

# VIPAC ENGINEERS & SCIENTISTS LTD

3/320 Great Eastern Highway, Ascot, Western Australia 6104  
Phone: +618 9277 3335 ☎ Fax: +618 9277 3325 📠  
Email: [perth@vipac.com.au](mailto:perth@vipac.com.au) Website: [www.vipac.com.au](http://www.vipac.com.au)  
ABN No: 33 005 453 627

## Technical Report

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Attention: <b>Michael Shock</b>	Reference: <b>60W-13-0055 - TRP - 531094-0</b>
Company: <b>Formcraft Pty Ltd</b>	Date: <b>07 Jun 2013</b>
Facsimile: <b>+61 8 93534162</b>	Pages: <b>7</b>
Email: <b>mike@formcraft.com.au</b>	Project No: <b>60W-13-0055</b>
From: <b>Sheikh Mahbub Alam</b>	Reviewed: <b>Rob Connolly</b>

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*This Facsimile is Commercial-in-Confidence..*

Dear Michael **Shock**,

### Field Sound Transmission Loss Performance of FormPro ER230

Thank you for engaging Vipac for the in-situ sound transmission loss assessment.

The test report for the FormPro ER230 Party wall is attached for your information and use.

Yours sincerely,

**VIPAC ENGINEERS & SCIENTISTS LTD**

**Sheikh Mahbub Alam**

[alam@vipac.com.au](mailto:alam@vipac.com.au)  
Senior Engineer

## 1. INTRODUCTION

Vipac Engineers and Scientists were commissioned by Formcraft Pty Ltd to conduct airborne Sound Transmission Loss assessment for a Party Wall known as FormPro ER230. The sound transmission loss test for the wall was carried out at 180 Scarborough Beach Road, Mt Hawthorn on the 6<sup>th</sup> June 2013 between 11am and 1pm.

## 2. REFERENCES

- [1] Australian Standard AS ISO 140-4:2006 *“Acoustics – Measurement of Sound Insulation in buildings and of building elements - Field measurements between rooms.*
- [2] Australian Standard AS ISO 717-1:2004 *“Acoustics - Rating of Sound Insulation in Buildings and of Building Elements - Part 1 Airborne Sound Insulation”.*
- [3] Building Code of Australia (BCA) 2011

## 3. METHODOLOGY

The airborne sound transmission tests were performed and assessed in general accordance with AS ISO 717-1:2004 *“Acoustics - Rating of Sound Insulation in Buildings and of Building Elements - Part 1 Airborne Sound Insulation”.*

A self-powered, portable 200 W (120 dB SWL) semi-dodecahedron speaker (noise source) with omni directional characteristics and a pink noise generator was used for the measurements.

A type 1 Integrating Sound Level Meter and Analyser (Norsonic 118) was used for the measurement of noise both at the source and receiver side. The same instrument was also used for the measurement of reverberation time within the receiving room.

Equipment used for the measurements are shown in **Table 3-1** below.

**Table 3-1: List of equipment used for the sound transmission measurements**

Equipment	Manufacturer	Model	Serial Number
Type 1 Sound Level Meter	Norsonic	118	31794
Calibrator	Norsonic	1251	31464
Hemi-dodecahedron loudspeaker	Norsonic	275	31416

## 4. CONSTRUCTION OF THE PARTY WALL

The construction detail of the FormPro ER230 party wall is shown in **Figure 4-1** below. It is constructed with a layer of 10mm plasterboard, 60mm Expanded polystyrene, 162mm concrete, 8mm Fibre Cement Board and a layer of 10mm Plasterboard.

