corrosion must be considered between the fixing and any pressed metal system.
- Aluminium capping systems must not be installed in contact with copper or its alloys, or the runoff from them.
- Aluminium cappings should not be bedded into mortar or concrete.
- They should be 'once weathered' and incorporate pre-formed drip provision within their profile. Typically, the coping will discharge water to the inside e.g. towards the balcony, terrace or flat roof.
- They should incorporate robust and durable joints, completed in strict accordance with the system manufacturers' guidance. For the purpose of Warranty provision, reliance on site applied sealants is not permitted.
- Where the specified system relies on overlapping sections or joints that utilise an anti-capillary methodology e.g. drainage gaps at joints, the developer must prove and demonstrate through testing that sufficient weather tightness can be achieved.
- They should be secured to the wall. The preferred method is the use of concealed bracketry, fixings and gaskets which avoids the need for penetrations through the capping.
- The pull-out resistance of the fixings must be checked for wind uplift by an Engineer. Adhesive bonding of pressed metal copings alone is not considered acceptable for Warranty purposes.
- They should be designed to accommodate movement e.g. thermal expansion and contraction – notably at external and internal corners. Typically aluminium requires an allowance of approximately 1mm per linear meter for movement.
- Achieve a minimum overlap of 75mm at any lead soaker, lead upstand or secret gutter location. Consideration must be given to bi-metallic corrosion occurring between the pressed metal work, lead work and associated fixings.



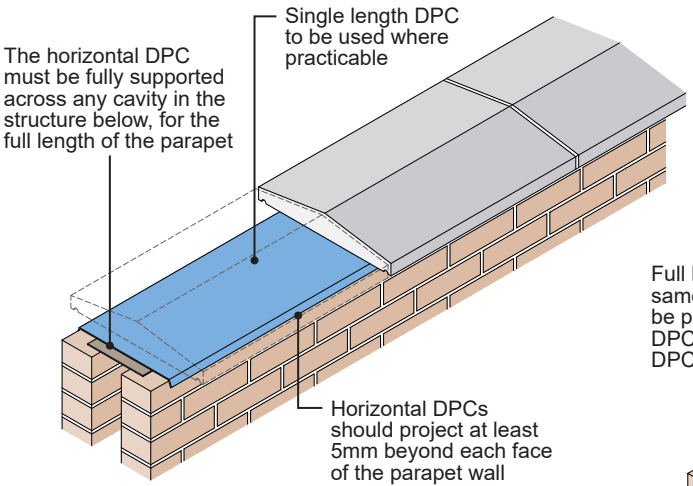
6.6.6 Fully supported horizontal DPCs

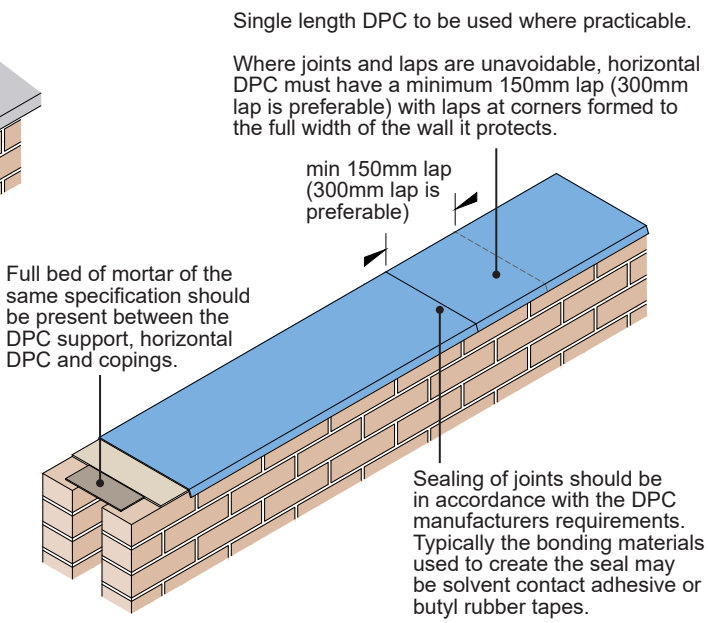
Fully supported horizontal DPC's shall be of a suitable material specification and detailed to prevent water ingress into the structure below.

