



Repointing

When repointing work is carried out to boundary walls the underlying principles are the same as for repointing rubble or ashlar masonry on any other stone building. Every effort should be made to copy the original finish and appearance. Whilst this may include trowling the pointing over the wallface and striking a thin mock horizontal joint line in the wet mortar before it sets on walls of rubble build, the same approach should not be adopted for ashlar walls. An appropriate lime mortar mix is preferred for this work against the more common use of cement mortar as cement causes considerable damage to the stonework and the remaining lime mortar.

Wall foot damage

Another area where boundary walls are vulnerable to decay is in the vicinity of the wall footings - especially where there is a risk of salt being laid on adjacent roads and pavements during winter months. In these circumstances, the salt can be regularly splashed onto the stonework and this can lead to a significant breakdown of the mortar and the stone.

In recognising that it is difficult to avoid circumstances where walls are adjacent to surfaces that are routinely treated with winter salt, repairs should be carried out to both stone and joint work whenever signs of degradation are noted. If left unattended, the salt contamination can continue to decay the masonry to such an extent that it can undermine the structural stability of the wall, leading to its eventual collapse. In some cases this will mean replacing badly eroded stones to stop the process getting worse.



Adjusting boundary walls

It is now a common occurrence to partially demolish parts of existing boundary walls to create access driveways for garages or car parking spaces, especially where on-street parking restrictions have been introduced in urban areas. Being relatively slender in thickness, the walls can be demolished quickly. Care should be taken to retain as much of the original stonework as possible, and to note how the stones were originally put together so that the character of the wall can be re-created when the broken profiles are rebuilt.

The modern technique for adjusting boundary walls frequently involves using a mechanical saw to reduce the length of some cope stones. This can leave an unsatisfactory finish as the technique also involves physically breaking the stone along the weakened lines of the mechanical saw cuts. Where cope stones require to be shortened the cut end of the stone should be carefully hand worked to match the original masons tooling.

It has also become commonplace to rebuild masonry walls in a style that does not reflect how they were originally constructed. Although the stones may be re-used in the rebuild, through lack of recognition that the stones were originally laid in horizontal courses, they now tend to be somewhat thrown together in a haphazard manner. This not only changes the appearance of the wall, it also creates a build that less strength than the original construction.



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Further reading

TAN 1 - *'Preparation and Use of Lime Mortars'*
ISBN 1 903570 42 5

TAN 19 *'Scottish Aggregates for Building Conservation'*
ISBN 1 900168 69 3

British Standard BS EN 459:1

Maintaining Your Homes: A Short Guide for Homeowners
ISBN 1 903570 93 X



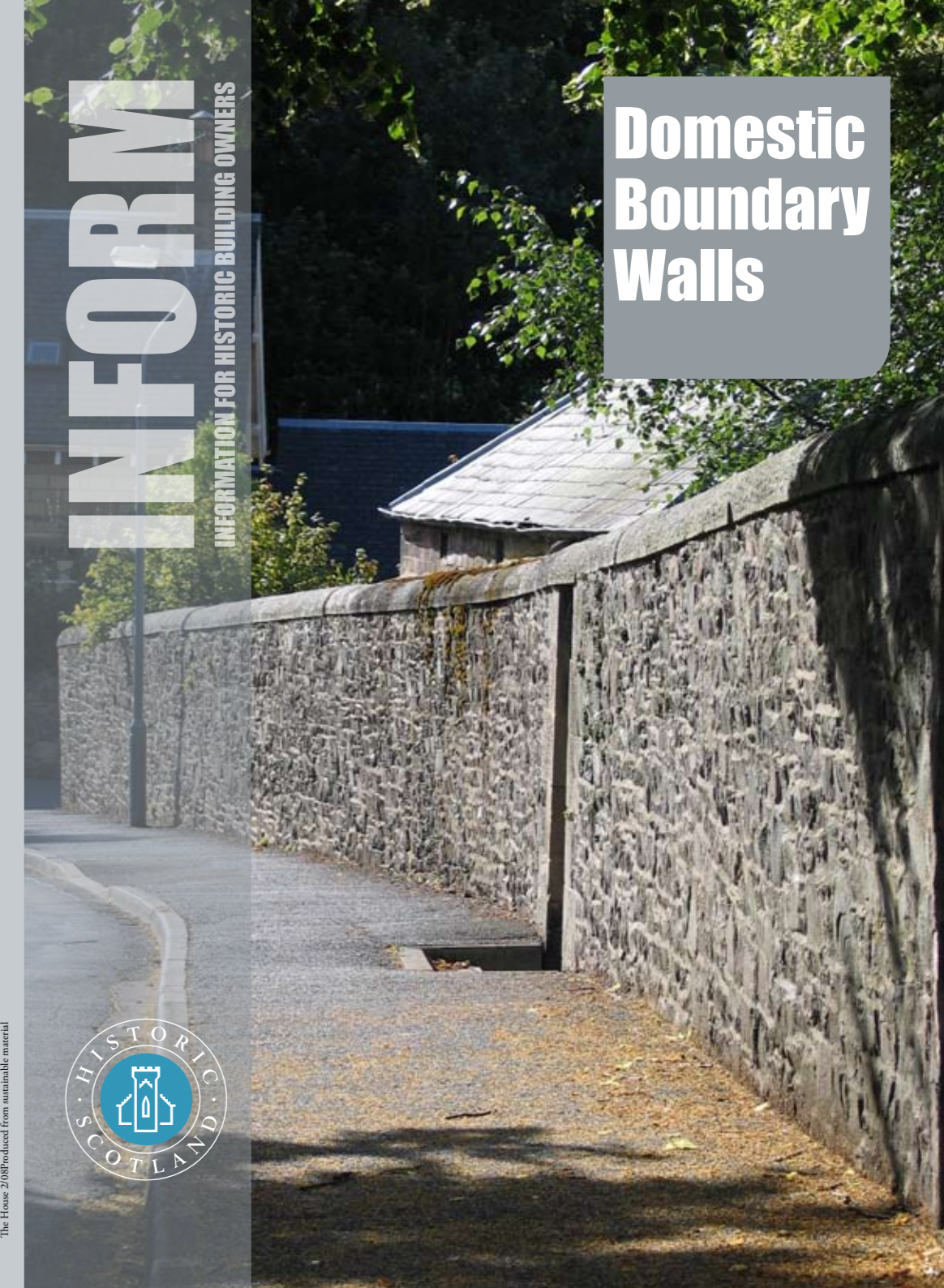
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Domestic Boundary Walls





