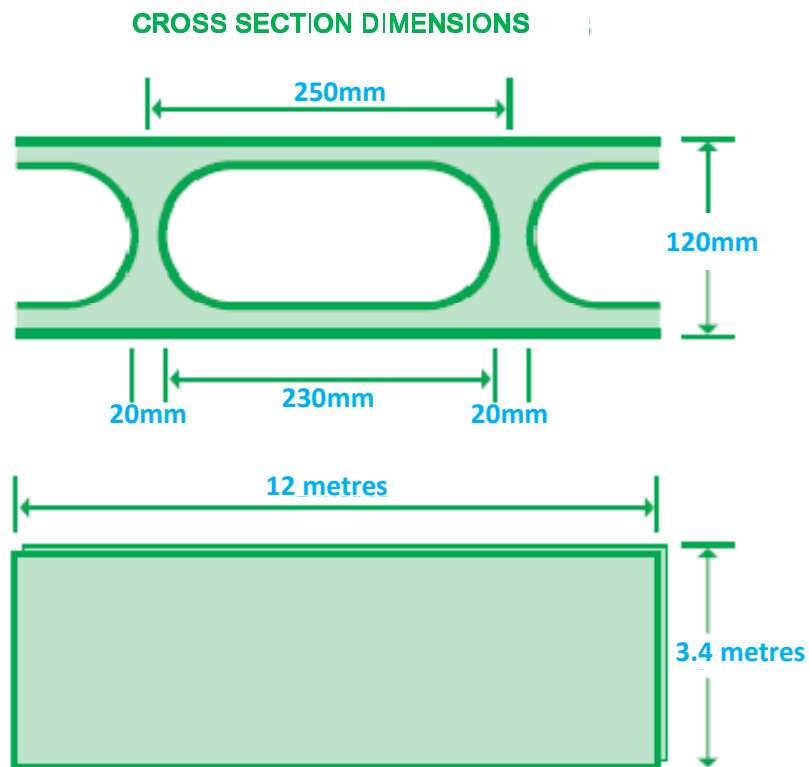




## Technical Details & Standard Sketches



GulfWalling FZCO Jebel Ali Free Zone South, P.O. Box 16972 Dubai U.A.E.

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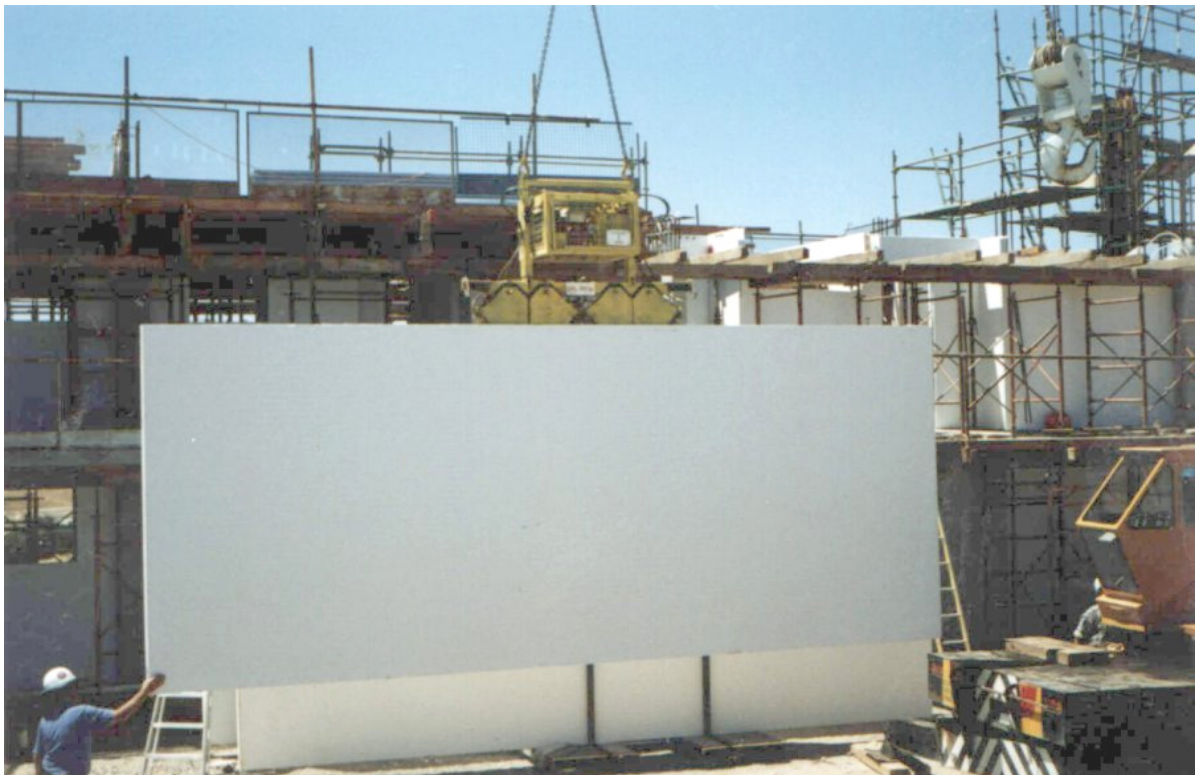
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## GulfWall Technical Details

Our companies have been installing this concept in Australia for over twelve years. In Australia, GulfWall is known as OzWall. Given this, some of the technical reports and certificates have been completed on OzWall.

GulfWall and Ozwall represent the latest technology in precast gypsum walling providing the principle benefits of speed of construction, light weight, cost benefits and a high quality finish. This technical guide provides some of the technical information on the product.

The design of the wall system for a building requires the services of professional consultants. This technical guide has been prepared as a source of information to provide general guidance to professional consultants and in no way replaces the services of the professional consultants on the project. No liability can therefore be accepted by GulfWalling FZCO or other parties for its use.





**The key product properties are as follows:**

Fire Resistance Core Filled Panel – 400KN/m Working Load	F.R.L. 120/120/120 (2 Hrs.)
Fire Resistance Core Unfilled Panel	F.R.L. 90/90/90 (1.5 Hrs.)
Acoustic Properties Core Filled Panel	S.T.C. 51
Acoustic Properties Core Unfilled Panel	S.T.C. 28
Water Absorption	<5% After 24 hours Immersion
Gulfwall Panel Unit Weight (Unfilled)	54 kilos per m <sup>2</sup>
Gulfwall Panel Unit Weight (Concrete Filled)	240 kilos per m <sup>2</sup>
Grout filling quantity	75 litres/m <sup>2</sup>
Axial Load Capacity Core Filled with Minimum 32Mpa Concrete (Eccentricity = 0)	695 KN/m width of wall
Axial Load Capacity Core Unfilled (Eccentricity = 0)	110 KN/m width of wall
Bending Capacity Unreinforced Core Filled (32MPa) Ribs Parallel to Span	5.1 KN m/m
Bending Capacity Unreinforced Core Unfilled Ribs Parallel to Span	2.9 KN m/m
Bending Capacity Reinforced Core Filled (For One N12 located centrally in one 32MPa Filled core) Ribs Parallel to Span	1.8 KN m/core
In Plane Shear Capacity Unfilled Panel	20.5 KN
Out of Plane Shear Capacity Unfilled Panel Ribs Parallel to Span	4.6 KN/m
Out of Plane Shear Capacity Unfilled Panel Ribs Perpendicular to Span	1.4 KN/m

Code Mark Certificates

# CERTIFICATE OF CONFORMITY





## CODEMARK™

This is to certify that

### Ozwall Wall Panels and Partitions\*

**Comply with Building Code of Australia (BCA) as follows:**

- Volume One BPI 1(a) when designed and constructed in accordance with "Engineering Design Guidelines" by Robert Bird Group Version 2, dated 24/07/2007.
- Volume Two P2.1(a); when designed and constructed in accordance with "Engineering Design Guidelines" by Robert Bird Group Version 2, dated 24/07/2007.
- Volume One CP4, CP2, CP3, CP4, CP5, CP6, CP7 for applications supported top and bottom, requiring FRL up to 120/120/120 for load bearing walls up to 2,850 mm high (with up to 400 kN/m working load) and FRL up to 240/240/240 for non-load-bearing walls up to 2,850 mm high.
- Volume Two P2.3.1; for applications supported top and bottom, requiring FRL up to 120/120/120 for load bearing walls up to 2,850 mm high (with up to 400 kN/m working load) and FRL up to 240/240/240 for non-load-bearing walls up to 2,850 mm high, in which the fill may be sand-cement grout of density approximately 2000kg/m<sup>3</sup>.
- Volume One FP5.2, FP5.5 and Volume 2 P2.4.6(a), for applications requiring:
  - Rw of 50; or
  - Rw + Cir of 50 (when constructed with 13 mm Gyprok, Tintire TSB8 polyester insulation and fixed by Beta Clips on 28 mm furring channels).

**Subject to the following conditions and limitations:**

- Product selection, and incorporation into the building design, shall be made by a professional Engineer who:
  - Has qualifications and experience acceptable to the relevant approval authorities;
  - Has received training in the use, application and technical aspects of the product; and
  - Has ready access to all the relevant technical information and test reports related to the product use.
- Product installation, shall be carried out by a competent person under the direction of a Builder, both of whom:
  - Have qualifications and experience acceptable to the relevant approval authorities;
  - Have received training in the use, application and technical aspects of the product (as per the Installation Training Instructions dated 17/07/2007); and
  - Have ready access to all the relevant technical information and test reports related to the product use.

Note: The state administration's have differing requirements in respect of qualifications of structural engineers, including registration on the National Professional Engineers Register, and Registered Professional Engineer Queensland.


**Certificate holder**

Ozwall Manufacturing Pty Ltd  
1592-1594 Main North Road  
Brahma Lodge, SA 5109

**GlobalMark certification body**

GlobalMark Pty Ltd  
25/28 Barcoo Street  
Roseville NSW 2069, Australia  
www.GlobalMark.com.au



**Harve Michoux, Managing Director**



**Date of issue** 14/01/2008      **Date of expiry** 14/01/2011

**Certificate Number** GM-07-CM60002

- This Certificate of Conformity is issued under arrangement with JAS-ANZ. The ABCB does not in any way warrant or represent that the Product the subject of this Certificate of Conformity conforms with the BCA, nor accepts any liability arising out of the use of the Product.
- It is advised to check that this Certificate of Conformity is currently valid and not withdrawn, suspended or superseded by a later issue by referring to the ABCB website, [www.abcb.gov.au](http://www.abcb.gov.au).

\* OzWall also known as GulfWall in other markets.



**CODEMARK™**

This is to certify that

**\* Ozwall Wall Panels and Partitions**



**Comply with Building Code of Australia (BCA) as follows:**

- Volume One B2.1.1 (a) when designed and constructed in accordance with "Engineering Design Guidelines" by Robert Bird Group Version 2 dated 24.07.2007.
- Volume Two P2.1(a); when designed and constructed in accordance with "Engineering Design Guidelines" by Robert Bird Group Version 2 dated 24.07.2007.

**Subject to the following conditions and limitations:**

- Product selection, and incorporation into the building design, shall be made by a professional Engineer who:
  - Has qualifications and experience acceptable to the relevant approval authorities;
  - Has received training in the use, application and technical aspects of the product; and
  - Has ready access to all the relevant technical information and test reports related to the product use
- Product installation, shall be carried out by a competent person under the direction of a Builder, both of whom:
  - Have qualifications and experience acceptable to the relevant approval authorities;
  - Have received training in the use, application and technical aspects of the product (as per the Installation Training Instructions dated 17.07.2007); and
  - Have ready access to all the relevant technical information and test reports related to the product use.

**Notes:**

- The state administrations have differing requirements in respect of qualifications of structural engineers, including registration on the National Professional Engineers Register, and Registered Professional Engineer Queensland.
- Ozwall has tested thermal resistance of R0.27 m2.K/W. Ozwall has tested thermal resistance of R1.0m2.K/W when R1.5 insulation is added in the voids.

**Product description**

120 mm thick unfilled Ozwall Panels and Partitions

**Product purpose or use**

Panels and Partitioning system for use in residential or commercial buildings

**Certificate holder**

Ozwall Manufacturing Pty Ltd  
1592-1594 Main North Road  
Brahma Lodge, SA-5109

**CodeMark certification body**

Global-Mark Pty Ltd  
25/28 Barcoo Street  
Roseville NSW 2069, Australia  
www.Global-Mark.com.au

**Notes:**

- This Certificate of Conformity is issued under arrangement with IAS-ANZ. The ABCB does not in any way warrant or represent that the Product the subject of this Certificate of Conformity conforms with the BCA, nor accepts any liability arising out of the use of the Product.
- It is advised to check that this Certificate of Conformity is currently valid and not withdrawn, suspended or superseded by a later issue by referring to the ABCB website, [www.abcb.gov.au](http://www.abcb.gov.au).

**Herve Michoux, Managing Director**



**Date of issue** 14/11/2008

**Date of expiry** 14/11/2011

**Certificate Number** GM-07-CMG0003





\* OzWall also known as GulfWall in other markets.



## Gulfwall Fire Certificate - Dubai

United Arab Emirates  
Ministry of Interior  
Dubai Civil Defence



دولة الإمارات العربية المتحدة  
وزارة الداخلية  
الإدارة العامة للدفاع المدني  
إدارة الدفاع المدني - دبي

إدارة السلامة الوقائية/قسم اعتماد الشركات

الرقم : 1118 / 17/ 5 F.S.S 66 21

التاريخ : 2009/2/25م

### شهادة لمن بهمه الأمر

يرجى العالِم بِمَـ أن السادة / برويتش انفوتيفمنت  
رخصة تجارة رقم ( 227070 ) قد تقدموا إلينا بطلب ترخيص وكيل بامارة دبي  
لمعدات الدفاع المدني التالية :

م	اسم المعدة	الإسم التجاري	بلد الصنع	رقم قيد الوكالة	منطقة النشاط	تاريخ انتهاء قيد الوكالة
1	حوائط جاهزة مقاومة للحريق	جلف وول GULF WALL	الإمارات	10555	دبي	2010/2/19

الموصفات الفنية للحوائط:

Scope Of Use:	For Use As Non-Loadbearing Panel/Partitioning System In Residential Or Commercial Buildings.
Test Standard	AS 1530.4:2005
Performance:	
1. Insulation	1. 240 MINUTES
2. Integrity	2. 240 MINUTES
3. Load-Bearing Capacity:	3. 240 MINUTES
MAXIMUM LOAD	Non-LOADBEARING
Dimensions	
1. Height:	1. 2850mm(maximum)
2. Width:	2. No limit.
3. Thickness:	3. 120mm(maximum)

وقد تم استيفاء ملف الشركة فنياً من قبل مكتب مختبر BODYCOAT رقم التقرير/ PA0031-1  
ولا مانع لدينا من الموافقة الميدانية الفنية، على أن يراجعونا لإستكمال كافة الإجراءات المتبعة لدى ادارتنا الموقرة  
لإصدار الترخيص الرسمي الخاص بالشركة المذكورة.

شريطة: إن لإيتم تداول الحوائط المذكورة، إعلاناً في المشاريع حتى إصدار الترخيص الرسمي من قبل ادارتنا الموقرة

أعطيت هذه الشهادة للشركة بناءً على طلبها دون تحمل إدارة الدفاع المدني حدى أى مسؤولية اتجاه الغير

النقيب /

أبراهيم سعيد سيف

مدير إدارة السلامة الوقائية /الإدارة

يجب ألا يعمل الفريق بامتياز فقط بل أن يفكر بامتياز وأن يتصرف بامتياز

((من كتاب رونيتو))

• ملاحظة : صلاحية هذه الشهادة شهر واحد فقط من تاريخه .