The fully supported horizontal DPC should:

- Be of suitable material specification with particular attention to mortar bond.
- For pressed metal cappings, the horizontal DPC should be laid and secured in line with the guidance issued by the pressed metal coping system manufacturer.
- Any penetrations through the horizontal DPC e.g. from coping stone fixings, balustrades, balcony guarding, etc., must be fully sealed to prevent penetrating moisture, using working practices and suitably durable sealant material recognized by the manufacturer of the DPC system as acceptable and compatible.

Manufactured DPC pre-formed cloaks are preferred where complex shapes are created by penetrations such as wind post penetrations, etc.



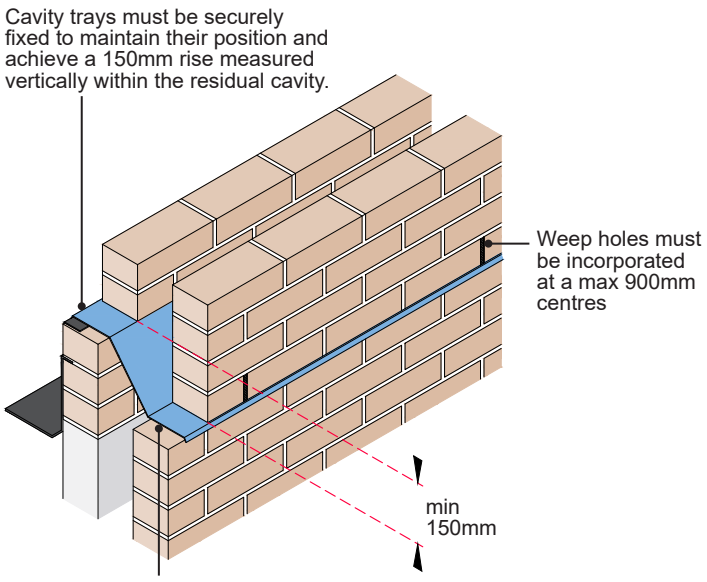


6.6.7 Cavity trays

Cavity trays shall be of a suitable material specification with an appropriate third party product conformity certificate and be detailed to direct any water ingress to the outside of the cavity.

The following should be satisfied for cavity trays:

- The cavity tray should be of suitable material specification. Materials attaining the correct bond performance should be specified and this should be checked against a third party product conformity certificate as suitable in situations of minimal load.
- Proprietary self-supporting cavity trays should be used; flexible cavity trays should be avoided.
- Where flexible cavity trays are used, evidence of how they are to be continuously supported should be provided.
- When securing to framed construction e.g. timber frame, surface fixing must be done in strict accordance with manufacturers guidance and materials e.g. bonding materials, fixing strips.
- Fixing to insulation boards alone must be avoided and the cavity tray will require to lap with any breather membrane on the frame construction.
- Cavity trays must be formed with minimal joints, as far as practicable. Where joints and laps are unavoidable, laps should be formed and fully sealed in accordance with the manufacturers' guidance. Preformed cloaks should be used for complex geometry and obstructions.
- Horizontal cavity trays in parapets may form a slip plane, this should be taken into account by the designer with for example the introduction of additional wall ties.



Where cavity tray material passes through any masonry leaf, it must be sandwiched between even beds of wet mortar, receiving at least one further course of masonry units on mortar to achieve the required bond.

