The Cotswold Dry Stone Wall Specification

Cotswolds
Area of Outstanding Natural Beauty

This note is issued by the Cotswolds Conservation Board as guidance for local planning authorities and developers.

The guidance provided is not practical instruction as to how to build a wall, but rather suggests the details that should be stated when approval is required for the specification of a Cotswold dry stone wall required to be built as a condition of a planning consent. Specifications should be drawn up by taking into account the local distinctiveness of the walls within the immediate vicinity of the site in question.

Dry stone walling is a skilled craft and should not be attempted by inexperienced labour.

Initial considerations

The wall to be built must correspond as far as possible with the characteristic style of adjacent walls, or walls within the area. Important characteristics to consider are:

- **stone type and colour**
- **coursed or random build**
- **wall coping etc.**

By taking these issues into account the local distinctiveness of walling across the Cotswolds can be retained.When rebuilding an old wall, every effort should be made to use the existing stone; conserving lichens and mosses as far as is practicable. New stone should be sourced from local quarries and match in size, colour and thickness according to the local style. **Cropped stone as used for buildings is not appropriate for building a dry stone wall.**

Subject to taking account of local circumstances the finished wall should normally be straight and true along its length with a good batter*, with no waviness, bulges or overhangs. Curved walls and walls on undulating ground should follow the contour of the land and adjacent paths or roads.

When the wall is to be built on a slope greater than 20% the courses should normally be laid horizontally. Thus building should commence from the lowest section of the wall with horizontal foundation trenches being dug as the wall progresses up the slope.

Dimensions

Most Cotswold dry stone walls are built using batter frames as illustrated *[diagram A]* This wedge shape not only gives the wall stability, but ensures that water is shed away from the wall. The degree of batter depends upon the height of the wall and can vary from 1:9 to 1:12. Finished top width dimension is normally approx. 400-500mm. **The required batter, top width and height should be stated in the specification**.
[see diagrams of different wall types]

Foundations

The trench should be 10-20cm. deep, depending on the ground. **The required depth should be stated in the specification.**

Large stones should be used and placed against the sides of the trench achieving a level top. Stones should be placed with their length running across the width of the wall. There should be no movement of these stones.

Pinning stones

The specification should include reference to the use of pinning stones.

These are wedge- shaped stones that are used to pack under the back edges of building stones to create a small degree of fall towards the outer face of the wall *[nominal 1 in 15]*. This ensures that water is shed from the wall to prevent frost damage to the limestone.

Packing or filling stones

The specification should include reference to the use of packing or filling stones.

These should be as large as possible to fill the gaps between and under building stones, especially in the foundations. Size will decrease as the wall progresses and gaps become smaller. **Stone chippings, scalpings or pea gravel should never be used as these will not provide the solidity required for supporting the building stones.**

* *a batter is the slope of the outer face of the wall that slopes upwards and backwards*

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Building stones

The specification shall include reference to the method of using building stones.

Whether old or new stone is being used, stones should be selected so that the larger stones are used in the lower courses, gradually decreasing in thickness as the wall progresses. Stones should be dressed so that a face and camber is achieved before the stone is laid. There should be no gaps between stones, or under stones resulting in "letterbox" gaps. Front pinning must be avoided, but thinner stones can be built into the wall to level up coursing.

Through and three-quarter through stones

The specification should include reference to the use of through and three-quarter through stones.

These are large stones that need to be selected at the beginning of the build. They should go across the width of the wall to tie the two wall faces together. They should be supported across their length with packing stones, and are usually placed at 1 metre intervals along the wall. Three - quarter through stones are more often used in Cotswold walls due to the lack of larger stones. These are laid stone on stone on two courses. (See wall type A&B).

Cope stones

The specification should include reference to the use of cope stones, and the style of coping.

Ideally cope stones should bridge the width of the wall, resting on stones on either side. In field and boundary walls, they are usually of various shapes, heights and widths, but must be placed so that there are no visible gaps between each stone and they must retain a vertical position. Small thin stones are then dropped into the vertical gaps, thus tightening the whole cope. Where there are no large stones available double copes can be used, but care should be taken to interlock stones from side to side.

In the Cotswolds a variety of coping methods are employed. This depends on the style of the wall, the situation [field, estate, garden, roadside] and the requirement for resistance to animals, particularly badgers and deer. Examples are random vertical cope, mortared Cock and Hen, and mortar only cope.

Concrete and mortar

Concrete can be specified for foundations where large stones are unavailable or the ground does not provide a firm and solid base.

However, this should not be seen as a cheaper or easier method of wall building as the main advantage of a true dry stone wall is that it settles into and moves with the ground without creating holes and fissures. It is common to see in walls a gap between the concrete and final course where concrete has been used as a cope. This can be due to the settlement of the wall and/or the trapping of water between cement and limestone, destroying the top layer of stones.

Mortar mixes should be specified to contain a high proportion of lime and a minimum content of cement.