Tel.: 009714 2611111 Fax : 009714 2612449 P.O. Box 11377



www.dcd.gov.ae



United Arab Emirates  
Ministry of Interior  
Civil Defence HQ  
Dubai Civil Defence HQ

دولة الإمارات العربية  
وزارة الداخلية  
الإدارة العامة للدفاع المدني  
إدارة الدفاع المدني - دبي

بطاقة اعتماد معدات الدفاع المدني - وكيل  
DCD Equipment Approval Card - Agent

[ A160 ] [ 2009 ]

Factory Name	بريتش اير تيمبنت		اسم الشركة
Reg. No.	24532	رقم السجل License No	227070
Owner Name	طلال محمد علي احمد بونين		اسم صاحب الترخيص
Manager Name			اسم المدير المسؤول
P.O.Box	53443	ص.ب. Tel No	3555864
Fax No			3496805
Address	دبي - بر دبي - المطوة		العنوان
Card/ File No			440
Issue Date	2009/03/09م		تاريخ الإصدار
Expiry Date	2010/03/09م		تاريخ الانتهاء
Number of the approved equipment			عدد المعدات المصدقة

عدد المعدات المصدقة: 2

[ A160 ]		المعدات المصدقة Approved Equipments			بريتش اير تيمبنت	اسم الشركة
تاريخ الانتهاء Expiry D	منطقة الترخيص Agency Area	رقم الترخيص Agency No	اسم المصنع Manufacturer	الاسم التجاري Trading Name	اسم المعدة Equipment	رقم No
2010.01.12	دبي	10488	المنطقة الحرة جول على	جول وول GULF WALL	الزجاج و حوائط خفيفة معية بابل والاسمنت ( 2000 high-3 ) 32 MP  INSULATION: 240 minutes Integrity: 240 minutes load-bearing capacity: 240minutes  Height: 2850mm(maximum) Width : No limit Thickness: 120mm( minimum)	1
2010.01.12	دبي	10489	المنطقة الحرة جول على	جول وول GULF WALL	الجبس العنق  INSULATION: 240 minutes Integrity: 240 minutes load-bearing capacity: 240minutes  Height: 2850mm(maximum) Width : No limit Thickness: 120mm( minimum)	2



## Gulfwall Fire Certificate – Abu Dhabi

United Arab Emirates

Ministry of Interior



دولة الإمارات العربية المتحدة

وزارة الداخلية

إدارة الدفاع المدني أبوظبي

قسم الوقاية والسلامة

الرقم: 5 / 17 / 134  
 التاريخ: / / 1430 هـ  
 الموافق: 18 / 4 / 2009 م

السادة / جلف وولينغ ش م ح المحترمين

الموضوع / موافقة على مواصفات فنيةإشارة لكتابكم رقم بدون الوارد إلينا بتاريخ 2009/4/7

- بعد إطلاعنا على تقارير الفحص والمستندات المقدمة من قبلكم للمواد المذكورة بكتابكم أعلاه ألواح وحوائط جبسية جاهزة معبئة بالرمل والاسمنت بسمك 120 ملم ويطول وعرض مختلف المقاسات نوع جلف وول صناعة الامارات، لا مانع من الموافقة على المواصفات الفنية واعتمادها كألواح وحوائط مقاومة للحريق لمدة 240 دقيقة.

وتفضلوا بقبول فائق الاحترام.

العقيد /  
 عبدالرحمن بن غريب  
 مدير إدارة الدفاع المدني أبوظبي  
 وزارة الداخلية  
 إدارة الدفاع المدني - أبوظبي  
 الوقاية والسلامة

نسخة الى :-  
 الملف العام

## Gulfwall Fire Certificate (English Translation) – Abu Dhabi

**United Arab Emirates**  
**Ministry of Interior**

**Civil Defence Department – Abu Dhabi**

**Safety and Prevention Division**

No.: 5/17/1134

Date: / /1430 Hijri

Corresponding to : 8/4/2009

**Ms/ Gulf Walling FZCo** Esteemed

**Subject: Approval regarding the Technical Descriptions**

Reference to your letter with the number issued to us on 7/4/2009

- After reviewing the reports of test and documents submitted from your side as mentioned in your letter as aforesaid including the ready gypsum walls and plaques filled with sands and cement with the thickness of 120 mm with different sizes of length and of the type of Gulf Wall manufactured in UAE, there is no objection regarding the technical descriptions and approve the same as walls and plaques resistant against the fire for the period of 240 minutes.

All our best respects.

Signed and sealed

**Colonel**  
**Abdullah Hassen Gharib**  
**Director of the Civil Defence Department – Abu Dhabi**

COPY TO:-  
GENERAL FILE

## GulfWall Fire Performance



### Manufacturing & Materials Technology

14 Julius Avenue, Riserside Corporate Park, North Ryde, NSW 2113, Australia

Australia

#### Postal Address:

PO Box 310, North Ryde, NSW 1610, Australia

Telephone: 61 2 9490 5444 Facsimile: 61 2 9490 5555

www.csiro.au

6841187 13.02

Our Ref: FCO-2552

Ozwall Pty Ltd  
471 King Avenue  
FAIRLIGHT NSW 2094

Attention: Mr Geoff Wyatt

**MODIFIED WALL SYSTEM**  
**Assessment Number FCO-2552**  
**Your letters of 15 November**

### INTRODUCTION

We have examined the information referenced by you with regard to the fire performance of your wall system comprising modified profile panels. The information included

- our sponsored investigation report numbered FSV 0474;
- report by Robert Bird Group detailing the axial load-bearing capacity of grout filled Ozwall panels;
- our assessment report FCO-1560 and
- drawing numbered OZ-SK 4, dated November 2006, by Ozwall Pty Ltd detailing the panel profile;

We have retained these documents.

You have requested that this Division carry out an analysis of the likely effects of 400 kN/m load on fire-resistance performance of 120 mm Ozwall wall systems.

### ANALYSIS

On 18 February 1997 this Division conducted a fire-resistance test numbered FSV 0474 to AS 1530.4 – 1990 on a loadbearing wall system comprising a standard panel 2600 mm high x 3000 mm wide x 100 mm thick. The panel had a skin thickness of 13 mm and a rib thickness of 20 mm at 300 mm centres. The voids of the panels were filled with 35 MPa concrete with 10 mm aggregate.

On each face, off set from each other was a single HPM fire rated GPD box recessed into the panel. A total load of 450 kN was evenly distributed over the wall system for the duration of the test.

The tested specimen achieved a fire-resistance level (FRL) of 240/240/240. The fire-resistance level of specimen is applicable for exposure to fire from either direction.

THIS ASSESSMENT SUPERSEDES ASSESSMENT NUMBER FCO-1560 DATED 01 DECEMBER 2006

Australian Science. Australia's  
Future

\* OzWall also known as GulfWall in other markets.

New generation precast technology

**GULFWALL**

FCD-2562

Page 2 of 3 pages

You are proposing to use a panel similar to that tested, using the same materials and reinforcement, except that:

- the water/cement ratio has been slightly reduced to increase density;
- the wall thickness has been increased from 13 mm to 14 mm;
- the profile of the web section has been changed to increase the amount of material;
- the working load is increased from 150 kN/metre to 400 kN/metre;
- the panel would be filled with 32 MPa concrete instead of 35 MPa concrete;
- the height of the panel would be 2650 mm instead of 2630 mm; and
- the thickness of the panel would be increased from 100 mm to 120 mm.

With the load being increased by to 2.7 times (400/150) the tested load, additional residual wall area must be maintained which is unaffected by the strength reduction characteristic of these materials at high temperature. Thus it was decided to increase the residual area to more than three times of that calculated for the tested specimen.

In our assessment report FCD-1580, a finite element computerised analysis was performed and recognising critical temperature for concrete performance of around 380°C it was determined that when subject to a standard fire exposure to one face re residual concrete section at 120 minutes would be capable of supporting the proposed 400kNm load. This new section has an increased material cross-section for the 120-mm thick panel and it would therefore be conservatively subject to the same result as the initial analysis

#### CONCLUSION/ASSESSMENT

Based on the factors detailed above and using computer modelling with the adjusted thickness of the panel it is the assessment of this Division that, the OzWall concrete panel to a height of 2650 mm and filled with 32 MPa concrete with working load of 400 kN/metre would be capable of achieving fire-resistance levels of 120/120/120 if tested in accordance with the requirements of AS 1538.4-2005.

Additionally, if the new profile panels were filled with sand/cement grout of density approximately 2000 kg/m<sup>3</sup> then the performance as a non-loadbearing element would be equivalent to that of the original test prototype and would be capable of achieving fire-resistance levels of -240/240 if tested in accordance with AS 1538.4-2005 for a maximum height of 2650 mm.

#### TERM OF VALIDITY

This assessment report will lapse on 31 December 2011. Should you wish us to re-examine this assessment with a view to the possible extension of its term of validity, would you please apply to us three to four months before the date of expiry. This division reserves the right at any time to amend or withdraw this report in the light of new knowledge.

Yours faithfully



Gary E Collins  
Manager, Fire Testing and Assessments

16 January 2007.

THIS ASSESSMENT SUPERSEDES ASSESSMENT NUMBER FCD-056 DATED 20 OCTOBER 2004

\* OzWall also known as GulfWall in other markets.

## Thermal Ratings for GulfWall

**UNITED BONDED FABRICS PTY LIMITED**

### TECHNICAL DOCUMENT

**Author:** Graeme Wood, Technical Manager  
**Date:** 21 April 2006  
**Number:** TD0620



### SUBJECT: THERMAL RATINGS FOR OZWALL\* BUILDING PANELS AND ADDED POLYESTER INSULATION

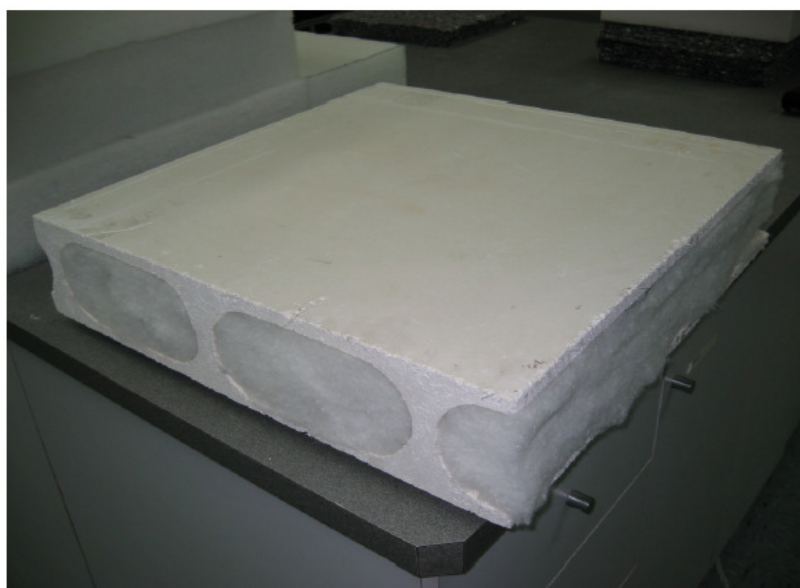
Thermal ratings were conducted on a sample of Ozwall hollow fibrous plaster shell, used in building panels. The sample provided was 125mm thick. The overall thermal rating of the panel was to be increased by filling the voids with Insuloft blanket, with the goal of achieving a rating of R1.5 or higher.

A 'material' rating for the building panel of R1.5 would enable its use in residential buildings with no other requirements for insulation or reflective foil, and still comply with the Building Code of Australia when used in all Climate Zones other than 7 and 8. This is because the addition of thermal resistances from associated building materials (plasterboard) and air surfaces will enable a 'total' wall R-rating of R1.7 or higher to be achieved. If the building panel doubles as an internal wall then a material R-rating of R1.6 or higher is sought.

Three thermal rating tests were conducted on the sample of building panel:

1. As is, with no added insulation.
2. Tontine Insuloft R1.5 insulation filling the voids.
3. Tontine Insuloft R2.5 insulation filling the voids.

The Insuloft insulation was able to neatly fill the void with no gaps (refer to image below).



The samples were analysed on the in-house Lasercomp Fox 600 heat flow meter with a nominal mean temperature of 23°C and the upper and lower plates set at 15°C and 31°C respectively.



TD0620 Ozwall Apr06  
Page 1 of 2

21-Apr-06

\* OzWall also known as GulfWall in other markets.

## Results

Test number	Description	k (W/m/°C)	R-value (m <sup>2</sup> °C/W)
397	Building panel with no added insulation	0.459	0.27
404	Building panel with R1.5 insulation in voids	0.120	1.04
403	Building panel with R1.5 insulation in voids	0.114	1.10

## Comments

Filling the voids with R1.5 insulation increased the overall thermal rating of the panel by 0.77 m<sup>2</sup>°C/W to 1.04 m<sup>2</sup>°C/W, but there was little extra to be achieved with a higher grade of insulation. There is a limitation in the achievable thermal rating due to the thermal bridging through the fibrous plaster.

Depending on what other associated building materials are used (e.g. 10mm plasterboard) and air surfaces (outdoor, air gap and indoor), the extra thermal resistances may be up to 0.37 m<sup>2</sup>°C/W without reflective foil and up to 0.55 m<sup>2</sup>°C/W with reflective foil. However the 'total' R-rating of the sample 125mm Ozwall\*building panel filled with Insuloft R1.5 used in a wall construction would still fall short of the required value of R1.7 for compliance with the BCA in Climate Zones 1 – 6.



\* OzWall also known as GulfWall in other markets.

## GulfWall Acoustic Report



# VIPAC ENGINEERS & SCIENTISTS

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Ozwall Pty Ltd  
4/1 King Avenue  
Fairlight NSW Australia

15 Dec 2006  
Ref: 50B-04-5610-GCO-225316-1

### Attention: Geoff Wyett

Dear Sir,

### Ozwall\*120mm Panel Acoustic Opinion

This opinion presents the results from acoustic tests conducted on 120mm Ozwall\*panels in three construction configurations including hollow (unfilled), concrete filled, and concrete filled with a single layer of 13mm plasterboard on one side mounted on Beta Fix clips on furring channels with TSB3 cavity infill.

#### 1. REFERENCES

- [1] Building Code of Australia 2006.
- [2] Vipac Report – “120mm Ozwall\*Laboratory Test” – Report Number 50B-04-5610-TRP-225159-1.
- [3] PKA Report – “STC Tests on Various Configurations of 120mm Rapidwall Panel” – Report Number 99030 R03.
- [4] AS1191:2002 – “Acoustics - Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions”.

#### 2. CRITERIA

The BCA 2006 requires that a wall in a Class 2 or 3 building must have an  $R_w + C_{tr}$  (airborne) rating not less than 50 if it separates sole occupancy units, and  $R_w$  (airborne) not less than 50 if it separates a sole occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification [1].

#### 3. ASSESSMENT

Vipac was engaged to carry out sound transmission loss tests and calculate the Weighted Sound Reduction Indexes ( $R_w$ ) of the following samples:

- 120mm hollow (unfilled) Ozwall\*panel
- 120mm concrete filled Ozwall\*panel
- 120mm concrete filled Ozwall\*panel with a single layer of 13mm plasterboard on one side fixed on Beta Clips and 28mm furring channels with TSB3 cavity infill.

Melbourne • Sydney • Adelaide • Perth • Brisbane • Hunter Valley • Tasmania • Singapore • Hong Kong

\* OzWall also known as GulfWall in other markets.



The STL measurements were carried out in acoustic chambers at The University of Adelaide in November 2006 in accordance with the requirements of AS1191:2002 [4].

The  $R_w$  ratings from the test results are shown in Table 1.

Primary Panel	Additional Lining	Lining Fixing Method	STC	$R_w (C, C_{tr})$
120mm hollow Ozwall*	-	-	31	33 (-1, -2)
120mm concrete-filled Ozwall*	-	-	51	51 (-1, -4)
120mm concrete-filled Ozwall*	13mm Gyprock, Tontine TSB3 polyester insulation <sup>1</sup>	Beta Clips on 28mm furring channels	52	52 (-1, -4)

Table 1: Summary of test results

<sup>1</sup> Additional lining applied to one side of panel only.

Analysis of the test results revealed that flanking noise paths affected measurements for the filled Ozwall panel with lining, resulting in an  $R_w$  marginally lower than expected, particularly at higher frequencies. It was noted that transmission of noise to the panel through wooden framework used to mount the plasterboard affected a much greater area of the test sample than would normally occur (in common use, the plasterboard lining would be fixed directly to framework connected to the panel only at the perimeter of the adjoining wall, which normally represents a much smaller area of the wall than was possible to achieve in the test setup). The analysis of the test results revealed the presence of flanking noise transmission at high frequencies (above 1000Hz), which we consider to be the result of the samples' installation. We note that gaps along the edge of the panel around the aperture frame were blocked best as possible, however some flanking noise was still noted to be present.

Comparison against the test results of a similar product [3] indicates that the acoustic performance of the filled Ozwall panel with lining would be higher than the test results [2] by approximately 2 points. We have calculated the performance of the construction without flanking noise and consider that the wall meets  $R_w + C_{tr}$  50 when installation is carried out correctly.