6.6.8 Raking parapets

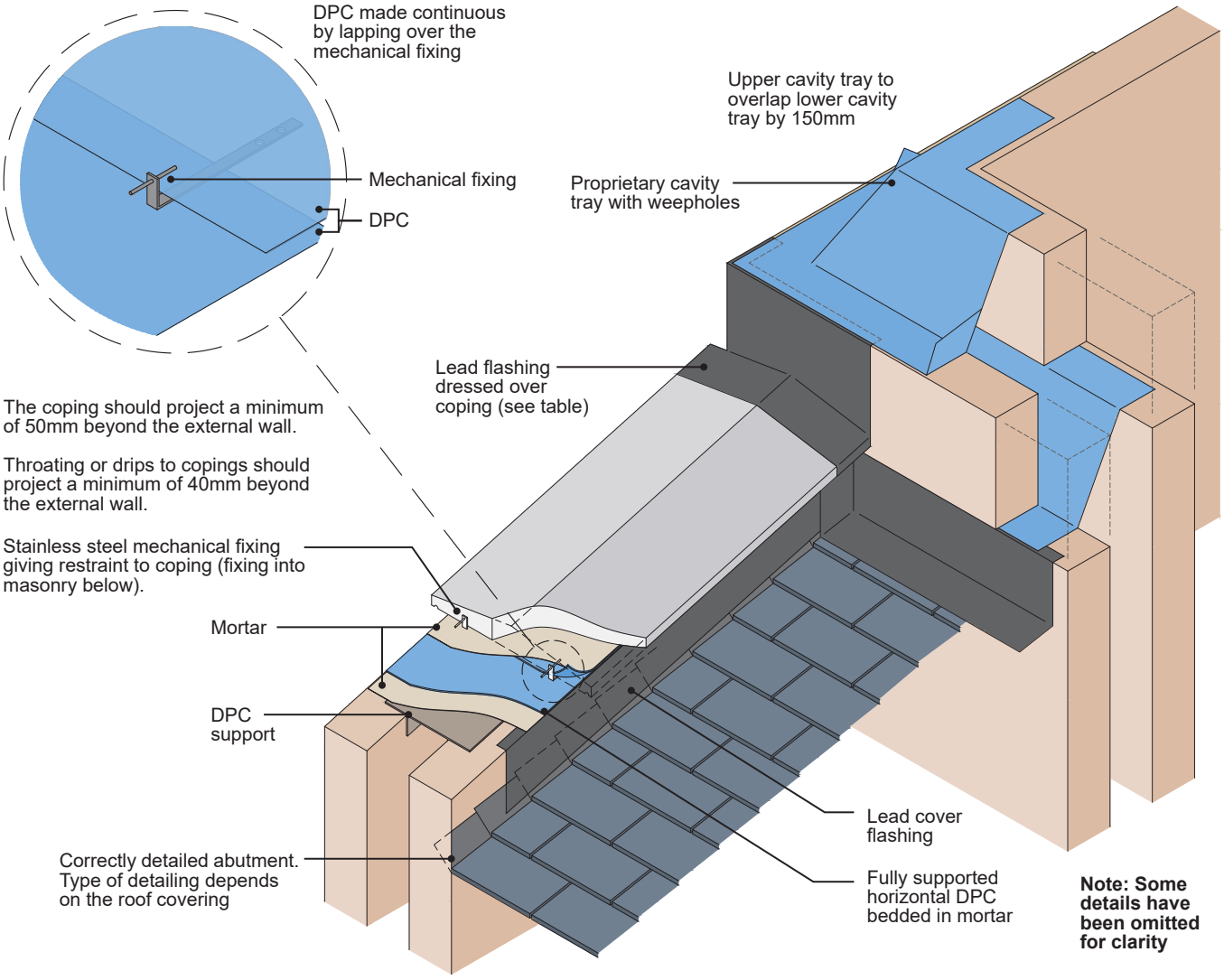
Raking parapets shall be appropriately detailed to prevent water ingress to the inside of the home or cavity.

