



# Steel Lintels



**The installation of the steel lintels is required in various buildings structures to spread the loads of the construction. Lintels are designed and made to order as they have to be fit for the specific installation and type of the structure. The design takes into account building type, loadings or thermal performance. There is a broad selection of steel lintels based on application from cavity walls, timber frame, solid external walls, arches or bays, etc.**

Steel lintels have to be CE marked to guarantee that steel meets the Construction Products Regulations in compliance with British BS EN 1090.

As heat transfer easily through steel, lintels are often a major thermal bridge in the building. Thermal performance of steel lintel is given as psi value- the lower the psi, the better the performance. All standard lintels have to satisfy the thermal performance requirements of England and Wales' Part L

of the building regulations, Northern Ireland's Part F and Scotland's Technical Handbook, section 6. The standard lintels range has Psi values ranging from 0.2 to 0.3 W/m.k. The exact Psi value depends upon the wall construction the lintel is built into.

It is recommended to install a damp proof course or cavity tray over all openings in external cavity walls. Some lintels have built-in damp proof course.

There is the range of lintels for particular installation. You can choose from most common standard lintels (galvanised or stainless steel), hi therm lintels which exceed thermal requirements, special lintels and even brickwork feature lintels.

In IBB Builders Merchants depots you can order the standard lintels, which feature:

- Fire resistance performance
- Corrosion resistance - made of high quality grade pre-galvanised mild steel with a zinc coating of 600g/m<sup>2</sup>
- Structural performance subject to load selection
- Durability

Lintels are available in three materials types:

- galvanised steel
- Stainless steel

- Galvanised steel/grp
  - Polystyrene insulation
- All are insulated with polystyrene.

#### **Tips for proper steel lintel selection:**

1. Check what is type of the wall construction (Illustration 1):
2. For the cavity wall construction you need to know the following details: width of outer leaf, width of cavity, width of inner leaf (Illustration 2).
3. To get the lintel length check the width of the structural opening and add 150mm minimum bearing to each end.
4. To know the load that will be supported by the lintel you need to establish the following:
  - Masonry
  - Roof loads incl. truss, attic, cut, etc.
  - Floor loads incl. joists, slabs, etc.
  - Type of the load: residential, commercial or industrial use

The structural engineer will specify that for you.

5. There is need to establish the load ratio between the inner and outer leaves of the cavity wall. To calculate it you need to check

Illustration 1. Types of the wall construction.

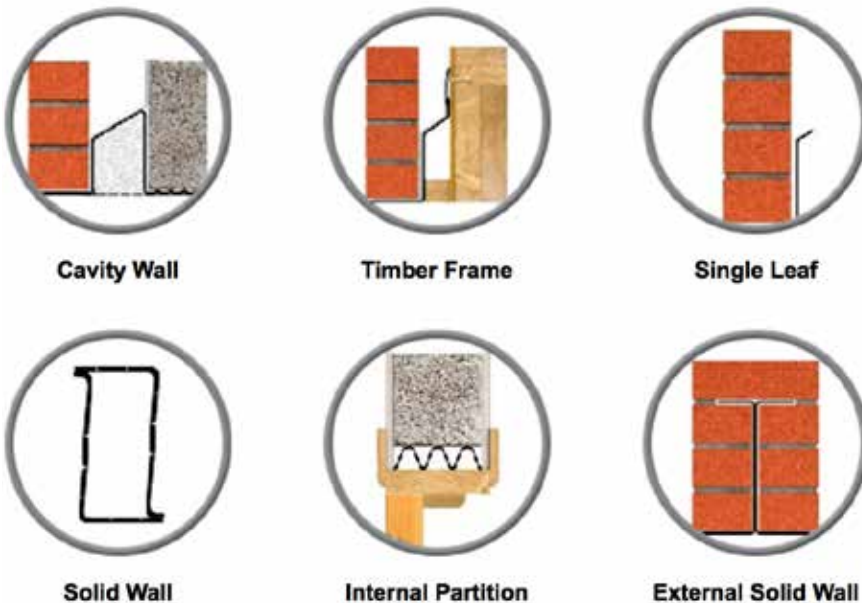


Illustration source: www.iglinets.com

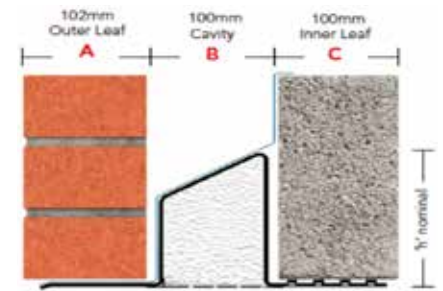
how many loads will be on inner wall and how many on outer leaf. The structural engineer will specify these details.

6. When choosing the lintel select the proper length (including the 150mm increments) for the particular cavity widths. The total UDL (uniformly distributed load) is given in (kN) is evenly distributed along the span of the lintel relative to the load ratio.