Following assessment of the Ozwall panels and comparison against calculated performance and the tested performance of a similar system, we consider that a 120mm concrete-filled Ozwall panel with lining on one side of the panel of 13mm plasterboard fixed with Beta Clips on 28mm furring channels will achieve the BCA requirements of  $R_w + C_{tr}$  50 as shown in Table 2.

Primary Panel	Additional Lining	Lining Fixing Method	STC	$R_w (C, C_{tr})$	$R_w + C_{tr}$
120mm hollow Ozwall*	-	-	31	33 (-1, -2)	31
120mm concrete-filled Ozwall*	-	-	51	51 (-1, -4)	47
120mm concrete-filled Ozwall*	13mm Gyprock, Tontine TSB3 polyester insulation <sup>1</sup>	Beta Clips on 28mm furring channels	54	54 (-1, -4)	50

Table 2: Acoustic opinion of Ozwall panel configurations

<sup>1</sup> Additional lining applied to one side of panel only.





Ozwall \*  
Ozwall Pty Ltd  
50B-04-5610-GCO-225316-1

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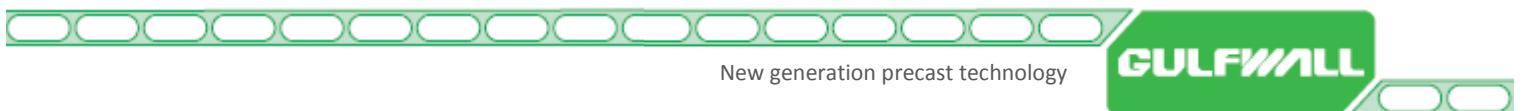
We trust this information is sufficient, however should you have any queries please contact us.

Yours sincerely,  
**VIPAC ENGINEERS & SCIENTISTS LTD**

A handwritten signature in black ink, appearing to read "Paul Philps".

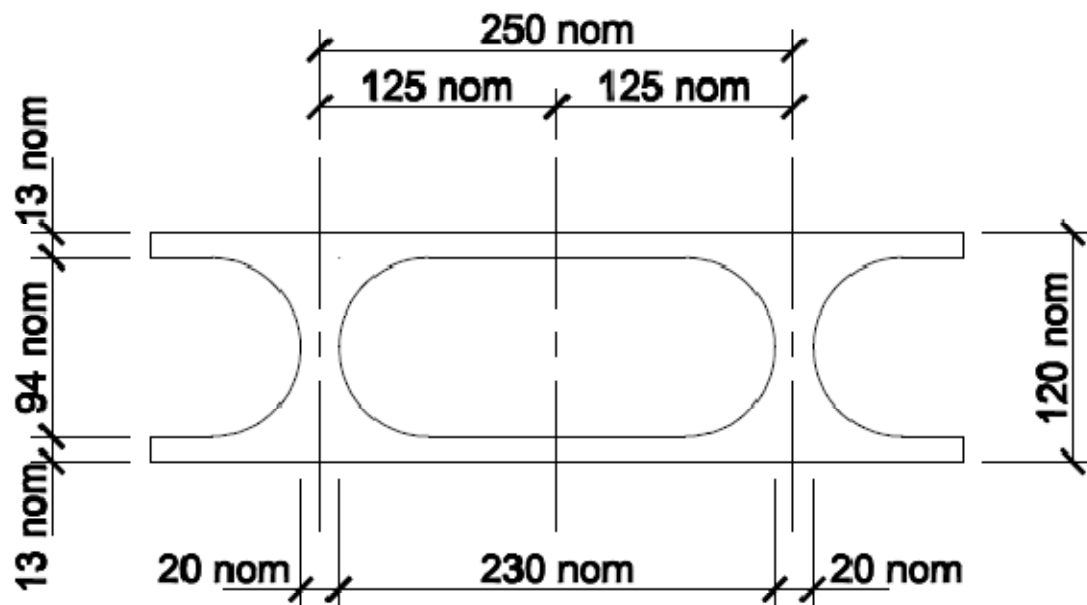
Paul Philps  
Project Engineer

\* OzWall also known as GulfWall in other markets.

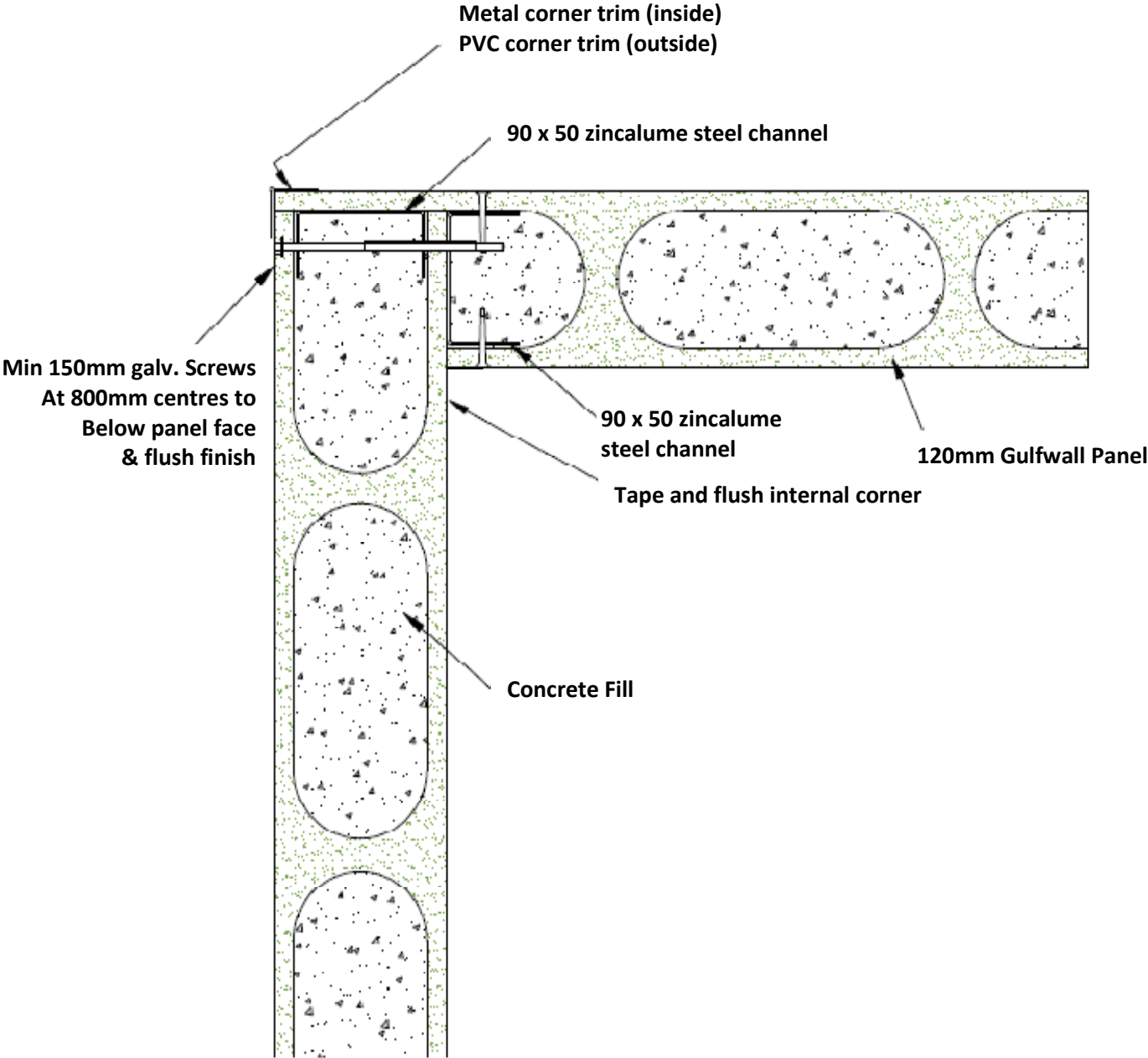


## Standard Details

### Typical Panel Section

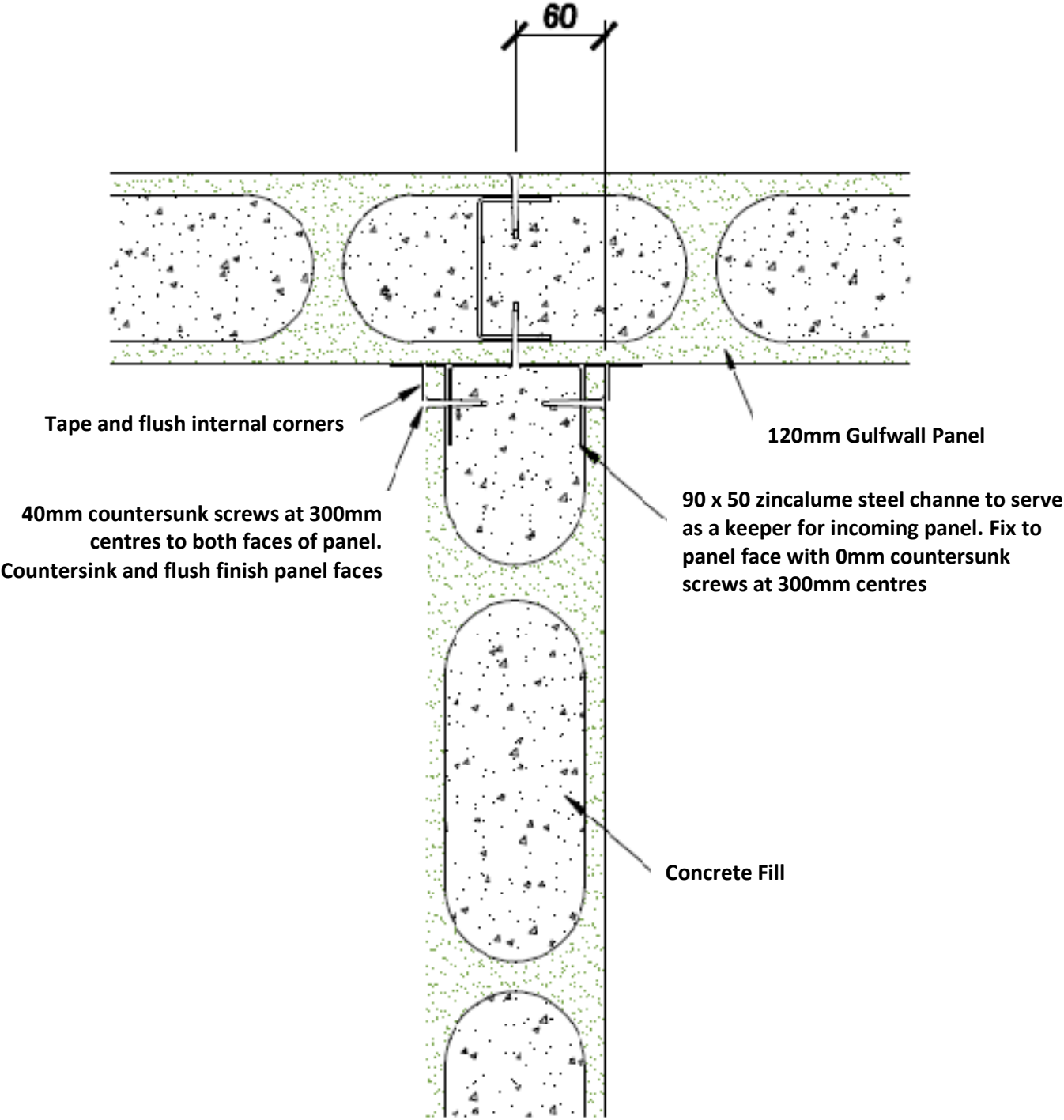


### Corner Detail



**STANDARD CORNER JUNCTION  
(PLAN VIEW)**

### “T” Intersection Detail

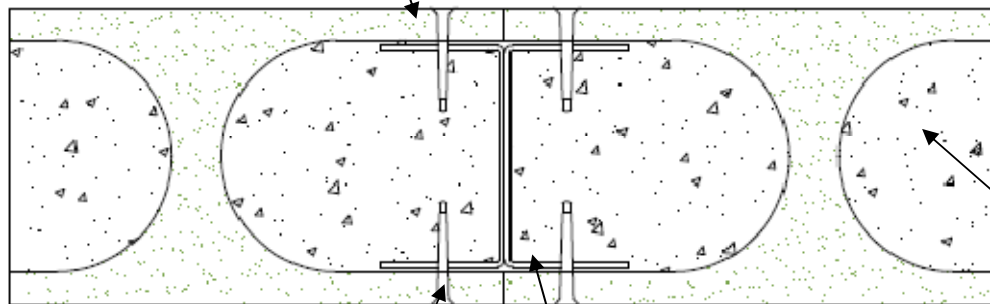


**INTERNAL WALL TEE JUNCTION  
(PLAN VIEW)**

## In Line Panel Joint

90 x 50 zincalume steel channel fixed to inside of panel core with 40mm countersunk screws at 600 centres. Flush finish panel surface

120mm Gulfwall panel



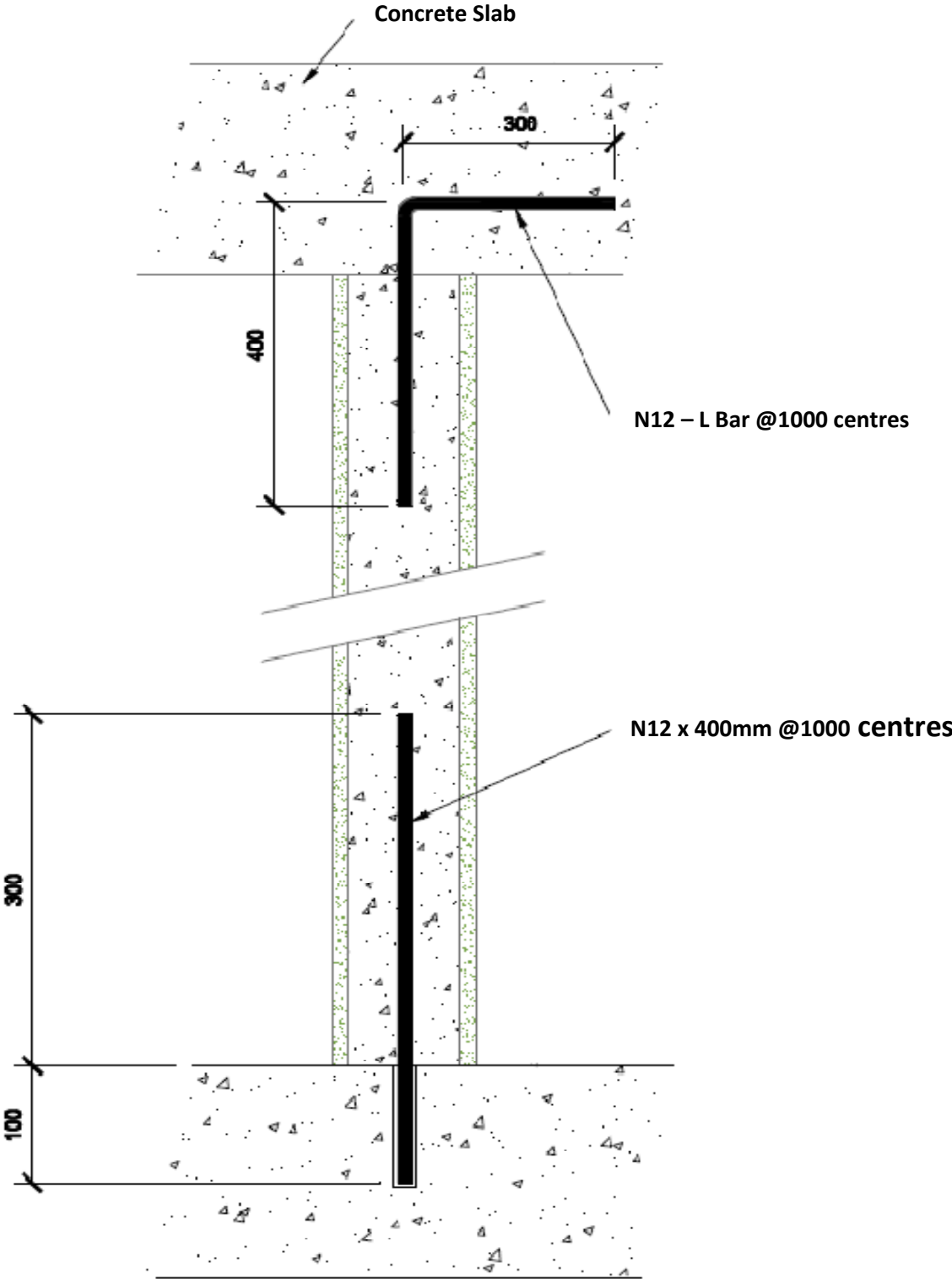
Concrete Fill

40mm countersunk screws at 300mm centres to both faces of panel. Countersunk and flush finish panel faces

90 x 50 zincalume steel channel to serve as a keeper for incoming panel. Fix to panel face with 40mm countersunk screws at 300 centres.

