

# GIB<sup>®</sup> Residential Garage Boundary Walls: Supplement to 'GIB<sup>®</sup> Fire Rated Systems'

## Scope of Use

The construction offered in this bulletin is intended for use when NZBC Acceptable Solution C/AS1 requires a Fire Resistance Rating (FRR) for a single storey residential garage boundary wall within 1m from a property boundary. The garage or carport must have a Fire Hazard Category not more than 1 as defined in table 2.1 of C/AS1. This includes a standard single household garage for use by the household occupants only (SH purpose group).

For boundary walls outside this scope the designer must ensure that structural stability is maintained for the specified time of fire resistance. The solution will require project specific considerations and could involve fire rated return walls, a fire rated ceiling or a detail similar to the one presented in this Bulletin.

## Compliance with the NZBC

- Under normal conditions of dry internal use GIB<sup>®</sup> Fire Rated Systems have a serviceable life in excess of 50 years and satisfy the requirements of NZBC Clause B2 – Durability.
- GIB<sup>®</sup> Fire Rated Systems provide passive fire protection in accordance with the requirements of NZBC Clause C3 – Spread of Fire.
- GIB<sup>®</sup> Residential Garage Boundary Walls satisfy the requirements of NZBC Clause C4 – Structural Stability during Fire and have been designed to fall inwards and away from the adjacent property boundary when collapse conditions are reached during a fire.

## Selecting the FRR

If the garage meets the following conditions, the FRR of the boundary walls can be assessed from this Technical Bulletin. For situations outside these conditions Part 5 and 7 of NZBC Acceptable Solution C/AS1 must be followed with respect to establishing the required FRR and distance to the boundary.

- i) For attached and detached garages less than 1m from the boundary, a 30/30/30 2-way FRR is required
- ii) For garages 1m or more from the boundary no FRR is required
- iii) A carport can have 100% unprotected walls and roof if 2 perimeter sides are open, and:
  - a) the roof plan is less than 40m<sup>2</sup> and no part of the roof is closer than 0.3m to the boundary
  - b) the roof plan is greater than 40m<sup>2</sup> and no part of the roof is closer than 1m to the boundary

If these conditions are not met, comply with the requirements of C/AS1 clause 7.8.10.

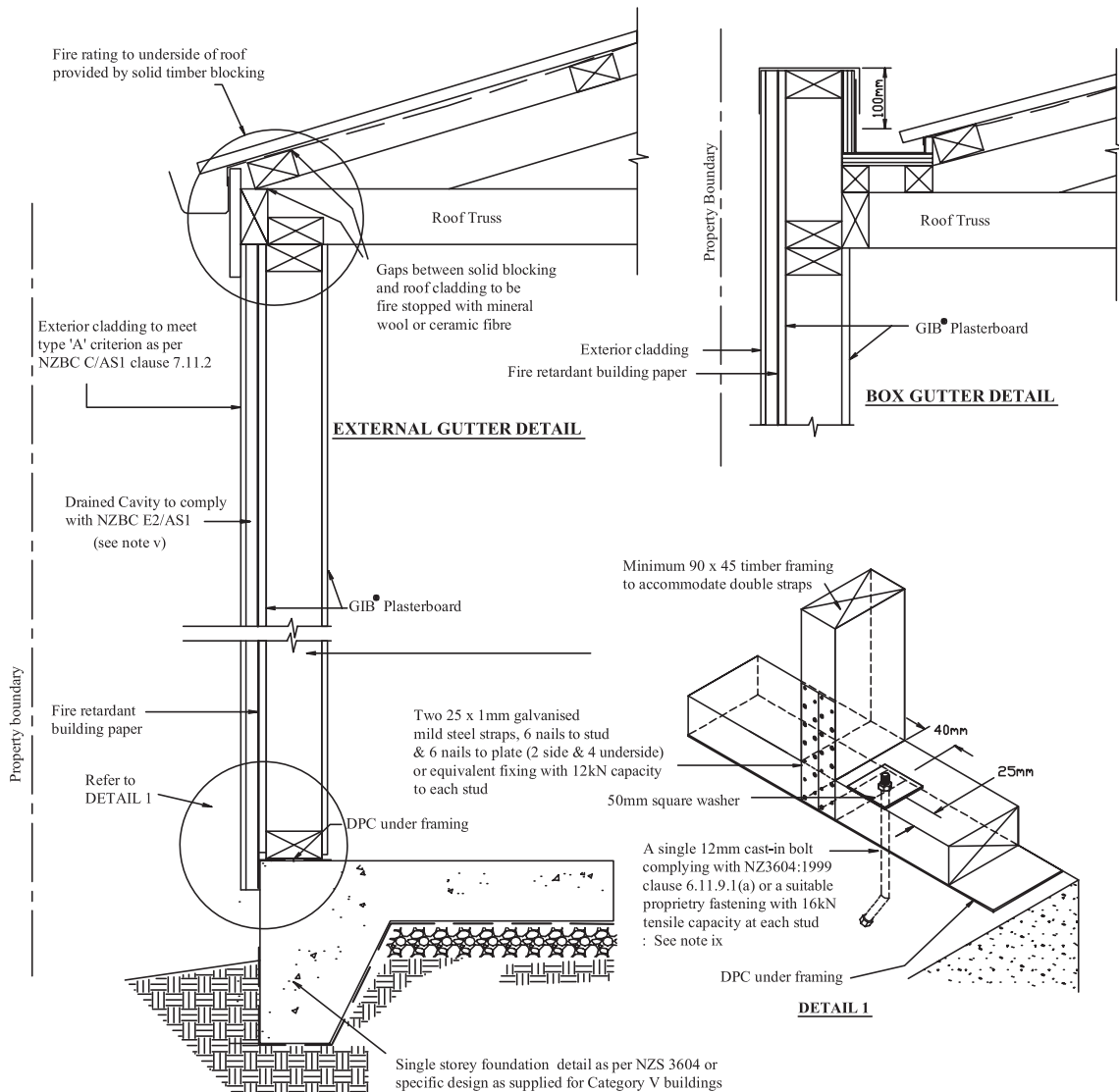
A garage or carport can be connected to a house without the need for a FRR (between the garage and house) provided that the house is under the same ownership as the garage/carport and solely for the use of the occupants of the household.