In addition to the other guidance in this section, the following should be considered for raking parapets:

- Joints in the DPC are not permitted on raking parapets. Where dual pitched roofs are encountered, an allowable overlap will occur at the transfer from one plane to another e.g. the ridge. This exception must have a minimum 150mm sealed overlap (300mm lap is preferable).
- Where the wall upstand above the roof line is relatively short e.g. 150-300mm, any lead flashings used to weatherproof the junction must dress underneath the DPC arrangement and be secured in place prior to the horizontal DPC installation. The lead flashing must sit on the horizontal portion of the wall by 25-30mm.
- As an alternative to a DPC material being used, a lead detail could be adopted. In such a cases installation must be in accordance with the Lead Sheet Training Academy guidance and the guidance within the 'Roofs' section with regards the execution of flashing details.
- Where pressed metal capping sections are being used, the DPC must hold a valid third party product conformity certificate where horizontal DPCs do not form part of the installation. This documentation must prove and demonstrate weather tightness of the installed system to a point deemed acceptable to the Warranty provider.

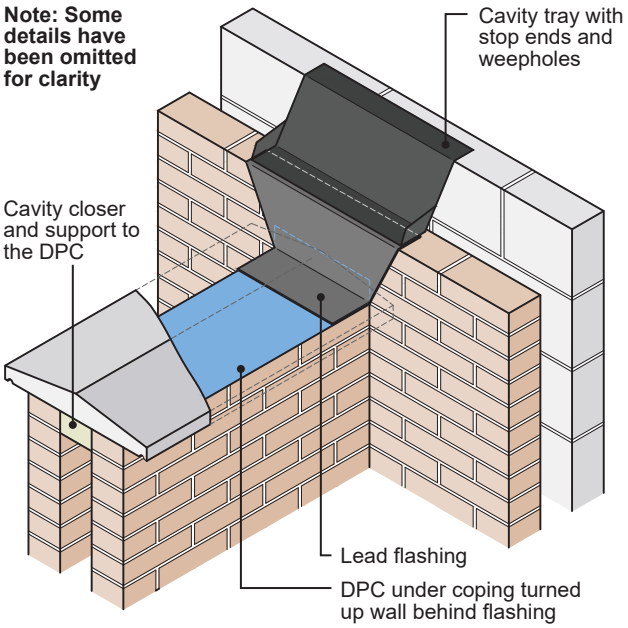
The amount of lead lapping on to the coping should be in accordance with the table shown below.

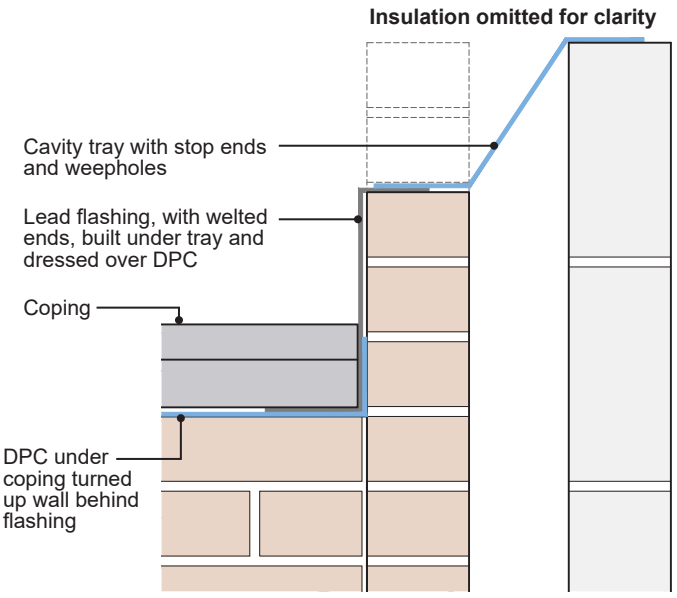
Minimum lap of the flashing with the coping/roof covering	
Pitch of roof	**Cover of lead flashing on coping/roof**
30°	150mm
20°	220mm
15°	290mm
Note: ▪ For pitches over 30°, a min lap of 150mm should be provided. ▪ In areas of severe/very severe exposure, the vertical upstand should increase to 100mm.	