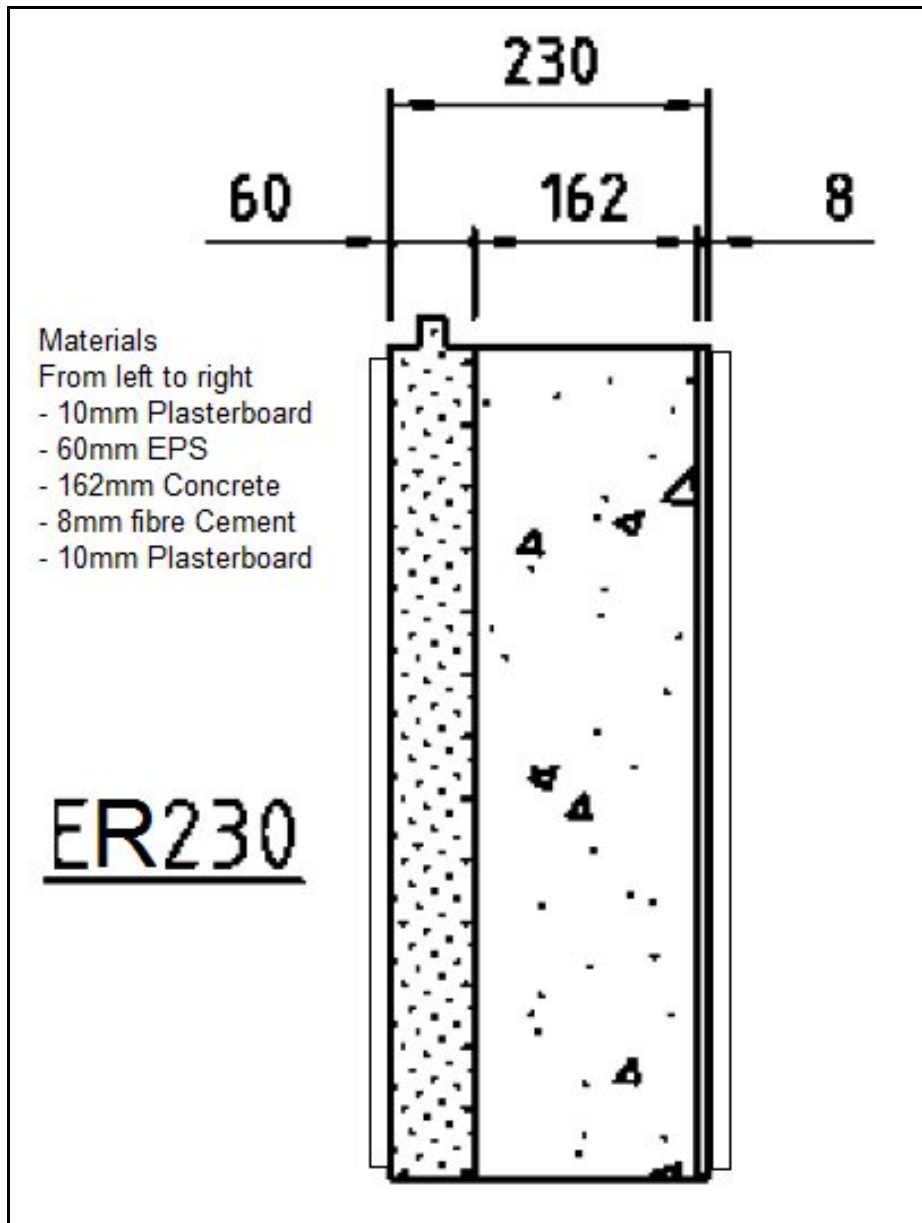


Figure 4-1: Cross section of party wall tested

## 5. SITE CONDITION

The signal to noise ratio at the receiving test room was more than 10 dB.

## 6. BCA PARTY WALL SOUND INSULATION COMPLIANCE REQUIREMENT

A wall separating sole-occupancy units has a weighted standardized level difference with spectral adaptation term ( $D_{nT,w} + C_{tr}$ ) not less than 45 when determined under AS/NZS 1276.1 or ISO 717.1. [3]

## 7. TEST RESULTS

Three tests were carried out for the sound transmission loss performance of the FormPro ER230 party wall. The results are summarised below. Test data are presented in **Appendix A** of this report.

**Table 7-1: Summary of sound transmission loss performance**

Test No	$D_{nT,w}$	C ; $C_{tr}$	$D_{nT,w} + C_{tr}$
1	51	-1 ; -4	47
2	51	-1 ; -3	48
3	50	-1 ; -3	47

## 8. DISCUSSION

The in-situ test assessment for FormPro ER230 shows that the sound transmission loss performance of the wall was found between 47 and 48 dB ( $D_{nT,w} + C_{tr}$ ). The test results are found in exceeding the minimum BCA sound insulation requirements for Party Wall.