Recommended proportions are as follows:

- 1 part lime: 3 parts sand or
- 1 part cement: 3 parts lime: 11 parts sand or
- 1 part cement: 2 parts lime : 8 parts screeding/sharp sand

Sand is to be specified that will provide a similar colour of mortar to the stone.

The Cotswolds Conservation Board may be able to offer advice on wall specifications for individual cases.

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Written by the Cotswold branch of the Dry Stone Walling Association, in association with Mastercraftsmen of the Cotswolds and Dry Stone Walling Association

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AONB Planning Advice **Cotswolds Conservation Board**

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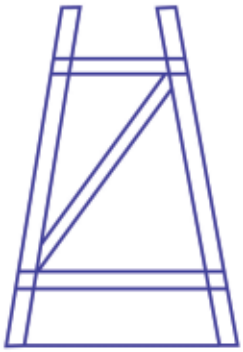
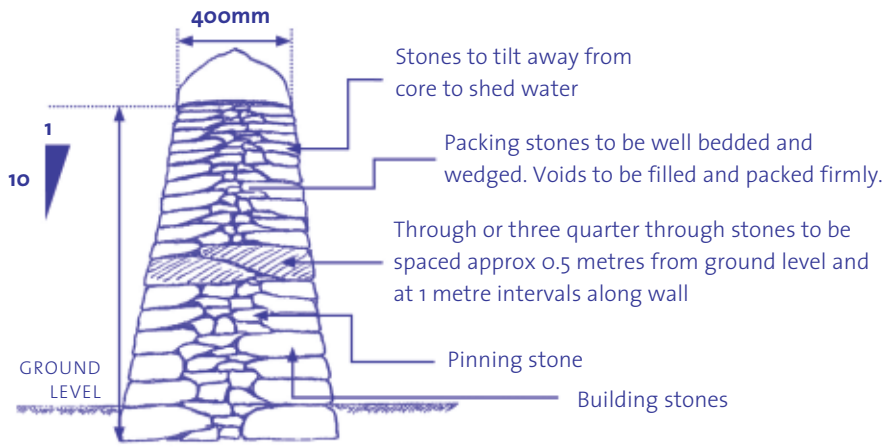
Typical walling frame

(Batter frame) Diagram A



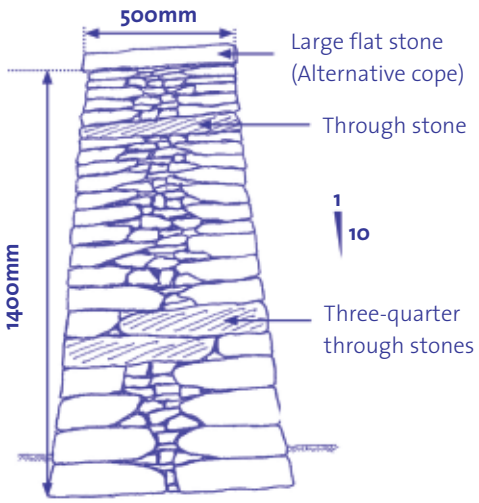
Wall type A

Free standing dry stone wall



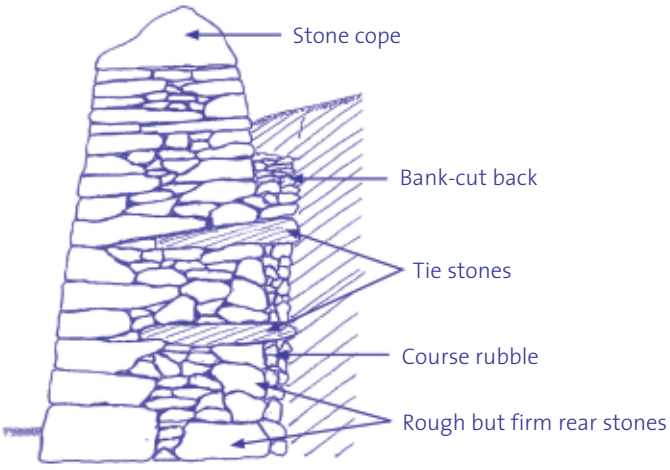
Wall type B

Higher boundary wall where some aspect of privacy is desired, or a wall that will form a boundary for animals. Various copes can be employed depending on finish and purpose required.