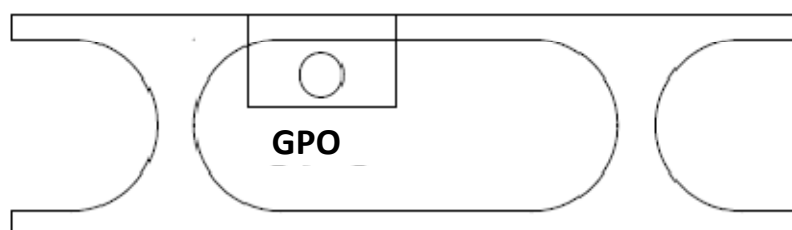
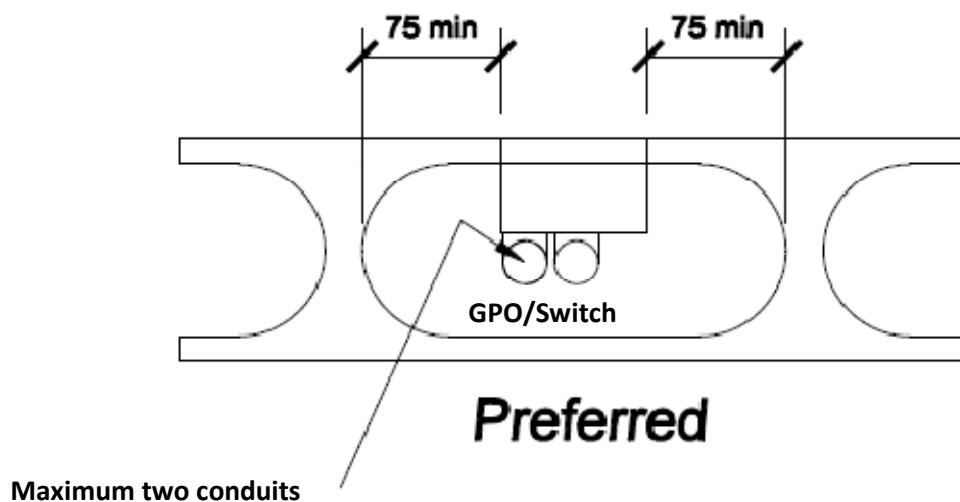
### INTERNAL WALL IN-LINE JUNCTION (PLAN VIEW)

### Standard Reinforcement



- Notes: 1. Pre-mark cables for Post – Tensioned slabs
- 2. If service pipes are hit while drilling, mark for others

## Typical GPO Placement

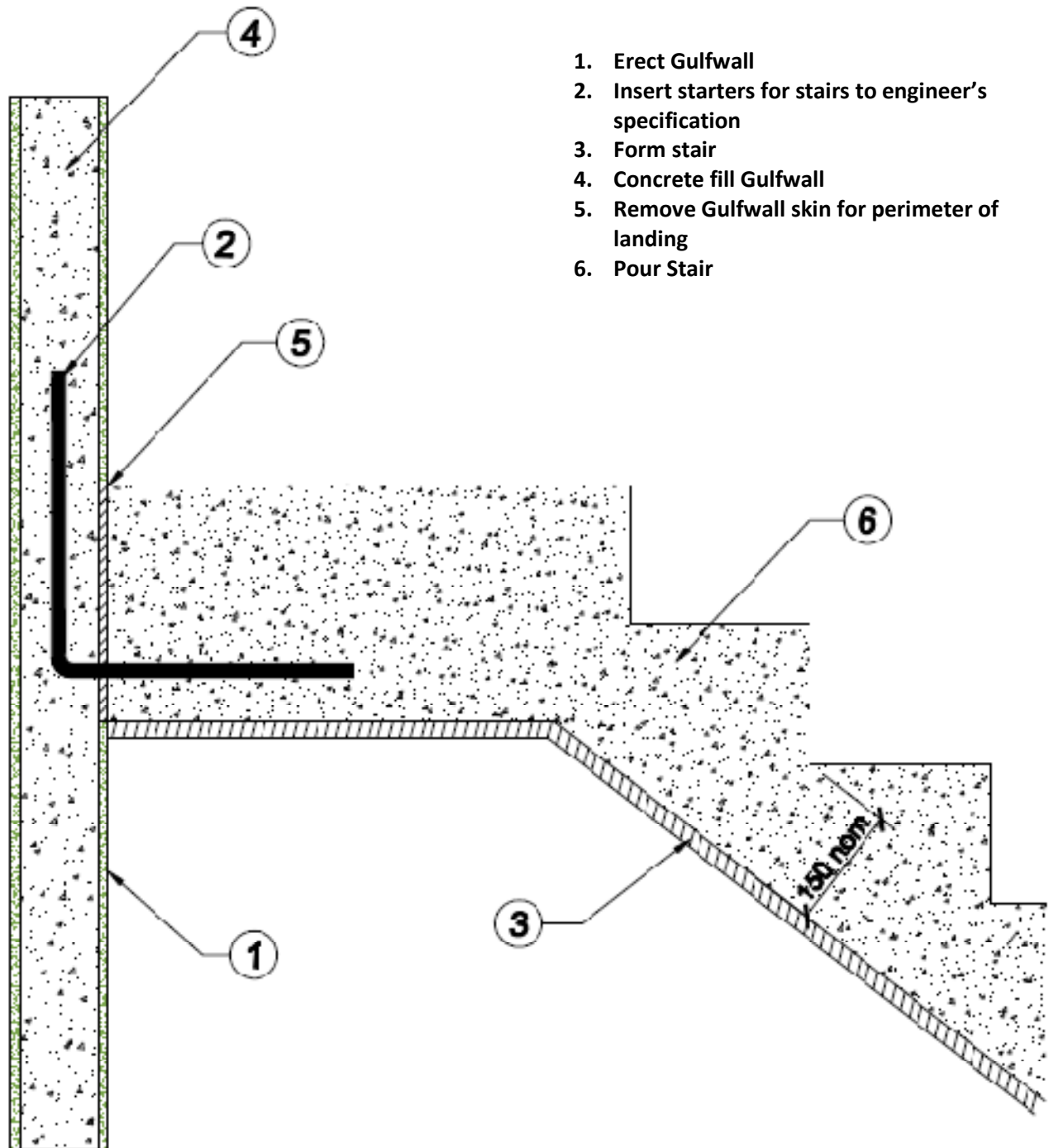


**Not Recommended  
(Grout filling difficult)**

**NB To maintain Fire Rating/Sound Rating**

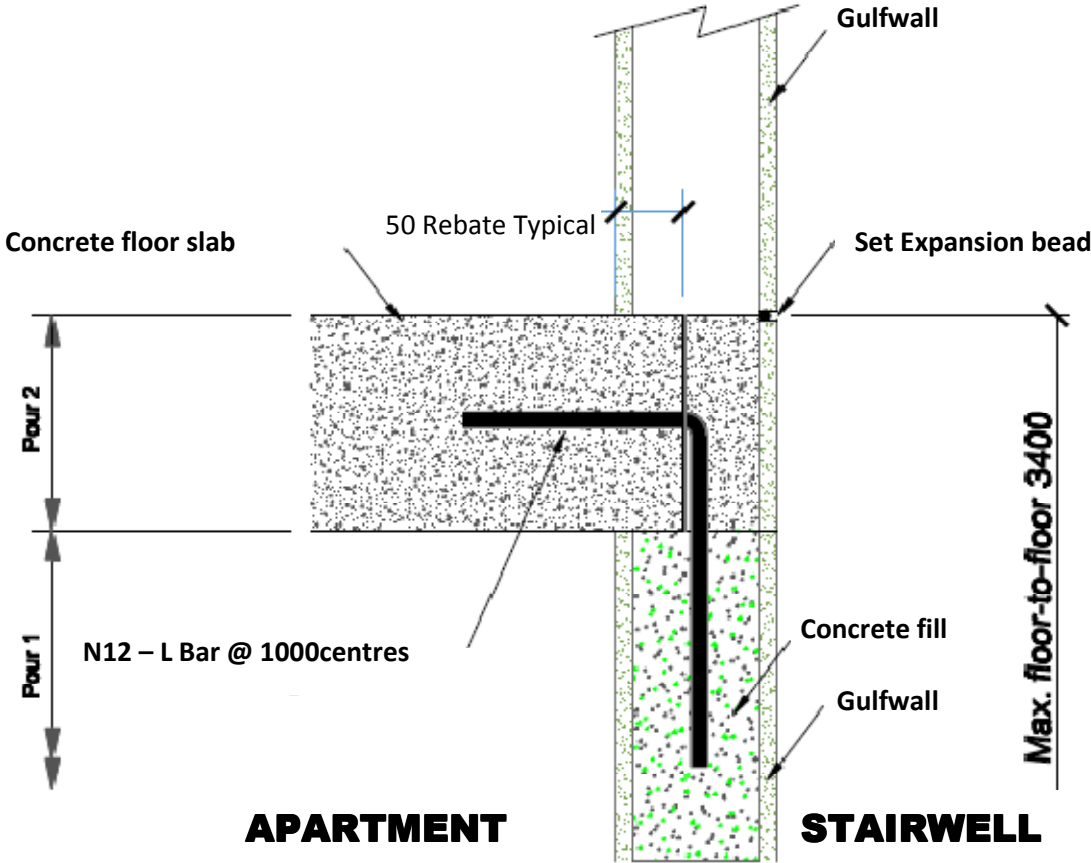
- 1. Maximum 1 box and 2 Conduits per cell**
- 2. No back-to-back GPOs**

