

IGNIS PRODUCT EVALUATION

Evaluation No.IGNS-8203 Issue 01 Revision 02 [2020]

WPG STEEL STUD FRAMING SYSTEM

1 Introduction

Ignis Solutions has been engaged to evaluate the use of the Kewarm WPG lightweight steel wall frame inline with BCA fire safety compliance where the studs are proposed to be used within wall systems achieving a non-loadbearing Fire Resistance Level.

In accordance with Schedule 5 Clause 2(c) of the BCA a building element meets the requirements of the BCA if it differs in only a minor degree from a prototype tested under the Standard Fire Test.

The WPG wall profile studs are available in a stud depth of 51mm, 64mm, 76mm and 92mm with a respective Base material Thickness (BMT) of 0.55, 0.75 and 1.15mm. An example of the stud is detailed in the attached picture.

It is proposed to evaluate the use of the WPG wall profile within a CSR tested wall system in its capacity to maintain the required FRL. The CSR RedBook 2017 details that 'other steel components of equivalent performance may be used, however it is the responsibility of the manufacturer of the steel component to substantiate equivalent performance to the recommended component'.

This report has been prepared by Benjamin Hughes-Brown, Chartered Professional Fire Safety Engineer. This advice can be considered as a certificate from professional engineer in accordance with Clause A5.2(1)(e) of BCA-Volume 1 2019.



2 Product Equivalence

The WPG wall profile studs have been tested in accordance with AS 1391-2007 by Melbourne Testing Services in their test report 20-0285 dated 17 April 2020. The test demonstrated a suitable structural ability for the studs to be used within a wall system. The tested wall systems included a 51mm, 64mm, 76mm and 92mm x 35mm stud width. The Base Material Thickness (BMT) included 0.55mm, 0.75 and 1.15mm for the stud.

The BMT and stud thickness does not vary the thermal Fire Resistance Level achieved, this is established by the bounding thickness and layers of the fire rated Gyprock plasterboard.

3 Compliance

Volume One – Building Code of Australia 2019

- 3.1 Clause A2.1 (2) evidence to support the use of a material meets the nominated Performance Requirements through a Deemed-to-Satisfy Solution.
- 3.2 Clause A5.2 (1)(e) as evidence to support that the WPG wall profile studs meet the nominated Performance Requirements under a certificate issued by a professional engineer (being this document).
- 3.3 Schedule 5 Fire-resistance of building elements
 - i. Schedule 5 (2)(b) The WPG wall profile studs has been proven to differ in only a minor degree from a prototype tested under the standard fire test and the FRL attributed to the building element is confirmed as follows for the various wall systems.



4 Product Evaluation

The following single stud frames have been evaluated. Based on the CSR tested wall systems, the thickness of the single studs does not vary the FRL achieved. The following table details the thickness and location of fire rated Gyprock on either side of the studs.

FRL (-/x/x) 10mm both sides	FRL (-/x/x) 13mm both sides	FRL (-/x/x) 16mm both sides	FRL (-/x/x) 2 x 16mm both sides
-/-	-/60/60	-/90/90	-/120/120

The CSR wall system included a Rondo framing system. The associated documentation specified that the 0.55 BMT Rondo framing system had a yield strength as follows. The equivalent result for the WPG stud frame is shown below and presents results which are at least equivalent to each other.

	Rondo	WPG
Yield Strength (MPa)	270	331
Ultimate Strength (MPa)	330	398

5 Alternative Wall Systems

Based on the above equivalent testing and evidence the WPG wall profile stud can be used in a non-loadbearing lightweight wall system protected by the following plasterboard systems:

- CSR Fyrecek
- Boral FireStop
- Knauf [13mm FireShield, 13mm MultiShield, 13mm ImpactShield or 13mm QuadShield]
- BGC GTEK fire grade plasterboard

6 Summary

The testing and dimensions of the WPG wall profile studs, as detailed above, is considered to be a suitable substitute within a CSR wall system, or the alternatives, where it is only a minor degree in variation from the tested prototype and that the above wall FRLs are likely to be achieved based on at least an equivalent structural strength.

This evaluation is valid for the duration that BCA 2019 Volume One is a valid reference construction code under the various State and Territory legislative instruments. Any change in the information referenced including product design as detailed in this report to suit future re-organisation or planning including the superseding of the reference documents will require further assessment to confirm compliance with the appropriate references.

This report is prepared in good faith and with due care for information purposes only from the reference documents, and should not be relied upon as providing any warranty or guarantee on the products installation. In particular, attention is drawn to the nature of the inspection and investigations undertaken and the limitations these impose in determining with accuracy the state of the product, its services, equipment, installation control and associated quality assurance during the construction of a building.

Benjamin Hughes-Brown | FIEAust CPEng NER APEC Engineer IntPE(Aus)

Chief Executive Officer
Chartered Professional Engineer

CPEng, NER (Fire Safety / Mech) 2590091, RPEQ 11498, BPB-C10-1875, EF-39394
MFireSafety (UWS), BEng (UTS), GradDipBushFire (UWS), DipEngPrac (UTS), DipEng (CIT)