6.6.9 Parapet wall and external wall junction

Where a parapet wall abuts an external wall, the junction should be detailed to prevent water ingress to the inside of the home.





6.6.10 Chute detailing

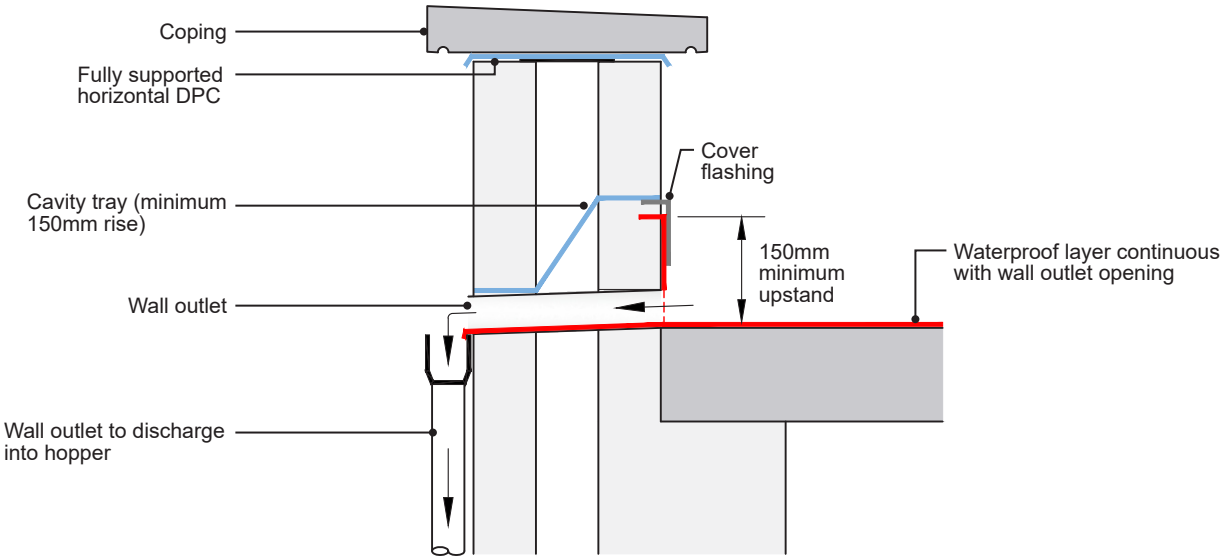
Where chutes are specified, it should direct rainwater to a suitable outfall whilst not impeding on the effectiveness of other waterproofing elements of the parapet wall.

Where a chute penetrates a parapet:

- It must not impede the effectiveness of the cavity tray, flashing or any other waterproofing elements of the parapet.
- The number, size and positioning of the chutes must be designed to BS EN 12056-3 taking local rainfall intensities into account.
- Differential movement should be taken into account for both the chute and the hopper where the chute passes through timber frame construction. Please refer to the 'External Walls – Timber Frame' section for further guidance on differential movement.

Notes:

- Cavity tray requires a 150mm rise, weep holes and stop ends.
- 150mm upstand also required for upstand.
- Drawing shows a generic wall build up.



6.6.11 Parapet detailing for framed structures

Parapet walls for framed structures shall be adequately detailed to be structurally stable and prevent water ingress to the inside of the home.

Structural stability

The parapet shall be structurally stable and capable of accommodating foreseeable loads and differential movement and shall be designed by an Engineer.

Preventing water ingress

Parapets should resist water ingress by adopting 3 line of defence:

- The capping.
- Supporting DPC, or waterproof membrane where the parapet is fully encapsulated.
- A cavity tray.