## Junction of Stair Landing to Gulfwall



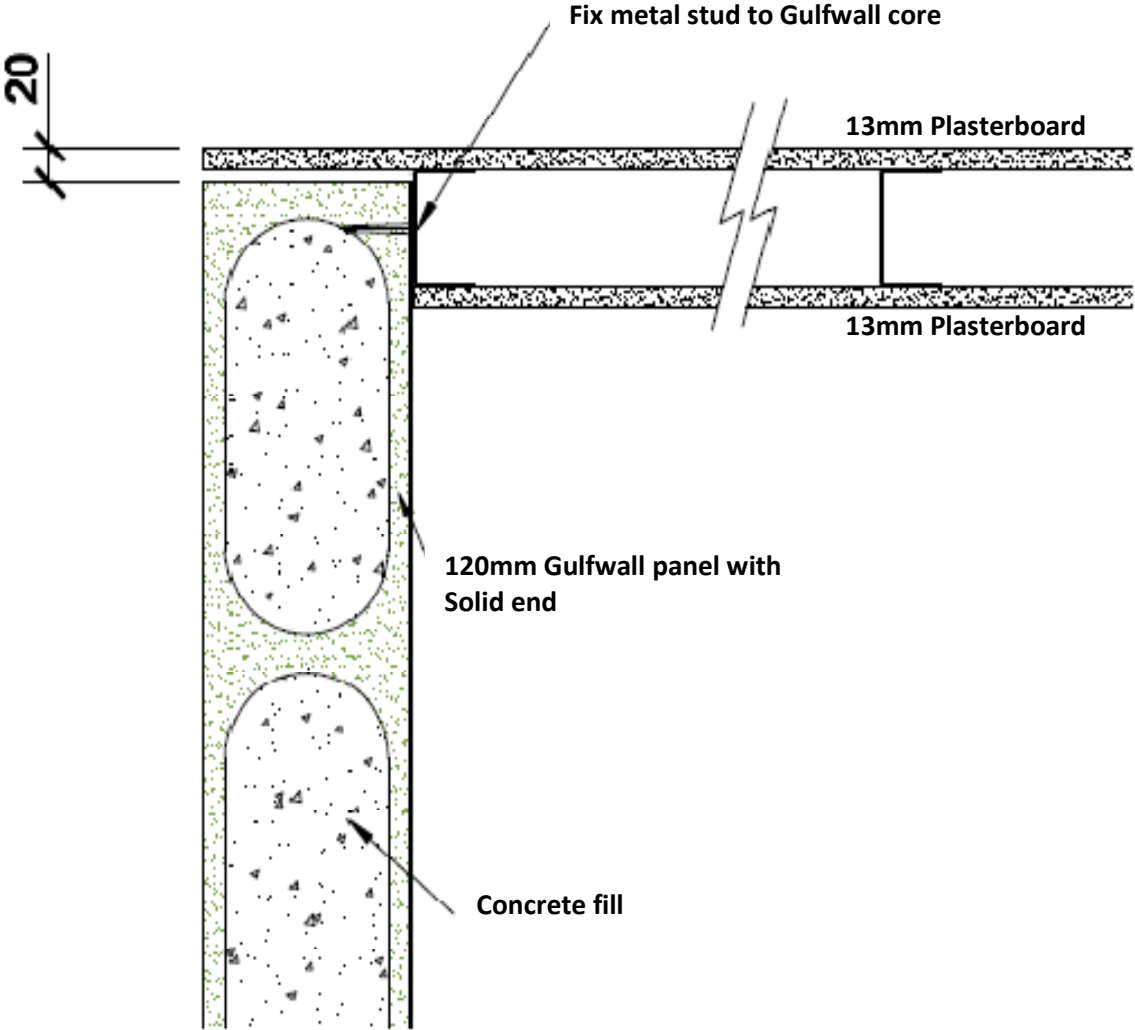


# Stairwell Panel Rebate



**STAIRWELL PANEL JUNCTION  
(POURED CONCRETE FLOOR)**

### Stud Wall Junction

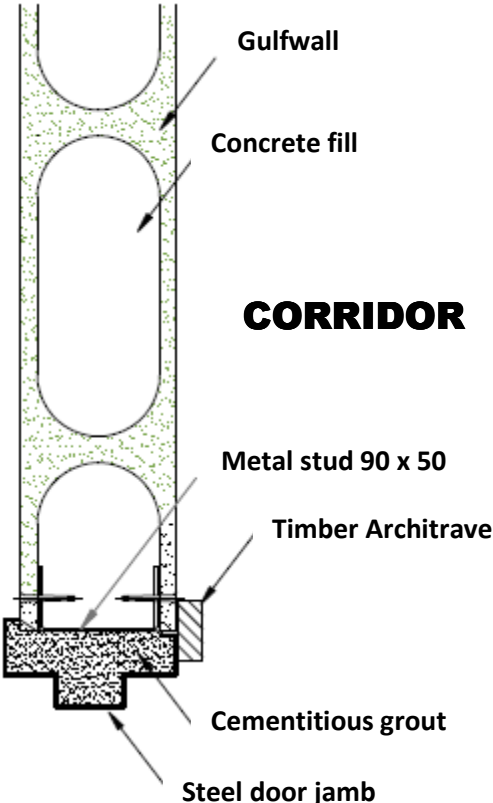


**JUNCTION BETWEEN GULFWALL & STUD WALL  
(PLAN VIEW)**

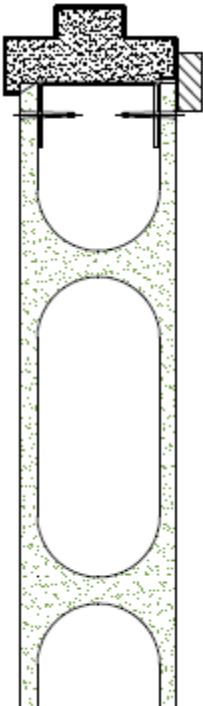
# Fire Rated Entry Detail

**APARTMENT**

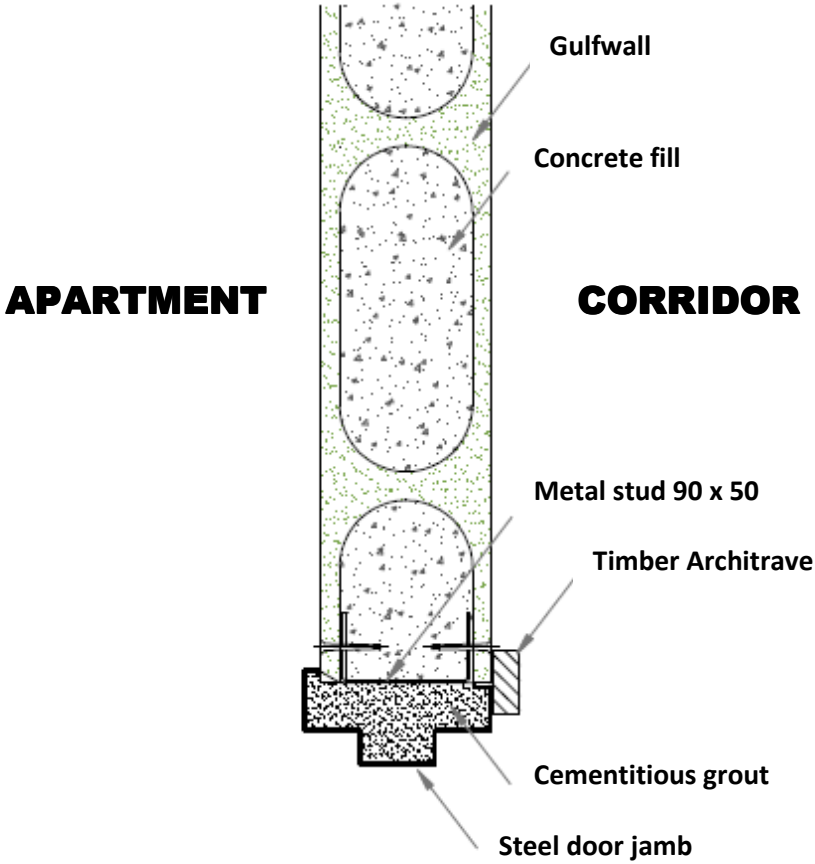
**CORRIDOR**



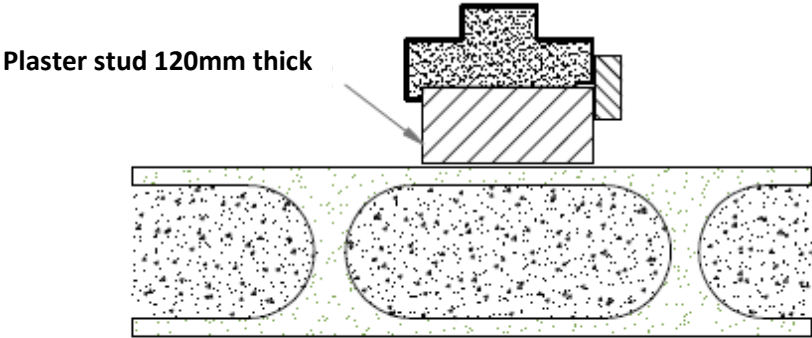
**DOOR OPENING**



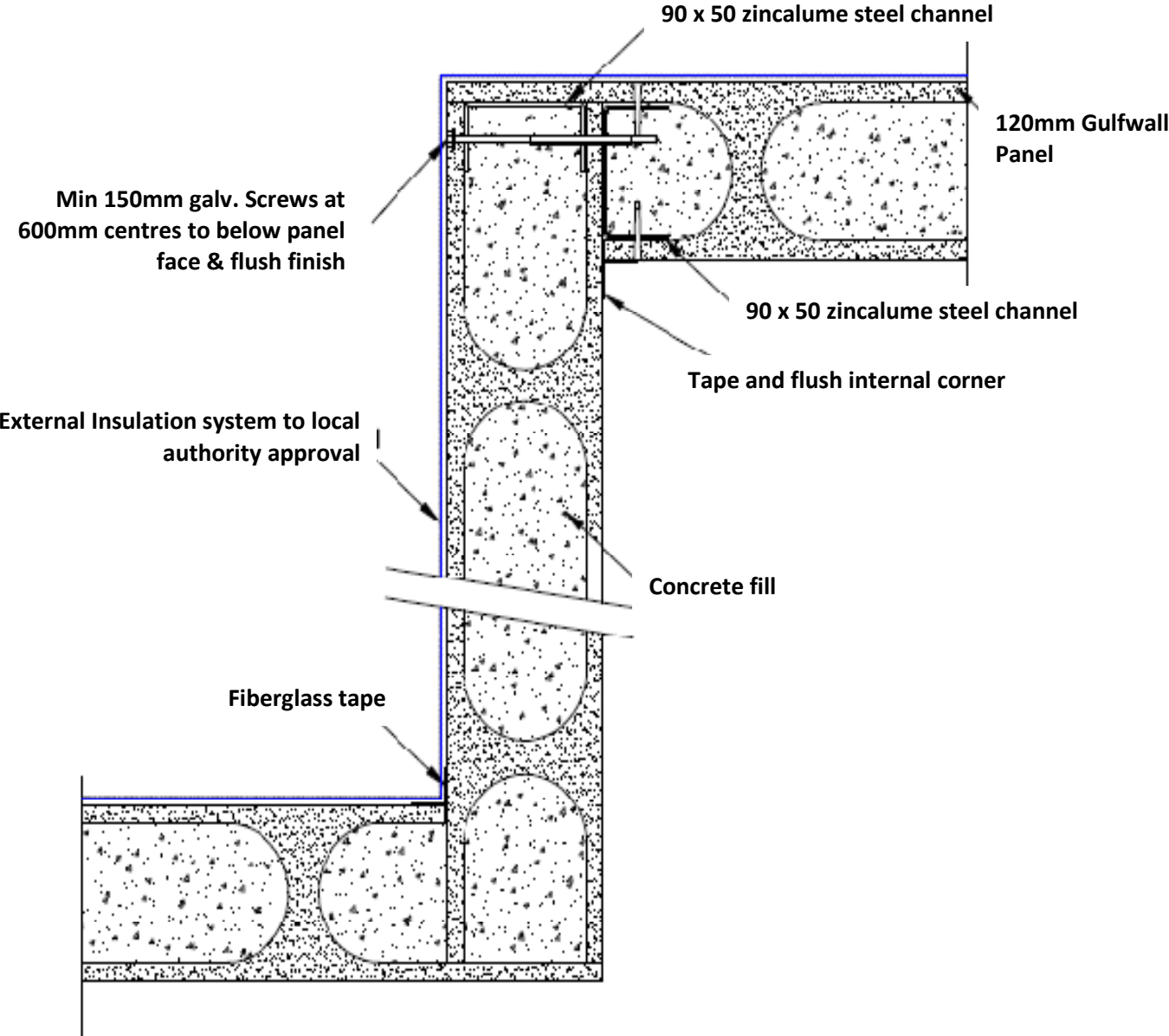
### Fire Rated Entry Detail Adjacent to Wall



### DOOR OPENING ADJACENT TO WALL PANEL

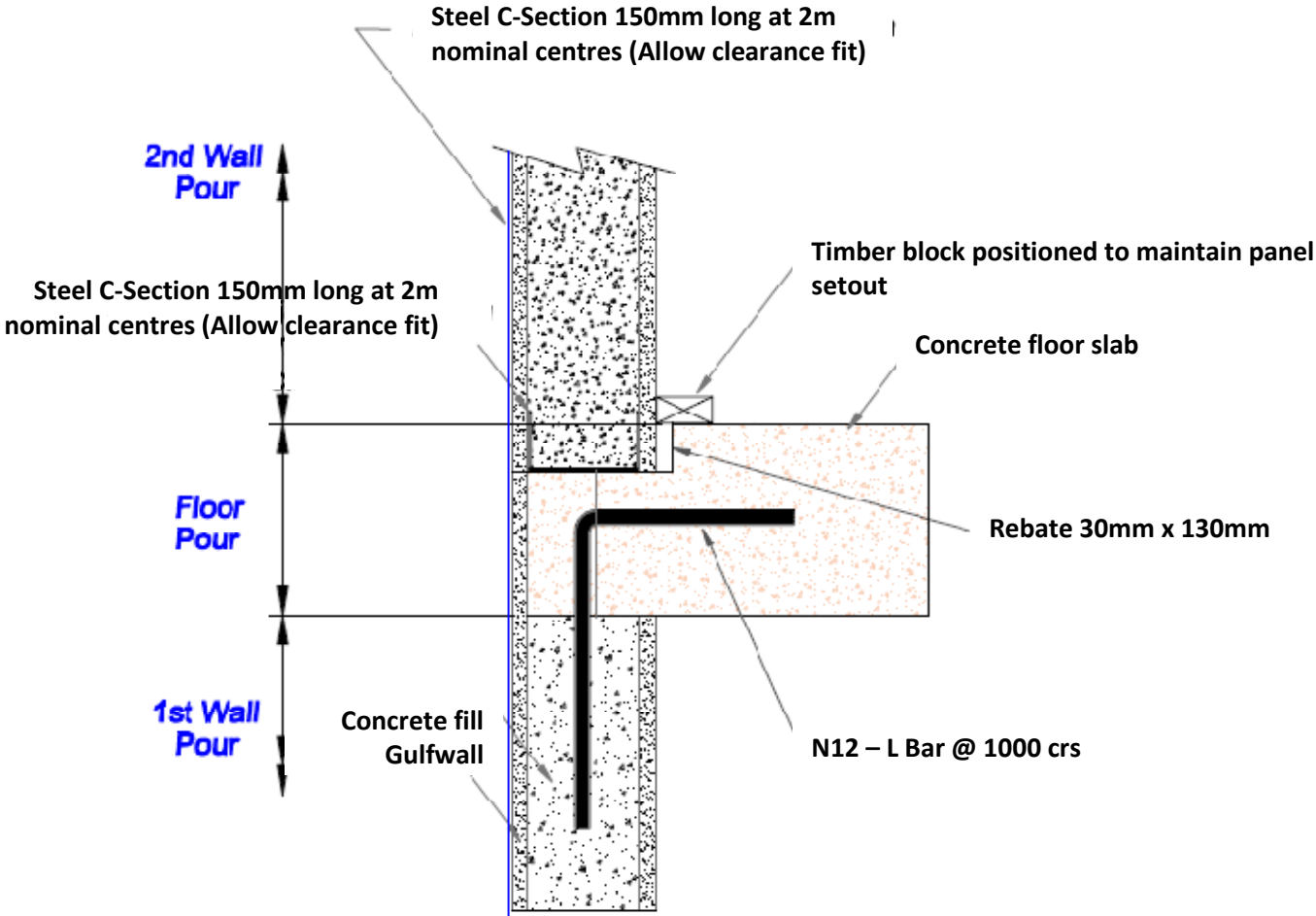


### External Wall Finishing Detail

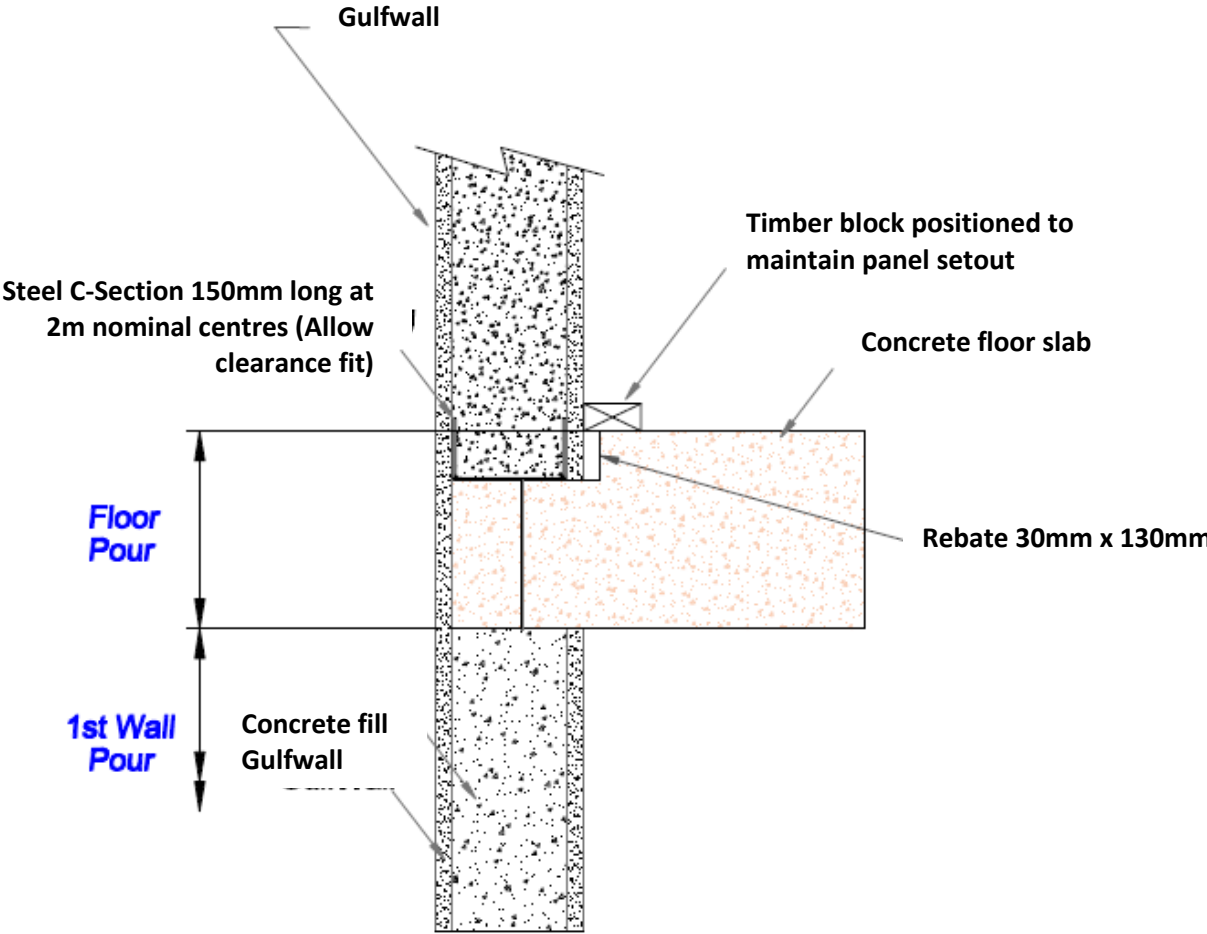


**STANDARD CORNER JUNCTION  
(PLAN VIEW)**

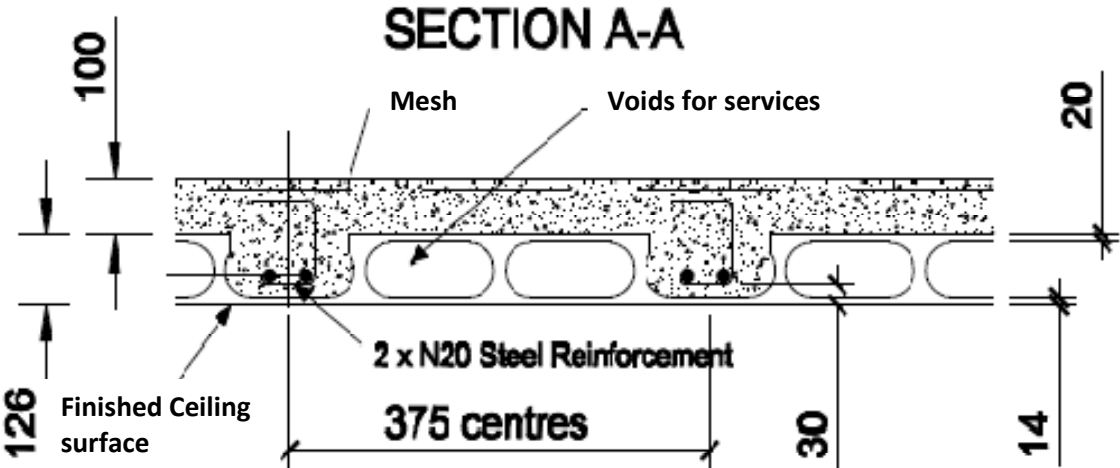
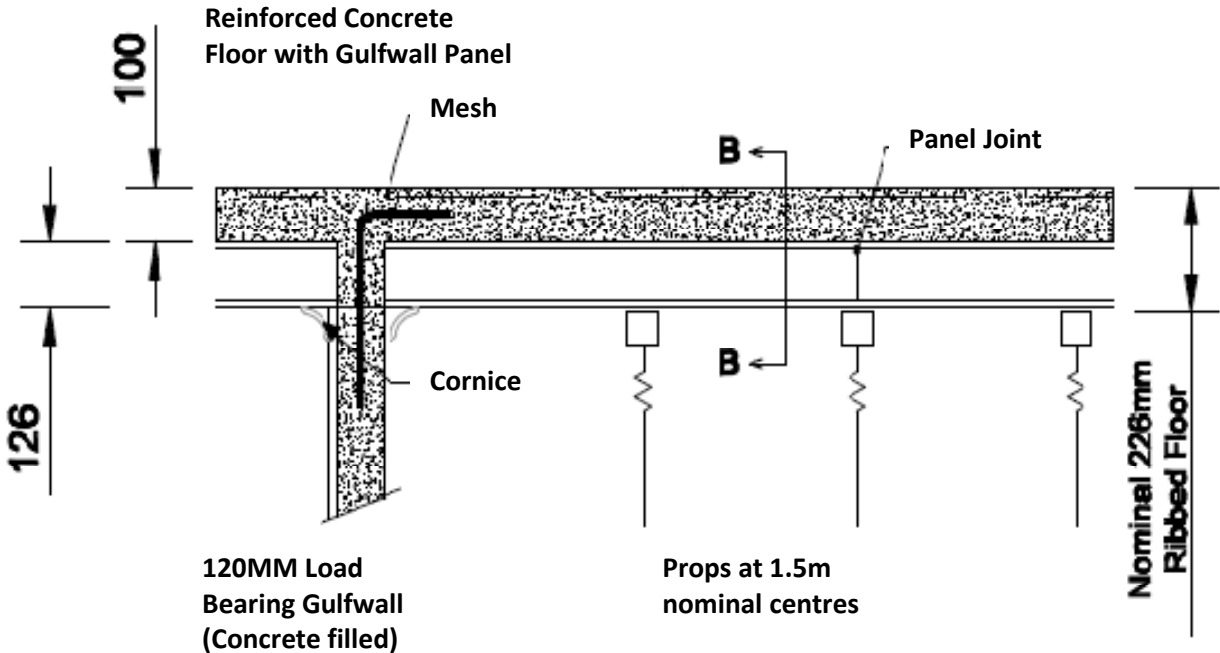
# External Wall Construction Method



