
Fixings for Timber and Metal Shores

Scope

This guidance document details the methods used to fix shores to the load being supported and describes the capacity and limitations of use.

Description

Fixings are the means of securing the bearing elements of timber or metal shores to the concrete or masonry load being supported. The fixing selected for this use is the Hilti HRD-U Framing Anchor, which is supplied in 3 lengths - 110mm, 200mm and 270mm.



Figure 1: [SOP_SHO029] Hilti HRD-U Framing Anchor

Use of the Hilti HRD-U Framing Anchor

The anchor is used to maintain the stability of the shore once it has been assembled and placed in the required position. Should the load being carried by the shore alter in any way either laterally or vertically, that movement should not cause the collapse and subsequent failure of the shore by it falling out of position. Severe movement, however, may cause the shore to fail due to the shores component parts failing.

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Construction – Assembly

1. Construct and assemble the shore in the required position.
2. Assemble the equipment required to drill and fix the anchor in place
 - Generator
 - Extension cable
 - Hilti TE2 drill and 14 mm drill bit
 - Dust blow out pump and wrench
3. Select the correct sizes of anchor. This is determined by two elements a) the thickness of the timber or metal shore being installed and b) the depth of the hole required for the fixing (85mm) – see Figure 2 and Figure 3.
4. Drill a hole to the required depth through the shore and into the building material you are fixing it to. Clean out the dust and any small fragments from the hole using the blow out pump.

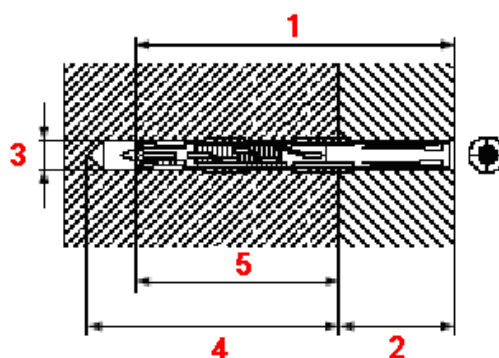


Figure 2: [SOP_SHO029] Fixings Measurement

Fixings Chart				
1	Anchor length	110mm	200mm	270mm
2	Maximum fixing material thickness	40mm	130mm	200mm
3	Drill bit and anchor diameter	14mm	14mm	14mm
4	Minimum hole depth	85mm	85mm	85mm
5	Minimum anchor depth	70mm	70mm	70mm
4 + 2	Drill bit length	220mm	270mm	470mm

Figure 3: [SOP_SHO029] Fixings Chart

5. Push the fixing through the shore material into the hole using a hammer to drive the screw into the fixing. Tighten using a suitable wrench.
6. The fixings should be evenly spaced at approximately 1 metre centres for horizontal and vertical timber components and 2 per section of metal wall plate. Anchors should be positioned centrally to the timber being fixed and take into account the suitability of the building material being fixed into. Avoid cracks in reinforced concrete and drill into the centre of bricks, blocks, stone wherever possible.

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7. Whilst conducting monitoring of shores, the fixings and building materials surrounding the fixings should be checked for movement e.g. the fixing being pulled out or loose, splits in the timber or cracks in the building material.

Capacity and Limitations

1. This type of fixing should not be used to secure the sole plate of a raker shore to the ground; it is only used to stabilise the shore in its final position along the wall plate. Anchors for securing raker shores to the ground require substantial pickets, kerbs, U-channels or other buildings.
2. When fixing a deep (200mm) header, with a sheet of plywood on top, it will be necessary to drill a larger diameter hole prior to drilling the screw fixing hole to allow the screw head to be sunk the depth of the plywood into the timber. This will maintain the correct minimum anchor depth.
3. Notwithstanding the advice on spacing of fixings detailed above, the following should be taken into consideration:
 - The maximum recommended shear for a loaded HRD-U 14 galvanised screw fixing is 22.4 kN (approx equal to 2.25 tonnes force).
 - The maximum recommended load depends on the substrate, and can vary from only 0.3 kN (30Kg) in lightweight concrete blocks to 2.3 kN (230Kg) in non-cracked concrete.
 - Crumbling masonry and cracks in concrete may require extra fixings to be fitted.

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