#### Tips for lintels installation:

- All loads are checked by the structural engineer
- Ensure lintel is not damaged and is levelled across the length and width
- Never cut lintels
- Ensure wall dimensions are in accordance with the engineer specification
- Minimum end bearing of 150mm at each end
- Lintel is bedded on mortar and brickwork
- Point loads should not be applied directly onto lintel flanges.
- Masonry overhang not exceed 25mm
- Mastic or other flexible sealing compound is used at the junctions of lintel and window head

Illustration 2. Wall details



- Install DPC - proprietary stop ends should be used or alternatively the DPC should extend to the edge of the external lintel flange and 50-150mm beyond the end of the lintel (depending on coursing) to allow formation of an integral stop end at a suitable perpendicular joint.
- Provide weep holes at a maximum of 450mm intervals (at least two per opening) with fair-faced masonry.
- Wall ties are fitted at maximum horizontal spacing of 450mm within 300mm above the lintel
- Ensure the masonry above the lintel is properly cured before following with the installation of roof or floor. The masonry above the lintel should be built in accordance with BS EN 1996-2:2006.
- Use the temporary propping beneath a steel lintel to reduce the load. Propping facilitate the speed of construction. When propping a lintel, a horizontal timber plank should be placed along the underside of the lintel and appropriate props should be secured into place at maximum 1200mm centres
- Inner leaf block should not overheat the lintel flange by more than 25mm.
- In the standard load applications, blockwork should be built tight against inner face of the lintel. Place mortar bed on top of blockwork before our units are laid to provide even distribution of load.

For more tips on steel lintels check our October 2017 edition in archives at [www.ibb.uk/magazine](http://www.ibb.uk/magazine)



Illustration source: www.iglinets.com

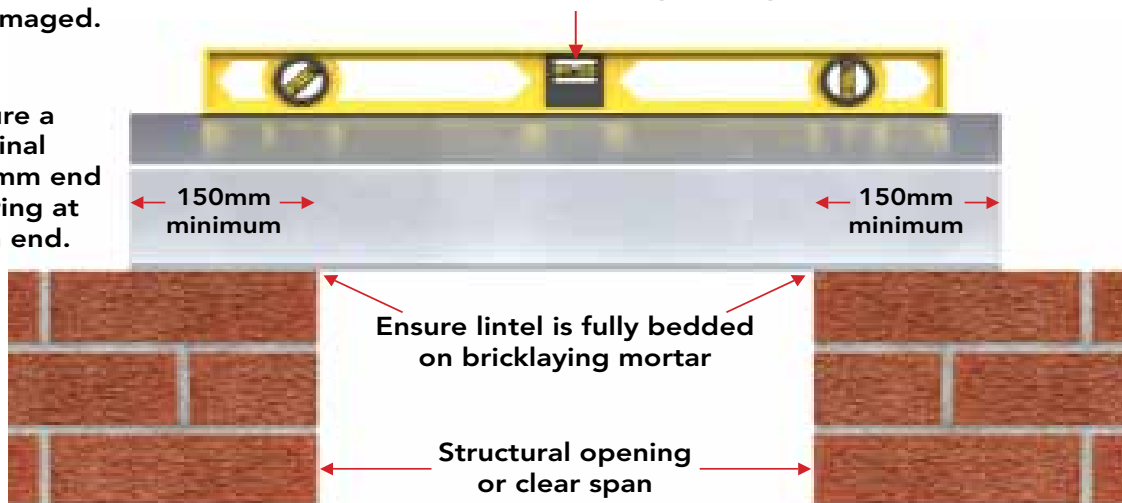


## ENSURE LINTEL IS LEVEL ALONG ITS LENGTH

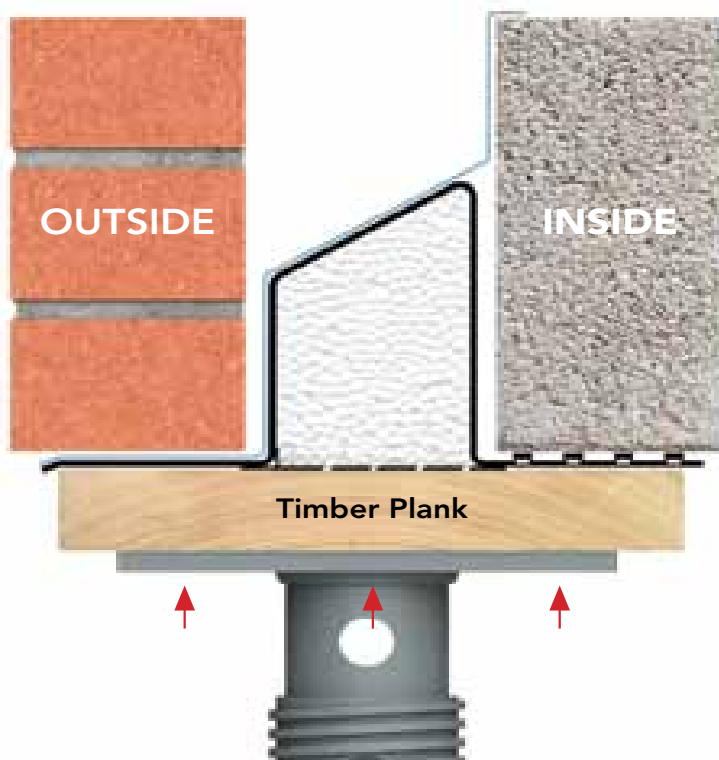
Ensure lintel is not damaged.

Ensure lintel is level along its length.

Ensure a nominal 150mm end bearing at each end.



## PROPPING



The practice of propping a lintel is sometimes used to facilitate speed of construction. It should only be introduced after initial masonry load has been applied to the lintel.

When propping a lintel, a horizontal timber plank should be placed along the underside of the lintel and suitable\* props secured into place at maximum 1200mm centres.

\* Suitability of props is the responsibility of site management.