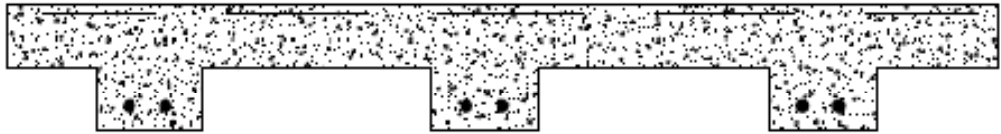
# External Wall Construction Detail



### Gulfwall Flooring

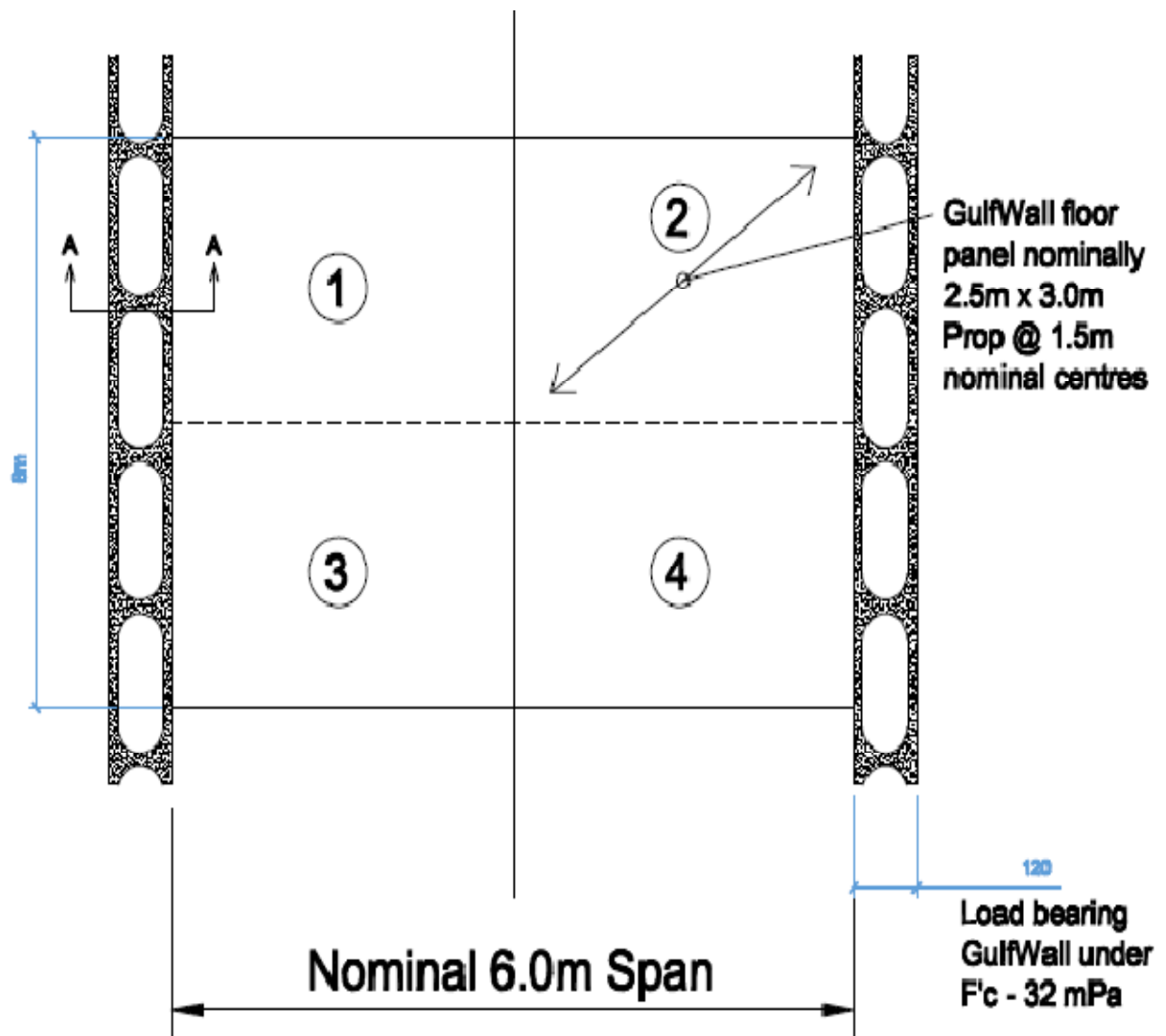


### SECTION B-B



**RIBBED FLOOR SLAB**  
To Engineer's specification



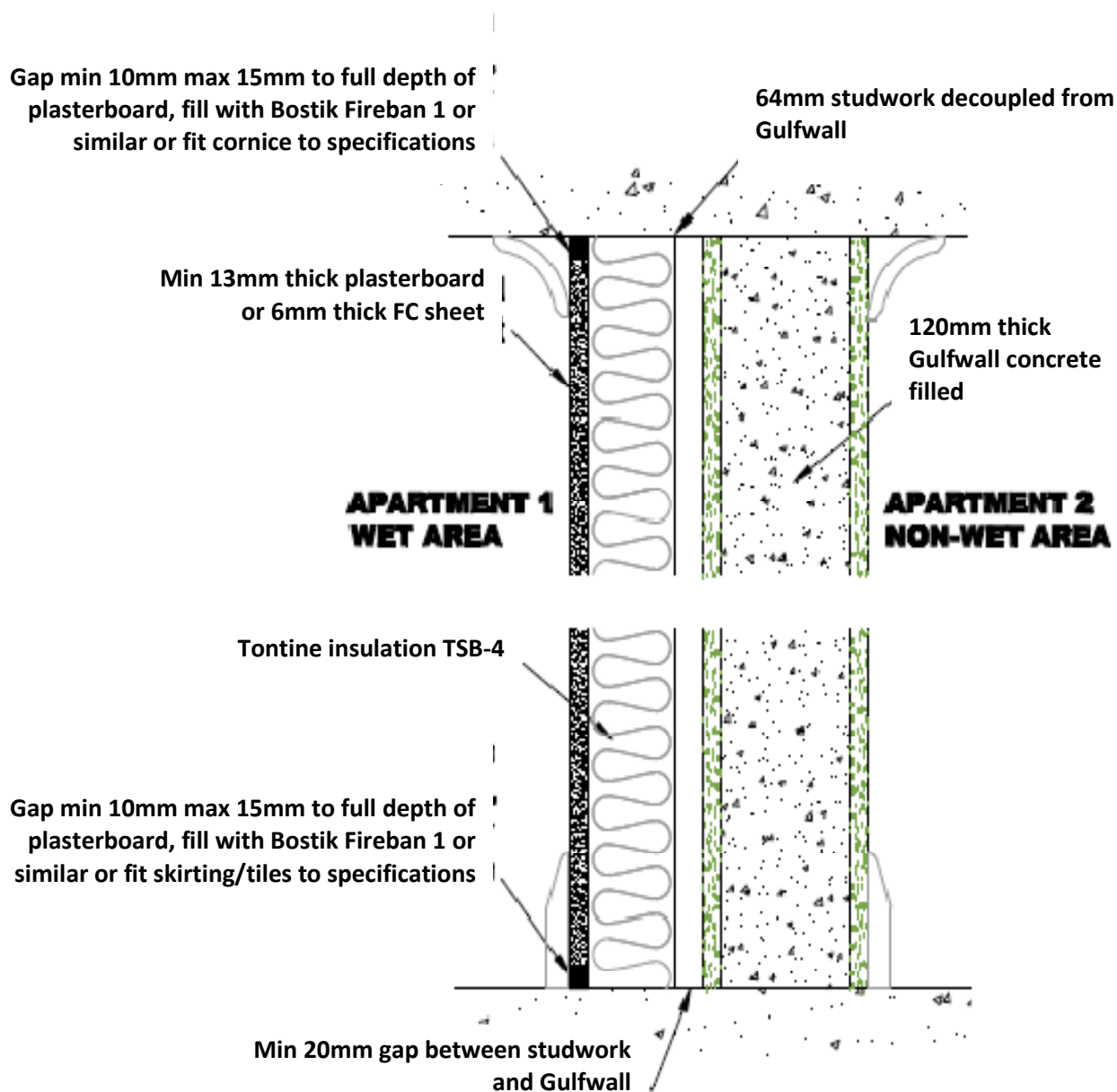


## PLAN VIEW

**GulfWall flooring lost formwork detail  
Reinforced concrete floor**

## Sound Insulation 1

**NOTE:** No mechanical connections are permitted between Gulfwall and stud work.

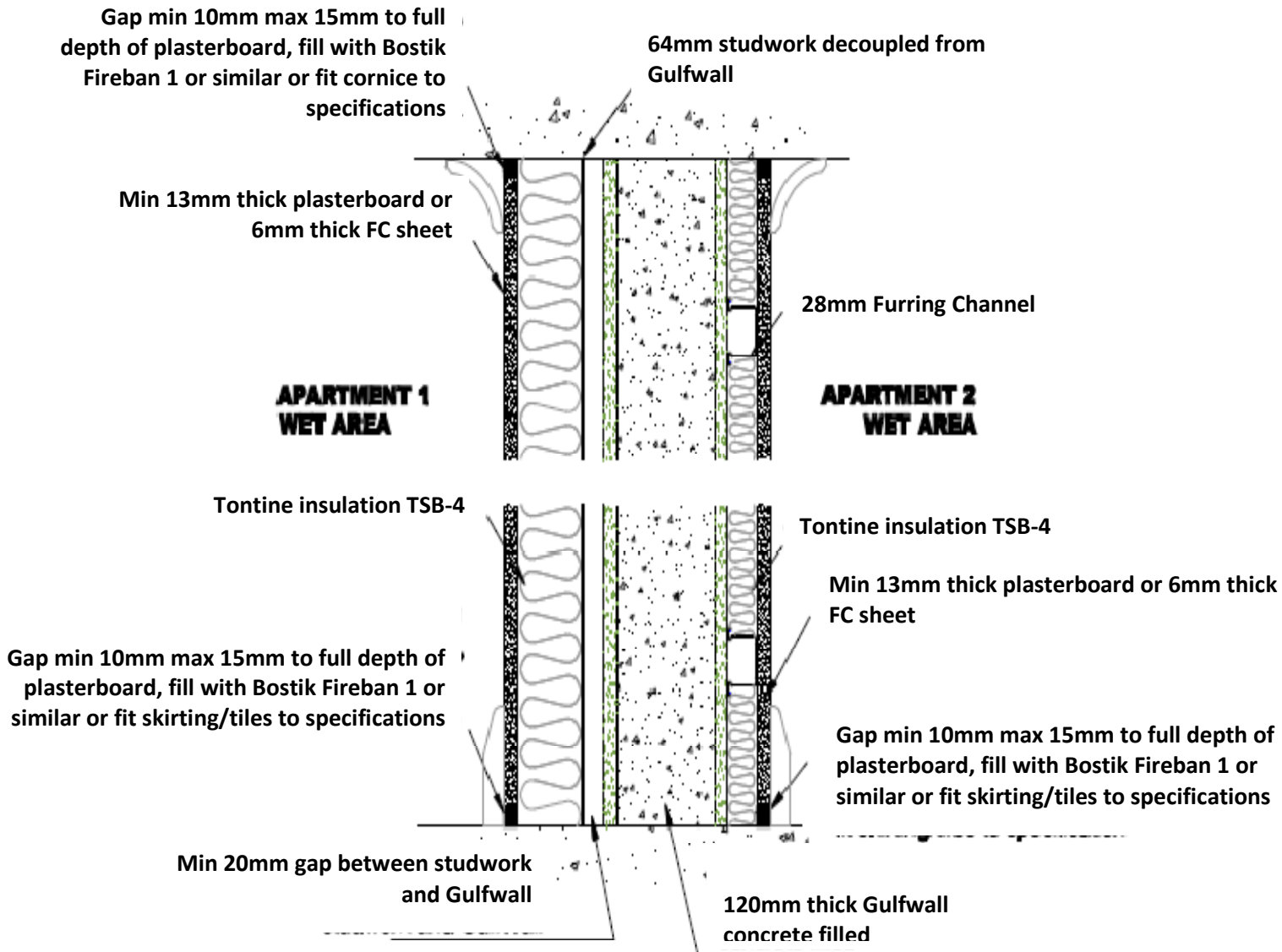


Nominal minimum overall width 210 depending on materials used

**INTERTENANCY WALL  $R_w + C_{tr}$  50 AND  
DISCONTINUOUS CONSTRUCTION BETWEEN  
APARTMENT WET AND NON-WET AREAS**

## Sound Insulation 2

**NOTE:** No mechanical connections are permitted between Gulfwall and stud work.



Nominal minimum overall width 244 depending on materials used

**INTERTENANCY WALL  $R_w + C_{tr}$  50 AND  
DISCONTINUOUS CONSTRUCTION  
BETWEEN APARTMENT WET AREAS**

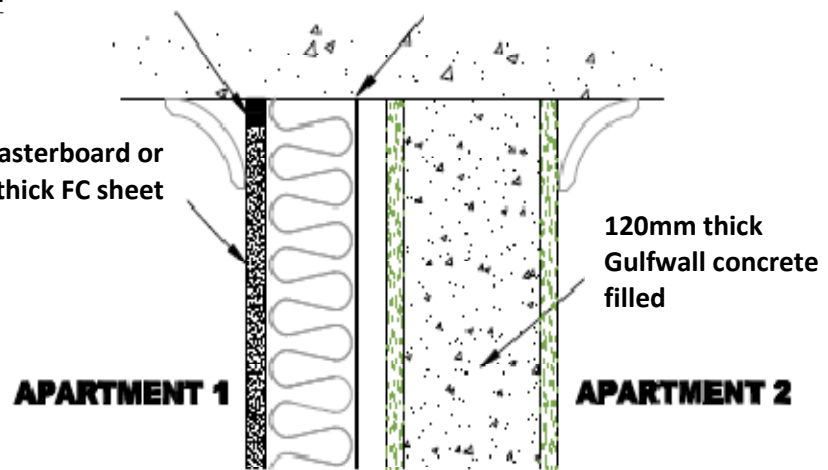
## Sound Insulation 3 – Option 1

**NOTE:** No mechanical connections are permitted between Gulfwall and stud work.

Gap min 10mm max 15mm to full depth of plasterboard, fill with Bostik Fireban 1 or similar or fit cornice to specifications