Introduction

In both rural and urban locations the domestic stone masonry boundary wall delineates the extent of personal space around property. Constructed to be some 300 mm in width, at half the thickness of structural masonry walls used to create buildings, the boundary wall in its own right is a free-standing structural device. Heights can vary from not much more than two courses of stonework above ground level to walls standing over two metres, or more, high.

The lower dimensioned walls were generally surmounted by iron railings, many of which were removed during the Second World War as part of the war effort leaving only the fixing holes, some securing lead in the hole, and an occasional stump of iron. With land costs at a premium boundary walls in front of city tenements served only to create a minimalist privacy garden in front of the ground floor flats although they were also used to subdivide areas of common-stair access in the courtyards behind tenements. In the more affluent parts of cities, and in rural areas, the boundary wall would enclose a reasonable sized garden whilst, at the same time, providing security and privacy.



Materials

In the 19th century, stone was the predominant material used in the construction of the walls although, in the latter part of the century, the use of brick also became commonplace in some areas.

Different types of building techniques were used depending upon circumstance. For low walls, and those either fronting the property or creating the boundary with principal streets in urban areas, ashlar masonry construction was the norm. In rural areas, and in service lanes in urban locations, rubble construction was more common. Both



Coping stones

Due to the slenderness of the wall, the secret of their continuing stability lies in the provision of adequately dimensioned coping stones. Tooled by the mason to different profiles, including half-round, rectangular, chamfered and pyramidal, the cope stone bridged the thickness of the wall to shed rainwater over the wall face, especially if the

forms of masonry were built in distinct courses, usually with lime mortar. The ashlar build would be more finely pointed than walls built of rubble construction. Rubble tended to be “smear” or flush-pointed, with lines struck in the wet mortar to emulate fine joints.

The two forms of build can often be found at the junction between the service lanes and principal streets. At the junction, the corner would be strengthened through the use of inband and outband ashlar blocks extending up the height of the wall.



To accommodate changes in the ground level between properties, cope stones may be carefully detailed to have their moulded profile curved, angled or returned in vertical steps to maintain the wall height above ground level. Occasionally, cope stones may also rise to create a lintel over doorways set within the wall. In doing so, the lintel helps stabilise the wall by providing a physical link that structurally ties the wall on either side of the doorway together.

Where there is a need to terminate the length of the wall, vertically set square-section large stones, the width of the wall, were sometimes placed on their edge and bound into the stonework to protect the core from being weathered. Features such as this should be retained as they are functionally efficient.



Hand-tooled round-headed copes usually have a roughly worked “stugged” finish, and may or may not have a smoother band along the bottom bed. Where they terminate in a vertical face, the smooth tooling may also extend across that face too.

By the early 20th century it was not uncommon for masonry cope stones to be cut and moulded mechanically, rather than by the hand of the mason. This can be evidenced by regular planed grooves, rather than varied tooled marks, on the stone surface.

Brick walls may also be protected by a half round cope but it is likely that this will be made from concrete rather than stone. Occasionally, half round glazed clay tiles may also be used to provide the wall-top protection.



Growth

Where a wall has not been maintained, and the pointing material has become loose or dislodged, the ideal situation for the establishment of damaging plant growth has been created. Vegetation is often found growing out of the face of walls where the joints are open and this can lead to more damaging root penetration into the wall core. If this occurs below the cope the development of the roots can lever the cope stone out of place, and disrupt the pointing between the individual stones. This, in turn, can allow water to penetrate the core, nourish the roots and lead to further deterioration through encouraging the growth. Where vegetation has established itself on a boundary wall it should be quickly removed, and any open joints and beds repointed as soon as possible to prevent recolonisation. More established growths should be removed by hand weeding, ensuring that all the roots are also removed to avoid leaving potential paths for water ingress as they decay.

In situations where the growth has been left unattended for some time, and the root penetration is significant, the cope stones may



have to be up-lifted and small sections of the wall down-taken, to completely remove all the roots from the wall core prior to the wall being rebuilt. As far as possible the stones which have been removed should be replaced in their original position taking care to align with the original building courses.

The spread and growth of roots from nearby bushes and trees can also create problems by pressing against boundary walls causing them to fracture and become unstable, especially where the walls also act as a retaining wall. Roots should be trimmed back from the wall footings to prevent this.

The growth characteristics of ivy, and some other creepers, can also present considerable problems if they have taken a strong hold on a wall. Here, early treatment should focus on cutting through the stems near the ground and allowing the upper growth sufficient time to die back before carefully detaching in from the wall surface. Care needs to be exercised when doing this as some stone work may have been dislodged by the growth, and become loose, risking a fall. The severed roots should also be dealt with to prevent a re-growth from occurring.