

Lateral restraint straps to beam and block and precast or pre-stressed intermediate floors

(March 2023) (Second issue - supersedes Dec 2008)



Question

Is it acceptable to fix lateral restraint straps that have a turn down at only one end into a beam and block and precast or pre-stressed intermediate floors?

Considerations

- PD 6697 'Recommendations for the design of masonry structures to BS EN 1996' and NHBC Standards clauses 6.3.4(e) and 6.4.7 show the lateral restraint between concrete floors and internal and external walls being provided by restraint straps with a turn down at both ends.
- Restraint straps with a turn down at both ends require tight tolerances to ensure each strap coincides with joints in the beam and block and precast or pre-stressed flooring whilst maintaining full contact with the restrained face of the wall.
- Screw fixing of the restraint straps into the top of a concrete beam or underside of a precast or pre-stressed plank could damage the steel reinforcement within the concrete.

Answer

Where tolerances permit, restraint straps that have a turn down at each end are the preferred option as they avoid the necessity to screw fix the straps into the concrete floors.

Restraint straps with a turn down at one end may be used provided they are adequately fixed to either the infill blocks in a beam and block floor or the top of a precast or pre-stressed floor plank.

The fixing method should suit the material being fixed into as follows:

1 Aerated concrete infill blocks:

Use at least eight 50mm long x 12 gauge zinc plated screws and plastic plugs @ 125mm centres.

Minimum strap length 1.2m at maximum 2.0m centres along the wall.

or

At least four 50mm long X 12 gauge zinc plated screws and plastic plugs @ 250mm centres.

Minimum strap length 1.2m at 1.0m centres along the wall.

2 Precast or pre-stressed concrete planks and dense concrete infill blocks:

Use at least four 50mm long x 12 gauge zinc plated screws and plastic plugs @ 250mm centres.

Minimum strap length 1.2m at maximum 2.0m centres along the wall.