64mm studwork decoupled from Gulfwall

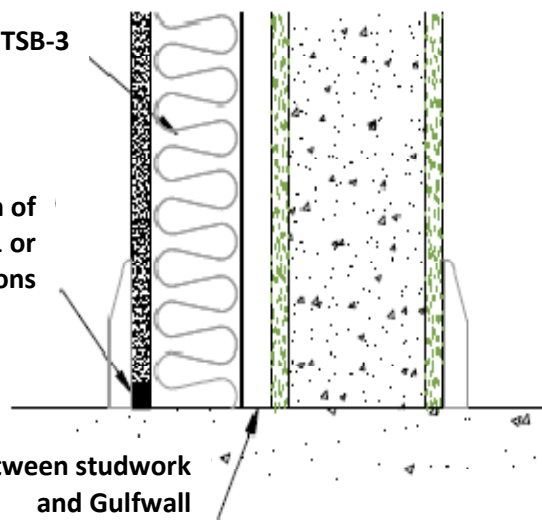
Min 13mm thick plasterboard or 6mm thick FC sheet



Tontine insulation TSB-3

Gap min 10mm max 15mm to full depth of plasterboard, fill with Bostik Fireban 1 or similar or fit skirting/tiles to specifications

Min 20mm gap between studwork and Gulfwall



Nominal minimum overall width 210 depending on materials used

**INTERTENANCY WALL  $R_w + C_{tr}$  50 AND  
DISCONTINUOUS CONSTRUCTION  
BETWEEN APARTMENTS**

## Sound Insulation 3 – Option 2

Gap min 10mm max 15mm to full depth of plasterboard, fill with Bostik Fireban 1 or similar or fit cornice to specifications

Min 13mm thick plasterboard or 6mm thick FC sheet

120mm thick Gulfwall concrete filled

**APARTMENT 1**

**APARTMENT 2**

Tontine insulation TSB-3

28mm Furring Channel on adjustable mounting clips at 600mm centres horizontally or vertically

Gap min 10mm max 15mm to full depth of plasterboard, fill with Bostik Fireban 1 or similar or fit skirting/tiles to specifications

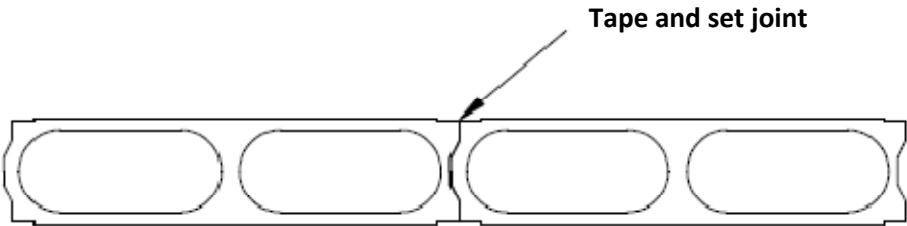
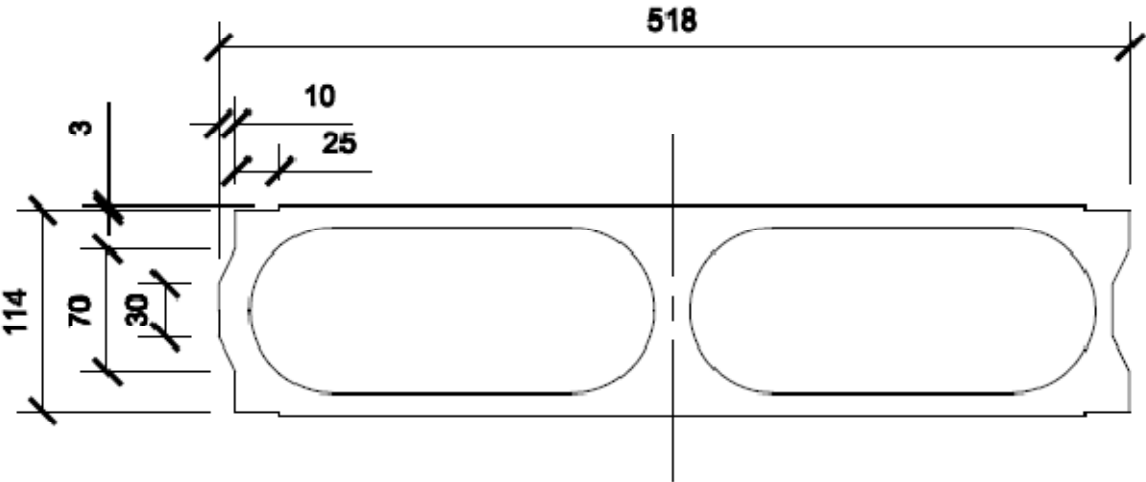
Min 40mm cavity

Nominal minimum overall width 166 depending on materials used

**INTERTENANCY WALL  $R_w + C_{tr}$  50 AND BETWEEN APARTMENTS**

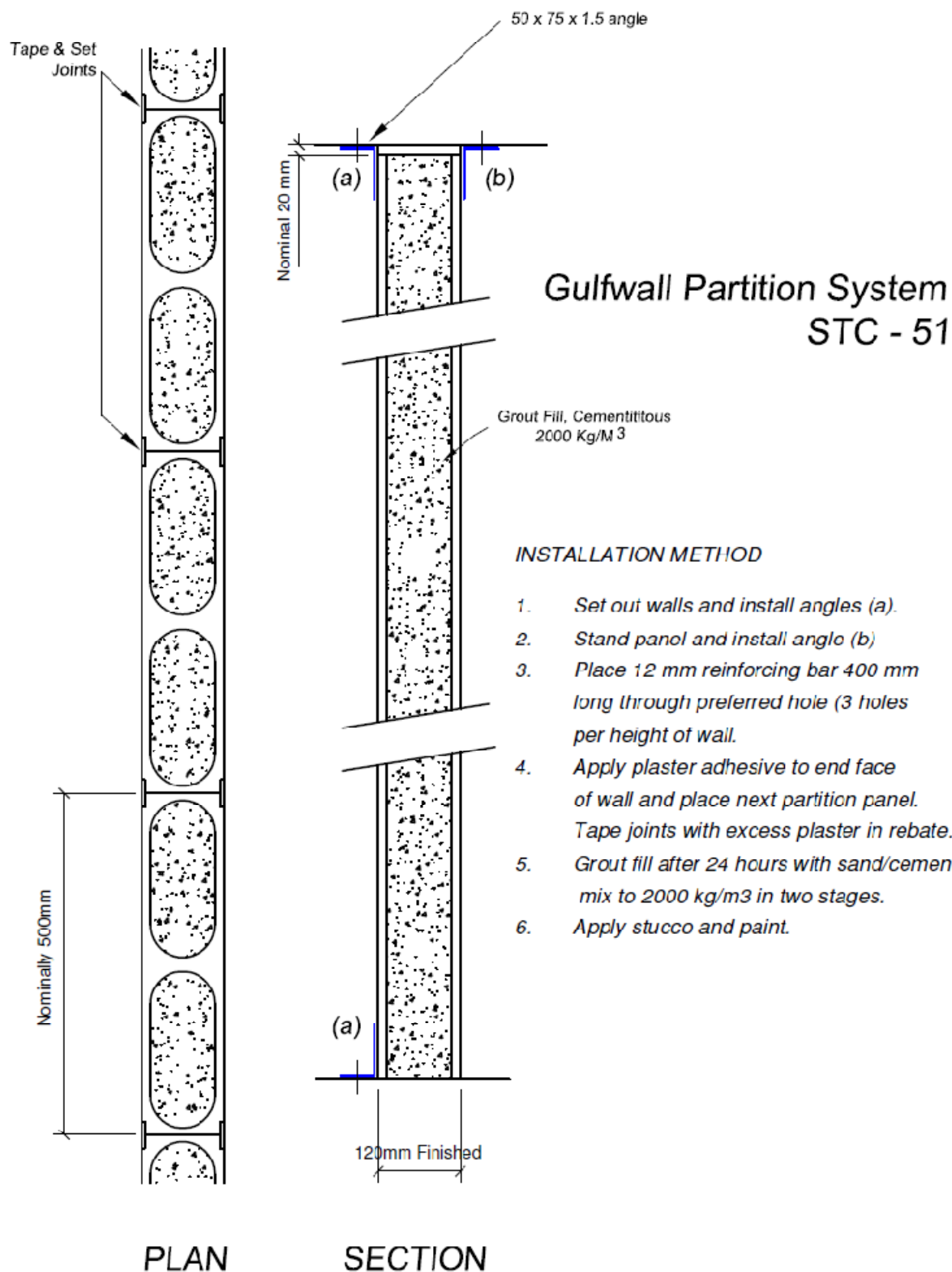
# Partition System

## Typical Section



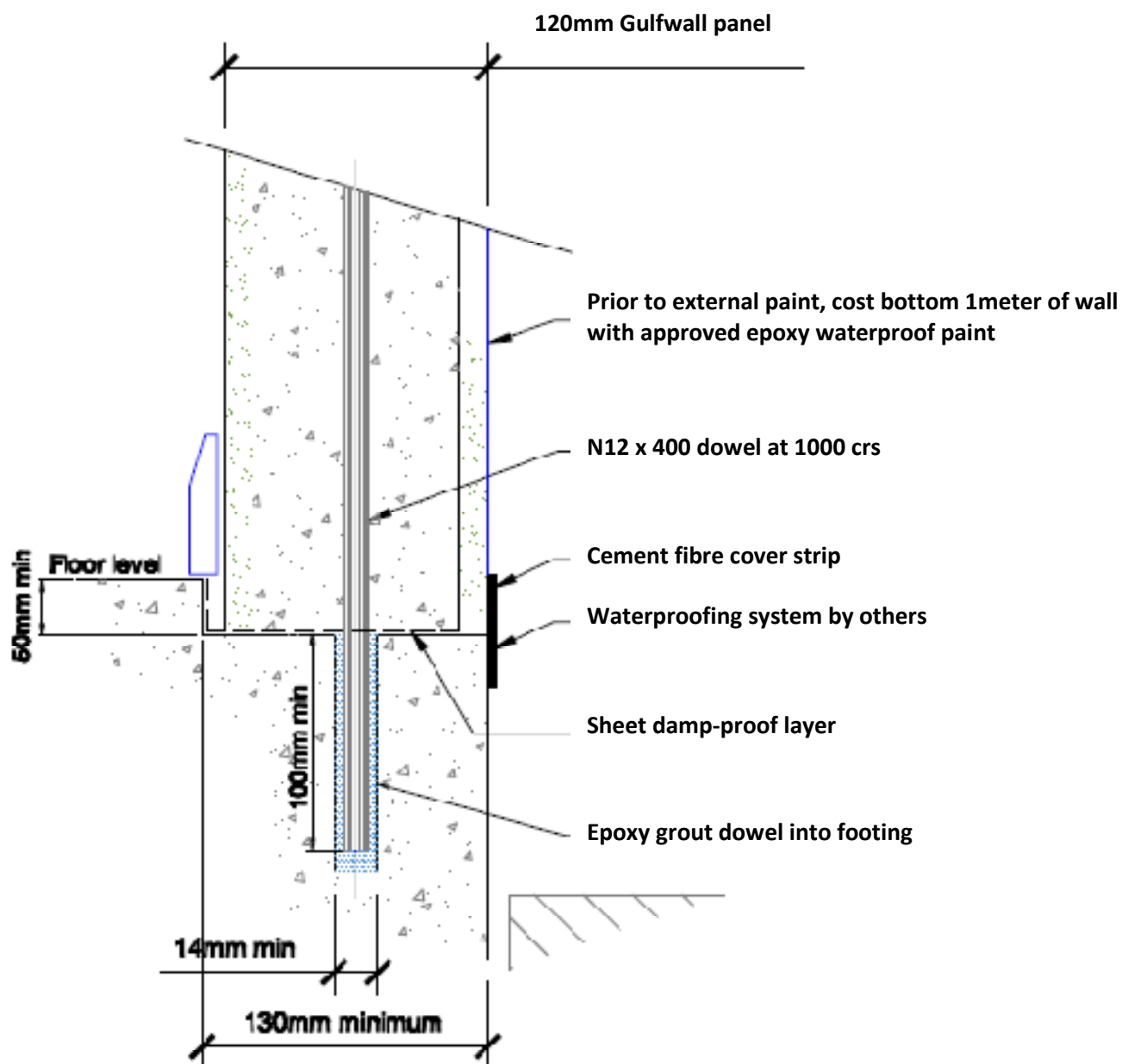
TYPICAL PARTITION JOINT

## Partition System



## Domestic Detail

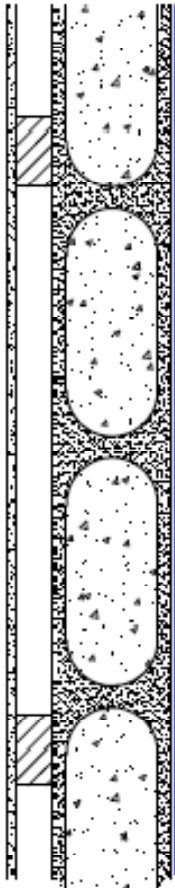
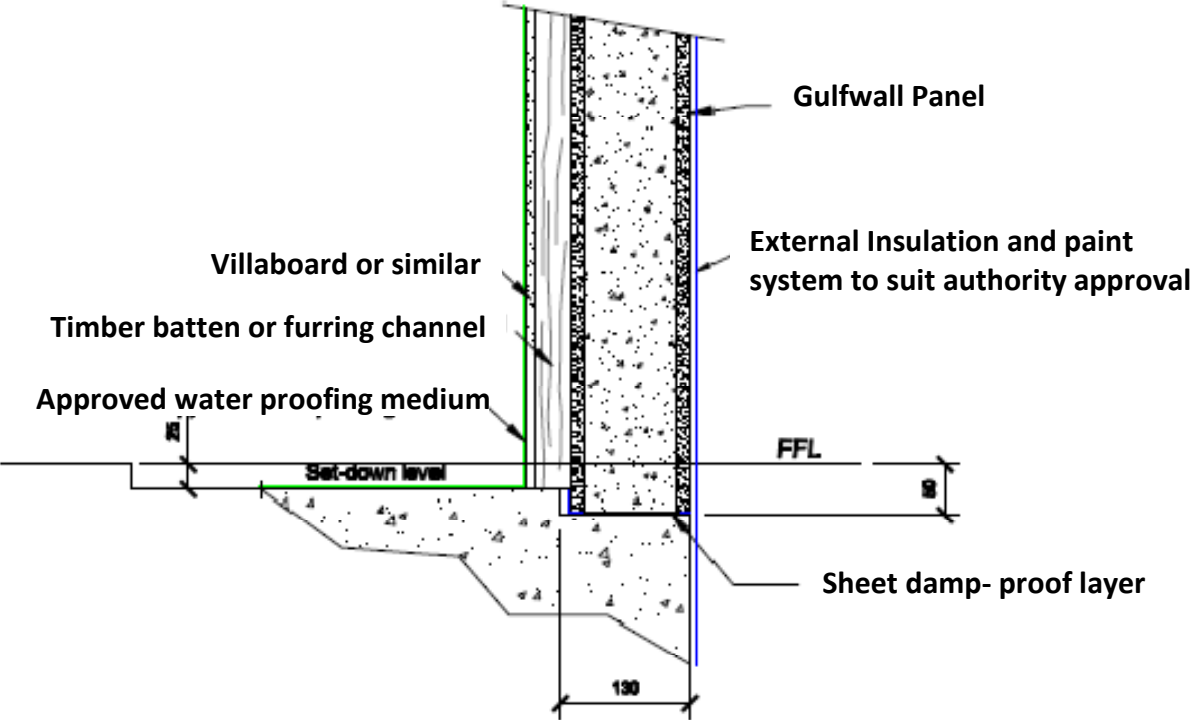
### External Gulfwall Panel Location



**NB – It is critical that builder casts rebate true and flat. Top of panel will follow any variation in rebate surface**

