

TECHNICAL GUIDANCE

STEPS IN FOUNDATIONS

4.3/02 - Jan 2016 (Second Issue - supersedes Dec 2008)

QUESTION

Where steps are required in foundations can they be made at corners and intersections?

CONSIDERATIONS

- NHBC Standards Clause 4.3.8 explains how to form steps, in straight runs, in strip and trench fill foundations.
- Stepping of foundations is normally required to cater for sloping site levels, and for transitions from deep to shallow foundations.
- It may be convenient to have the step at a corner or an internal/external intersections.

ANSWER

It is acceptable for steps in strip and trench fill foundations to be positioned in straight lengths, at corners and at intersections.

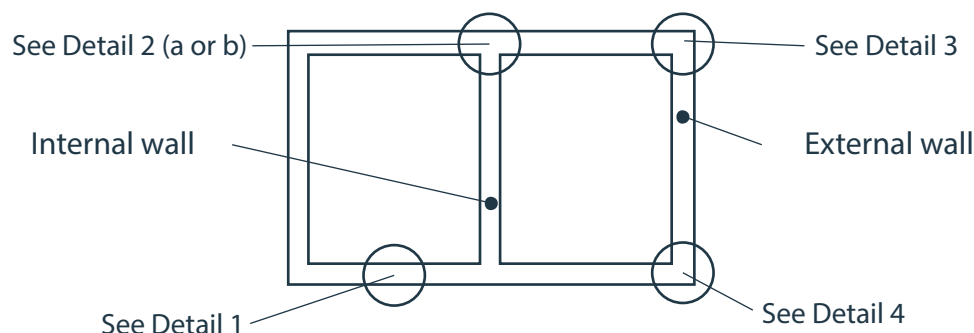
On sloping sites the stepping of straight runs of foundations is necessary to cater for the changing depth of the foundation and to avoid abrupt and excessive steps in the foundation that could cause a weakness and result in movement.

Similarly abrupt and excessive changes in foundation depths should be avoided at corners and intersections by the introduction of a stepped detail.

With the exception of Detail 2a below, all steps should include an overlap as described in NHBC Standards Clause 4.3.8 and as shown in the following Detail drawings.

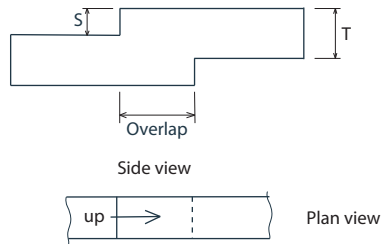
For strip foundations the overlap should be not less than $2 \times S$, or T (maximum 500mm) or 300mm whichever is the largest.

For trench fill foundations the overlap should be not less than $2 \times S$, or one metre whichever is the larger

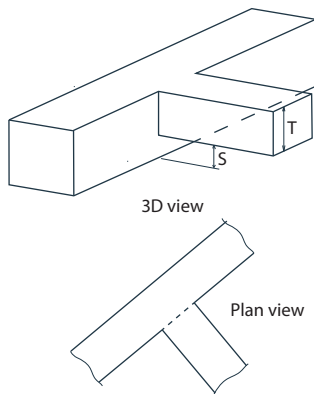


Foundation Plan

Amended



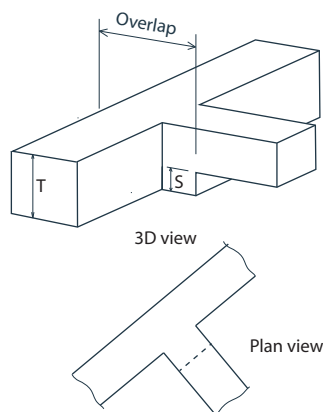
Detail 1



Detail 2 a -

Where loads on the two runs of foundation are comparable and the founding strata is consistent, the steps can be formed at the inside face of the external wall foundations. The step should not exceed the thickness of the shallower foundation or 500mm whichever is the lesser. Alternatively, Detail 2b should be applied.

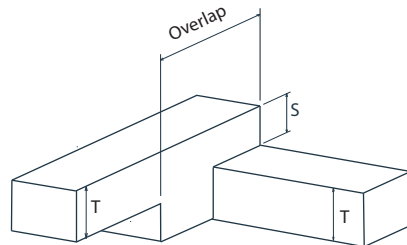
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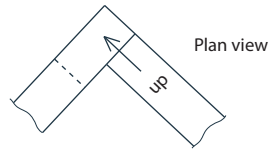
Detail 2 b

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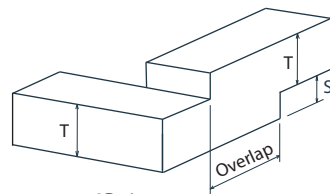


3D view

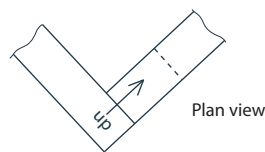


Plan view

Detail 3



3D view



Plan view

Detail 4

Amended