To protect the inside face of the parapet, the waterproofing system applied to the roof shall either:

- Full encapsulate the parapet and be continuous with the capping detail, **or**
- Be combined with an impervious cladding system which if fixed to the inside face of the parapet.

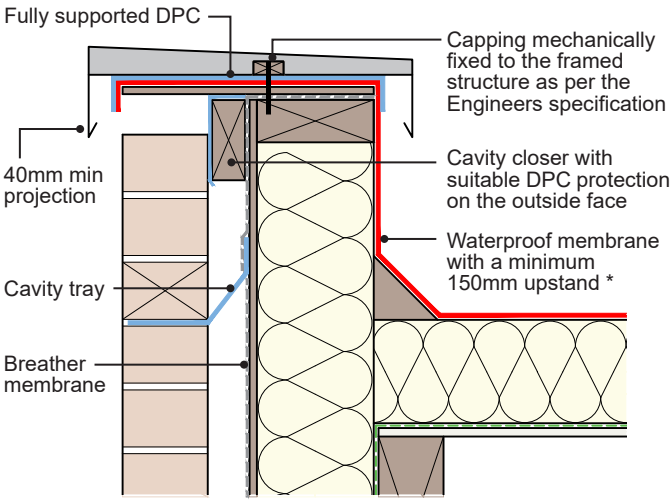
In all situations, the waterproofing situation should have a third party product conformity certificate which confirms it can be used in that scenario. In addition, a site specific fixing specification should be provided by the manufacturer or an Engineer.

Lightweight proprietary capping

The waterproofing of Parapets for framed structures should incorporate a lightweight proprietary capping which should be mechanically fixed back to the framed structure in a manner which does not impede on the waterproofing.

The capping should be suitable for the exposure and anticipated wind loading. The Engineer should provide specification for the fixing of the lightweight proprietary capping. If the capping is secret fixed, each capping piece should be provided with at least 2 security fixings.

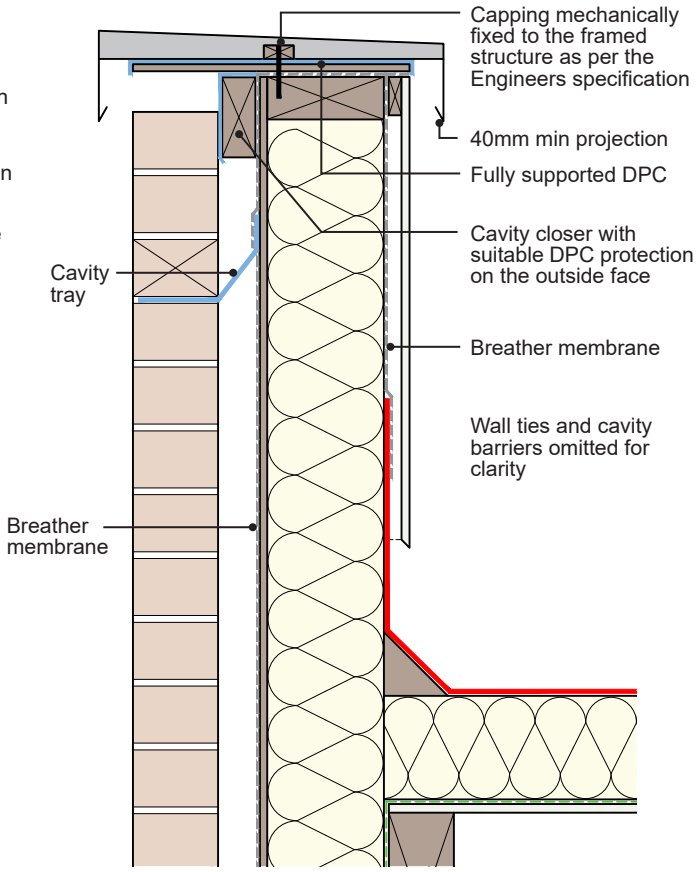
Typical detail of a waterproofing membrane fully encapsulated parapet



*Subject to the membrane manufacture specification.