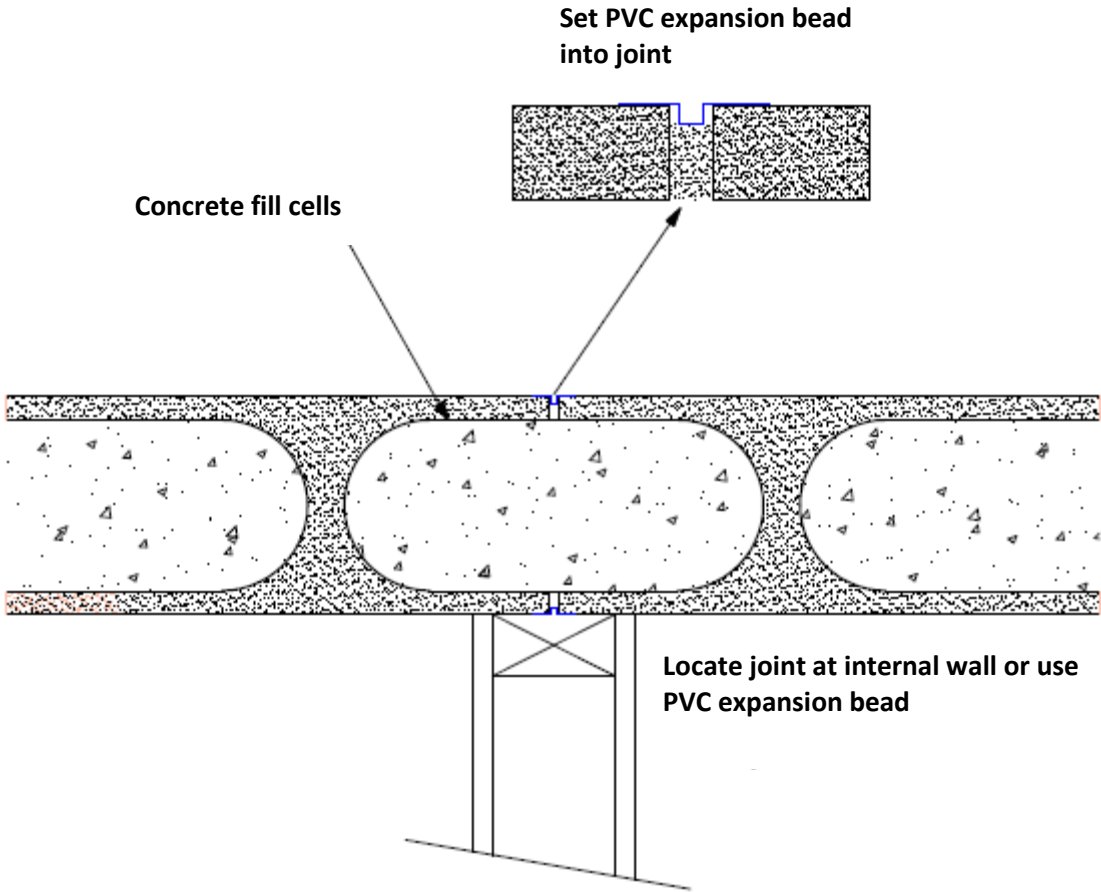


### Wet Area Adjacent to External Wall



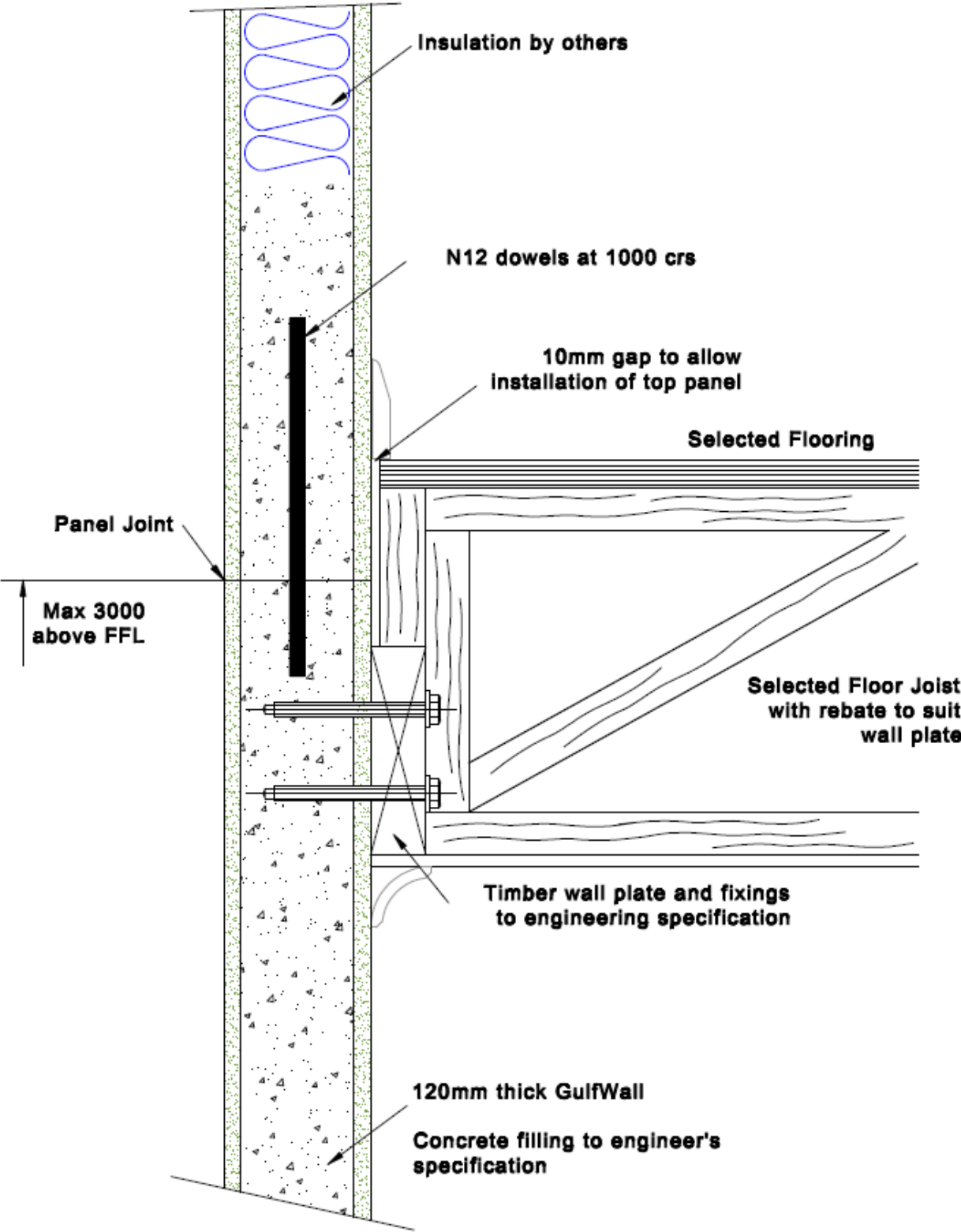
**PLAN VIEW**

# Expansion Joint Detail



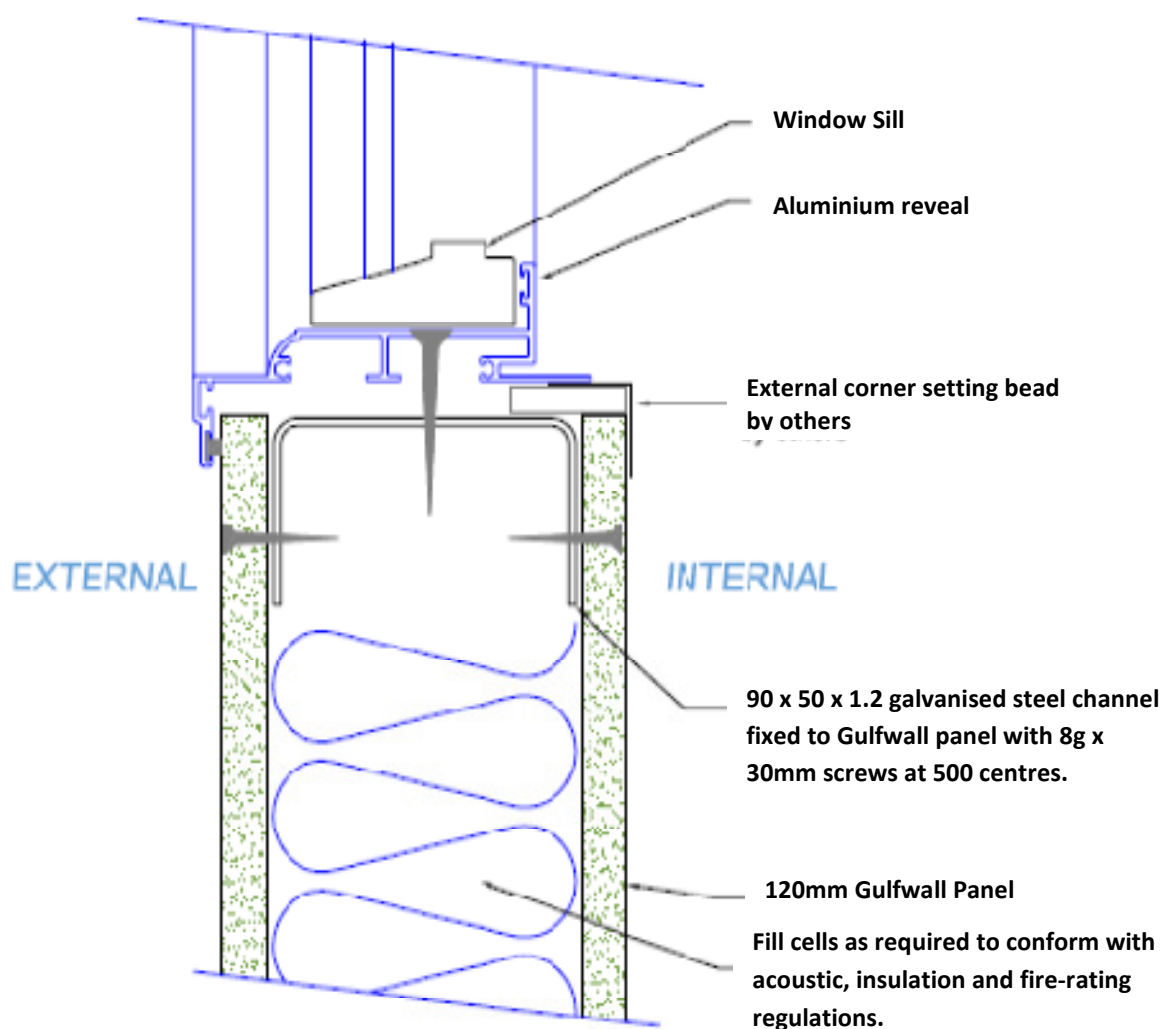
**External Butt Joint  
Concrete Filled**

### Typical Timber Floor Joist Fixing



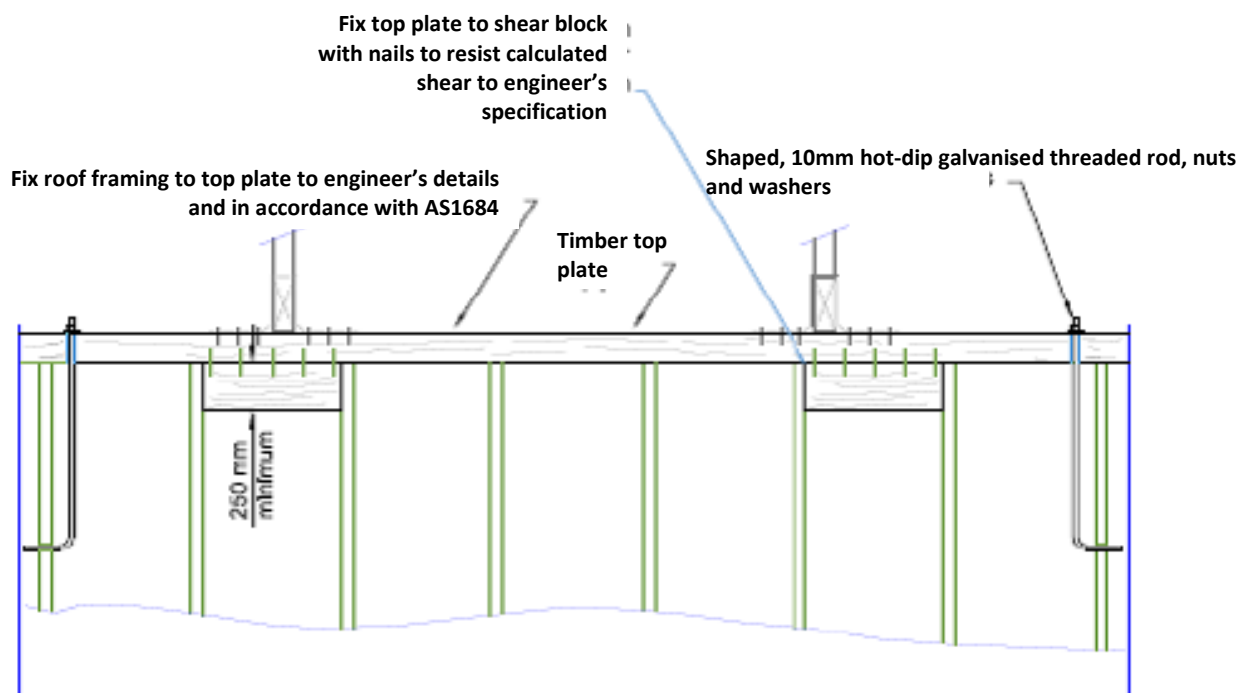
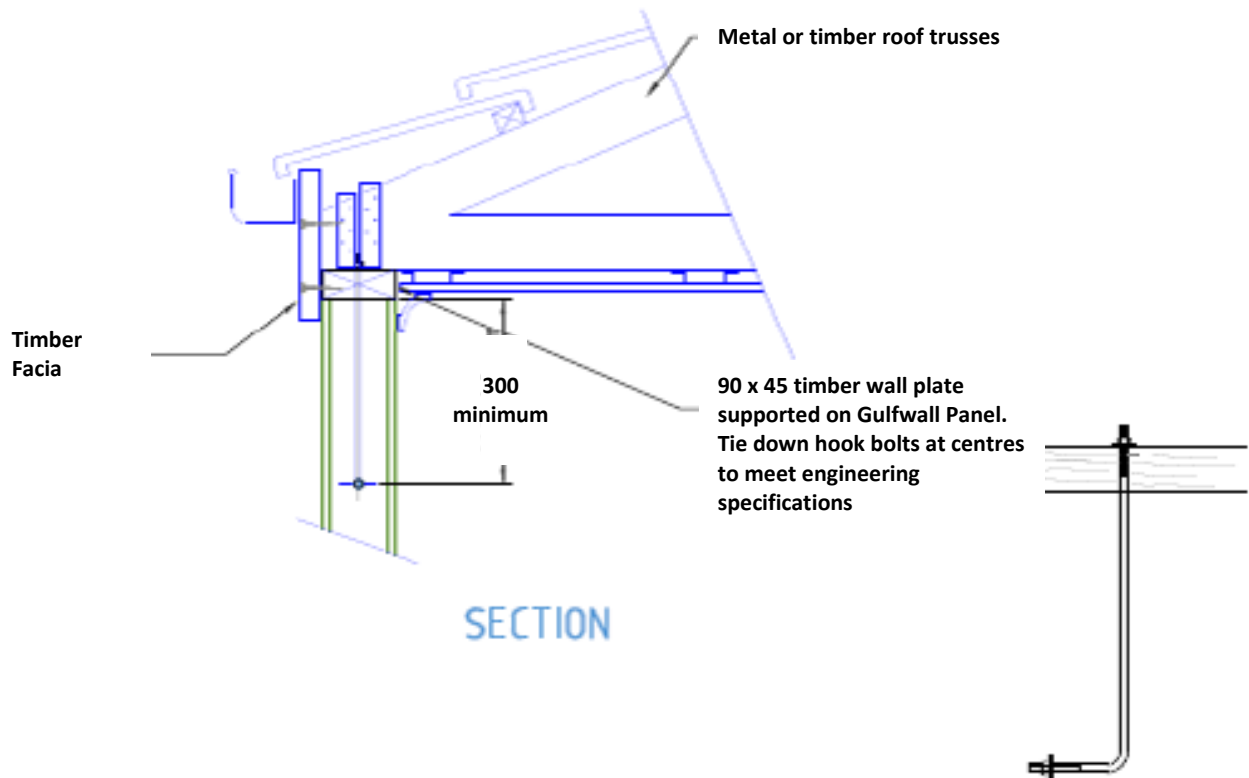
## Window Frame Detail

**Note: Steel channel omitted when wall is concrete filled**



**NB – Gulfwall Installer will provide a trimmed opening for installation and water proofing of window assembly by others.**

## Roof Tie Down Detail



**Note: When Panels are not concrete filled and where wind uplift exceeds the weight of Gulfwall (54 kg/sq m), tie down must extend into the floor footings.**

# Fence Detail