For further information please contact the GIB<sup>®</sup> Helpline on 0800 100 442.

<sup>1</sup> **Reference:** MacDonal Barnett Partners, Consulting Civil and Structural Engineers, Report No 5109 CRB, dated 13 October 1993, Producer Statement dated 1 March 1994, and letters/faxes dated 12/6/02, 28/6/02, 2/12/02 & 17/12/02.

**Notes**

- i. A wall less than 1m from the boundary requires a 2-way FRR. Select the appropriate system and construct in accordance with 'GIB® Fire Rated Systems, 2006'.
- ii. When less than 0.2m from the boundary, end return walls at 90° to the boundary must be fire rated within this 0.2m. The FRR is the same as for the boundary wall. Alternatively a fire rated wing wall complying with table 7.3 of NZBC C/AS1 could be constructed.
- iii. Timber grade and treatment must be in accordance with NZS3604:1999 and NZS3602:2003.
- iv. Sheet joints in GIB® plasterboard under external claddings do not require taping and stopping.
- v. Cladding materials must be separated from GIB® plasterboard by means of a fire retardant building paper over the GIB® plasterboard and vertical timber battens with a nominal depth of 20mm. Follow the requirements of NZBC E2/AS1.
- vi. Cladding materials must comply with NZBC C/AS1 clause 7.11.2. This requires a 'Type A' cladding when the wall is within 1m of the property boundary. 'Non-combustible' claddings, such as concrete, brick and steel, meet the Type A criterion. Cellulose fibre-cement with a coating less than 1mm is also classed Type A. Products such as plywood and timber or PVC weatherboards do not meet the Type A requirement and cannot be used within 1m of the boundary.
- vii. The drawings below assume a standard wall height up to 2.4m and a stud spacing of 600mm. Walls from 2.4 to 2.8m require stud spacing at 450mm and walls from 2.8 to 3m require studs at 400mm.
- viii. Construct finished floor levels and foundation edge in accordance with NZS3604 clause 7.5.2. Generally requirements are relaxed for Category V buildings. Contact your local Building Consent Authority.
- ix. Suitable proprietary 16kN bottom plate fastenings include:
  - A single M12 CHEMSET fastener set 90mm into concrete
  - A single HSB12/150 Screw Bolt
  - 2 wedge anchors with 8kN capacity (one each side of the stud)
 (Contact the fastener supplier for verification of performance)



<sup>2</sup> The cladding is tested to AS/NZS3837 at an irradiance of 50kW/m<sup>2</sup> for a duration of 15 minutes and also is required to meet the requirements of C9.1 of the NZBC Acceptable Solution C/AS1.