

# COMPLIANCE VERIFICATION

## SYSTEM OVERVIEW

Pryda's FastFix Stud To Wall Plate Screws provide a simpler, faster and cleaner stud tie connection for stick-built wall frames, with capacities on par with conventional connectors.

## SYSTEM FEATURES

### Simple Installation.

All the installer needs to do is drive the screw home until it is flush with the face of the wall plate.

### Consistent Connection.

Unlike connectors with multiple fasteners, the screw capacity is simply a function of its embedment into the timber. If the screw is driven home, it will perform as expected.

### High Capacity.

Two screws can be used in a single 90mm stud to provide exceptional tie down strength without the need for cumbersome strapping and numerous nail fixings.

## COMPLIANCE

FastFix Stud to Wall Plate Screws are an appropriate connection to satisfy the fixing and tie-down requirements of AS1684. A screw tie down is referred to as a permissible connection in Section 9.6.5 (Figure c), and as per the preface to this standard it is permissible to use any fastener that satisfies the requirements of the Building Code of Australia.

To satisfy these requirements, Parts 2 and 3 include a flow chart (Section 9.3) which can be followed to determine if specific fixings are required, and what the uplift force is. This can then be compared to the capacities in the FastFix data sheet for the appropriate timber joint group.

These capacities were derived using standard screw withdrawal calculations in AS1720, which in turn depends on the characteristic strength of the screws. This is expressed in newtons per millimetre of thread embedment, and for the FastFix Stud to Wall Plate Screws was derived from testing.

To ensure compliance to the NCC the screws were tested in accordance with a recognised Australian Standard for mechanical fasteners (AS1649). The

testing was conducted by Melbourne Testing Services - a registered testing authority.

All the screw heads are marked with the size (M8) and length (135 or 170mm) and the fact that it is a Pryda Screw. The appropriate screw length for various wall frame configurations (e.g. single or double top plate), wind regions and truss layouts is specified in the product data sheet and can be verified from the embossed markings on the screw head.

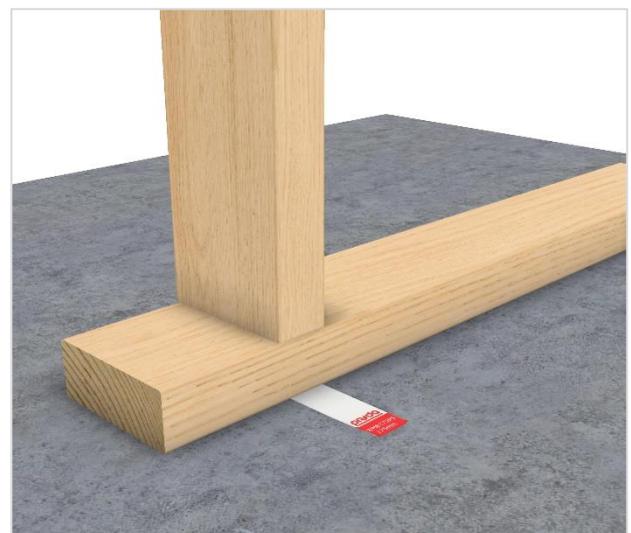
## INSPECTION

Stud to Wall Plate Screws provide a simpler, more consistent connection than other products, leading to higher quality frames. The trade off for this increased quality is that, like many other building elements, not every part of the system can be inspected visually.

There are several ways for an inspector to build up an overall picture of how the builder has approached the job, using multiple data points to satisfy themselves that the screws have been installed as required.

- **Identification tags.**

The screws are provided with product tags clearly showing their location and size.



**Note: The WM8135PS and WM8175PS must NOT be used as a truss tie down.**

- **Visual inspection.**

For connections along the top plate (where trusses are not directly over the studs), the inspector can use an extendable inspection mirror to confirm the screw is in place. The screws should be flush with the top of the frame and can be identified by their head markings.



- **Order/delivery docket.**

These screws are sold specifically for use as stud ties in stick-built frames and are longer and more heavy duty than standard screws. Paperwork showing they have been purchased for the job indicates the builder's intent to use this system for this purpose.

- **Builder's markings.**

The builder may use a simple marker (eg. paint) on the studs where the screw connection is in place, which can be checked against the project documentation.



- **Metal detectors.**

Inspectors with a handheld metal detector available can use this as a further check on the screw locations. The screws will penetrate at least 85mm into the stud, noticeably further than the skew nails in the common studs.

- **Product Data Sheet.**

The Pryda Product Data Sheet is readily available on our website. The builder should be able to demonstrate they are aware of the requirements in this document and how to access it.

Each of the above methods provide an additional layer of communication between the builder and the inspector to provide assurance that the frame has been built to the requirements of the code and the product literature.

## ENGINEERING GUIDE

The basic calculations for screw withdrawal capacities have been around for many years and form an integral part of AS1720 (Section 4.3.3.4) – which is a widely used Australian Design Standard referenced in the National Construction Code.

The calculations for screw withdrawal capacity are fundamentally based on the thread penetration into the supporting member.

A general 'rule of thumb' check is to multiply the embedment depth by 0.085 to determine the expected tie down capacity (in kN) for the screw in JD5 timber.

Similarly, JD4 can be checked by multiplying the reported embedment depth by 0.119.