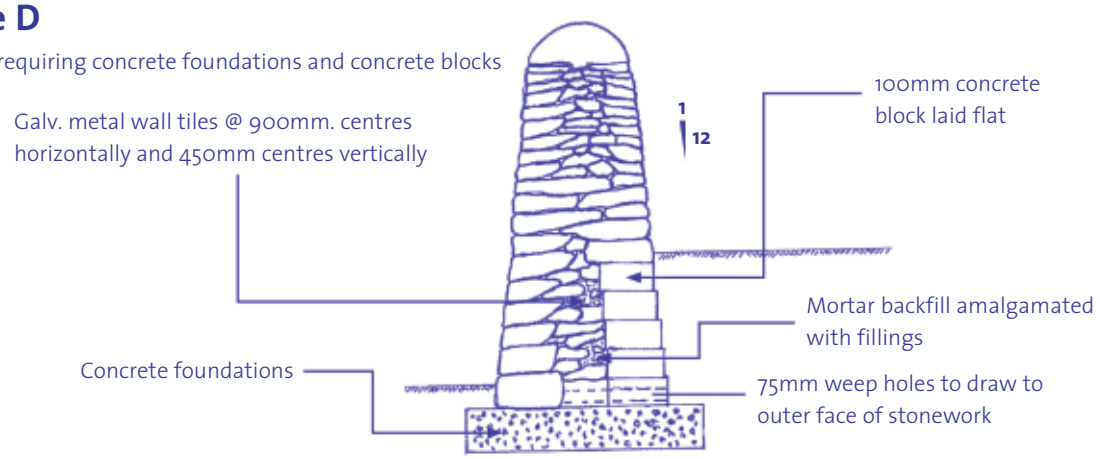
Wall type C

Traditional dry stone retaining wall that is required to come above ground level.



Wall type D

Retaining wall requiring concrete foundations and concrete blocks



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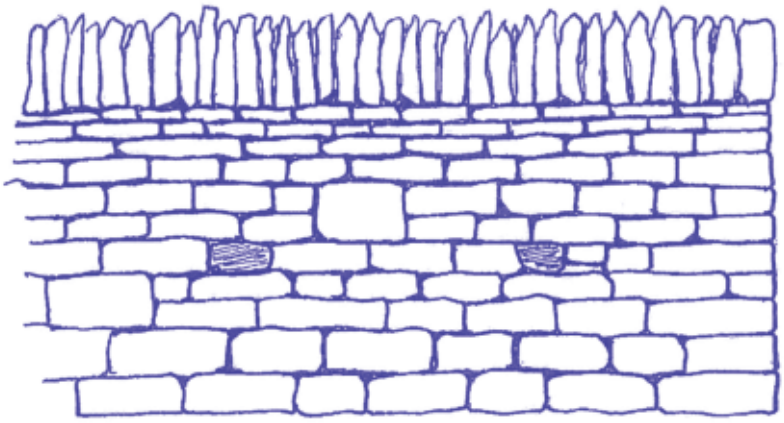
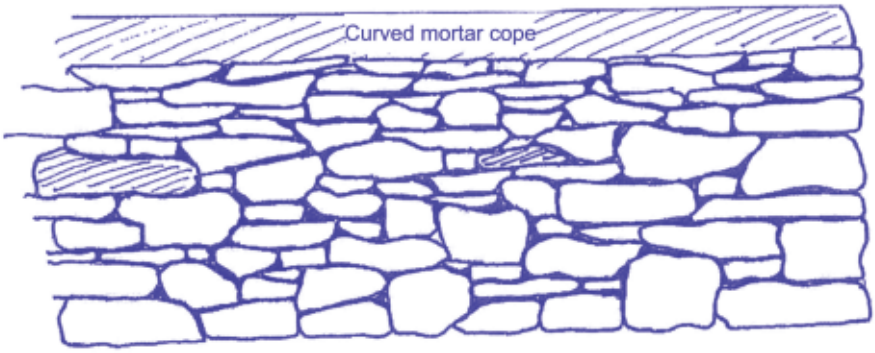
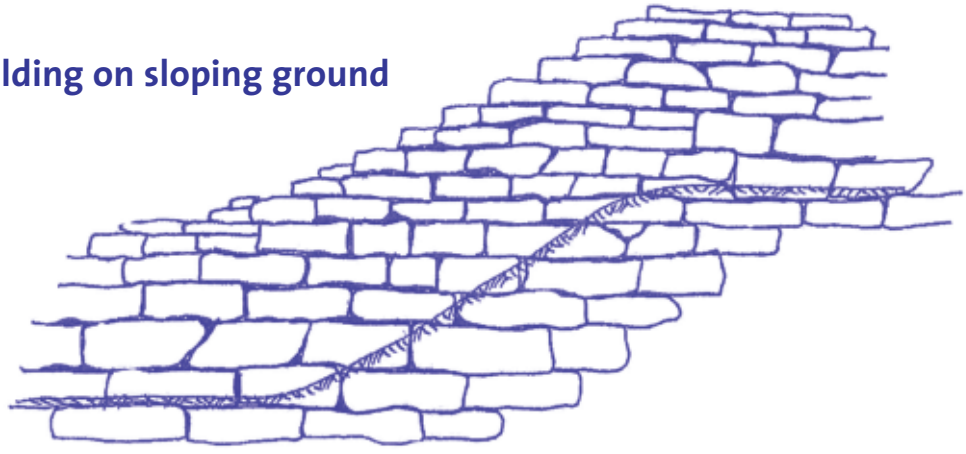
Coursed



Random



Building on sloping ground



Mortared top

Random cope

Cock and hen