Wall ties and cavity barriers omitted for clarity.

Typical detail of the internal face of the parapet being protected by both a waterproof membrane and impervious cladding



6.6.12 Terrace guarding and balustrade systems

Guarding and balustrade systems shall:

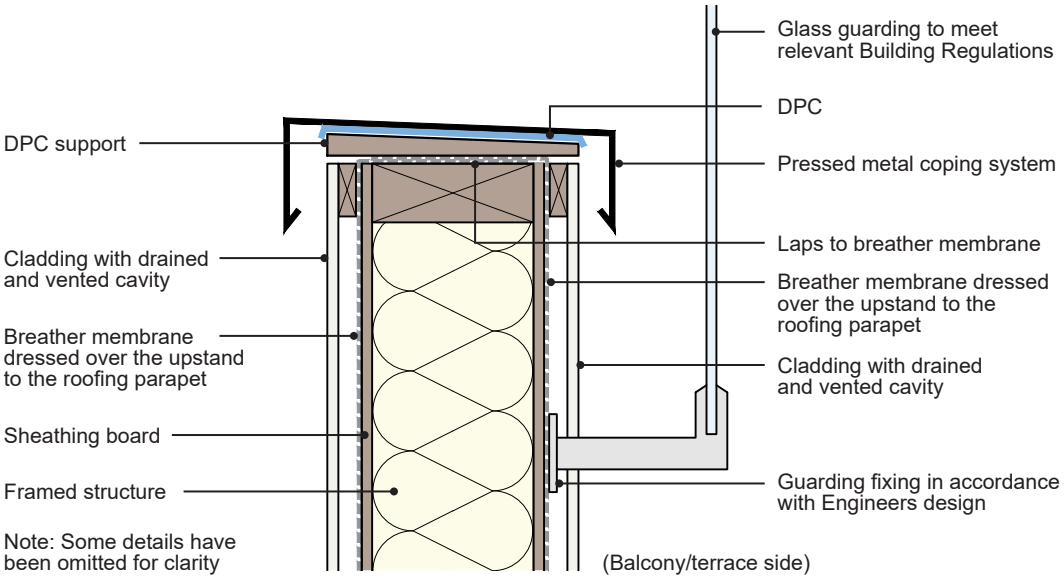
- Be designed to resist horizontal forces.
- Fixed back to the structure in accordance with the design.
- Have a fixing specification that does not create weak spots for water ingress to the inside of the home.
- Be specified and installed to prevent cold bridging.

General guidance

Where terrace guarding or balustrade systems are specified, the following should be taken into account:

- Any guarding should ideally be mounted to the sides of the parapets, either internally or externally via face fixings into the parapet wall and not through the coping. This should be the preferred method as it prevents creating weak spots for water ingress.
- The copings weathered upper surface, projection and drainage function must be uninterrupted and unhindered by guarding provisions e.g. glazing channels which are recessed into and divide coping provisions should be avoided.
- Where this cannot be avoided, and any guarding over a coping arrangement is in continuous contact, the free drainage of the coping should not be impeded. In such instances, coping arrangements must incorporate a fall away from the obstruction to any outside edge.
- Where the guarding incorporates proprietary glazing and framing profiles, drainage provisions from glazing channels must be provided and kept free from obstruction. Particular attention should be paid to sealant pointing used where such profiles are in continuous contact with the upper surface of a coping system, as this area can often restrict drainage when incorrectly executed.
- Where the guarding, over a coping arrangement, is in continuous contact with the coping fixings which penetrate the coping arrangement, the fixings must only pass through a self-sealing butyl tape. Reliance on silicone is not acceptable.
- Guarding incorporating elements of glazing may need to be heat soak tested to BS EN 14179-1.

Framed structure



Masonry structure