

Lintels over wide openings in external walls

(March 2024) (Third issue – supersedes January 2016)

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Question

What precautions should be taken to cater for the thermal movement of metal lintels where they support masonry over large spans in external walls, such as integral double garages?

Considerations

- NHBC Standards clause 6.1.12 refers to minimum end bearings for lintels supported by masonry and adds lintels should have padstones and spreaders provided under bearings, where necessary.
- A long lintel may be in the form of a steel beam. NHBC Standards clause 6.5.5 says 'Where a steel beam is supported by masonry a padstone may be required.... to prevent overstressing'.
- Thermal movement of the lintel can cause cracking of masonry supports where friction prevents differential movement between the lintel and masonry to take place.

Answer

Long lintels supporting masonry over wide openings should be installed to allow thermal movement to take place without causing cracking of the masonry.

The ends of the lintel should be supported on padstones to avoid overstressing the masonry supports. A slip membrane e.g. double layer of DPC or similar, should be placed between the lintel and top of the padstone.

A DPC type cavity tray should be installed on the lintel to act as a slip membrane to assist differential thermal movement between the lintel and the supported masonry (including both the inner and outer leaves of cavity walls).

For the purposes of this guidance a long lintel is considered to be one which spans an opening of 3m or more. Thermal movement of shorter lintels is less significant and can usually be accommodated without the use of slip membranes. The need for padstones to shorter lintels is dependent on the load being carried by the lintel as advised by a Structural Engineer.



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