If you have any queries regarding this memorandum, please do not hesitate to contact us.

Yours faithfully,  
**Vipac Engineers & Scientists Ltd**



Sheikh Mahbub Alam  
**Senior Engineer**

**Reviewed By**



Rob Connolly  
**Regional Manager, WA**

## Appendix A. Test Results

### Standardized level difference according to ISO 140-4

Field measurements of airborne sound insulation between rooms

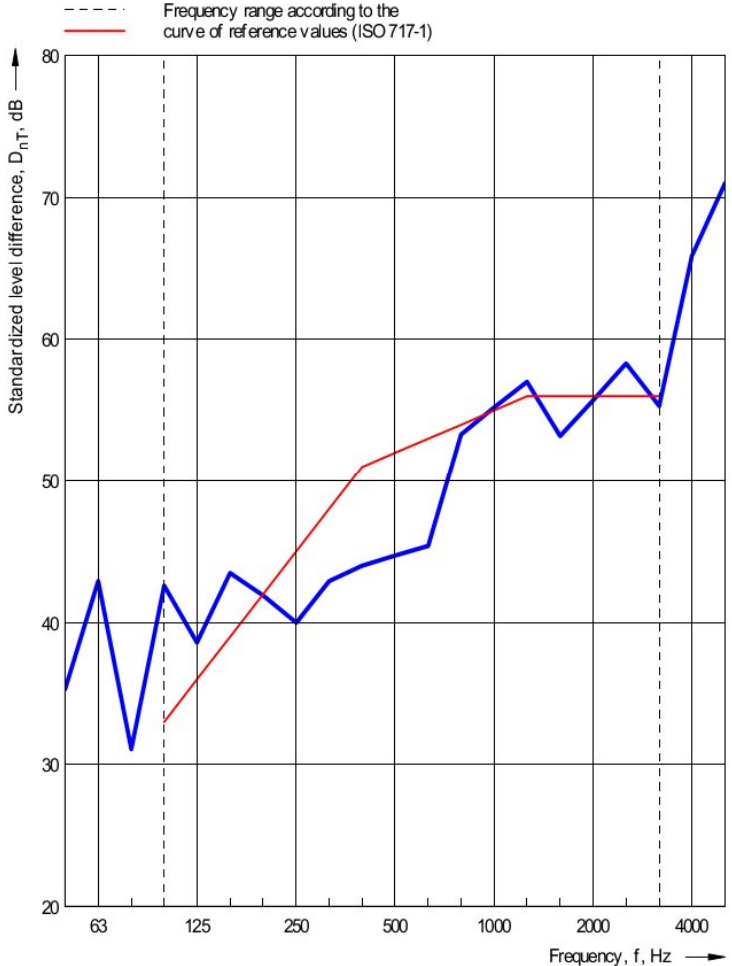
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Client: Formcraft Pty Ltd Date of test: 6/6/2013  
 Description: Sound Transmission Loss Assessment for FormPro ER 230

Object: Insitu test for BCA Party Wall Compliance

Receiving room volume: 50.0 m<sup>3</sup>

Frequency f [Hz]	D <sub>nT</sub> 1/3 octave [dB]
50	35.3
63	42.9
80	31.1
100	42.6
125	38.6
160	43.5
200	41.9
250	40.0
315	42.9
400	44.0
500	44.7
630	45.4
800	53.3
1,000	55.2
1,250	57.0
1,600	53.2
2,000	55.7
2,500	58.3
3,150	55.3
4,000	65.9
5,000	71.0



--- Frequency range according to the curve of reference values (ISO 717-1)

Rating according to ISO 717-1

D<sub>nT,w</sub>(C;C<sub>tr</sub>) = 51 (-1;-4) dB

Evaluation based on field measurement results obtained in one-third-octave bands by an engineering

C <sub>50-3150</sub> = -1 dB	C <sub>50-5000</sub> = 0 dB	C <sub>100-5000</sub> = 0 dB
C <sub>tr,50-3150</sub> = -5 dB	C <sub>tr,50-5000</sub> = -5 dB	C <sub>tr,100-5000</sub> = -4 dB

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**No. of test report: 1**

Date: 06/06/2013 Signature: ALAM

### Standardized level difference according to ISO 140-4

Field measurements of airborne sound insulation between rooms

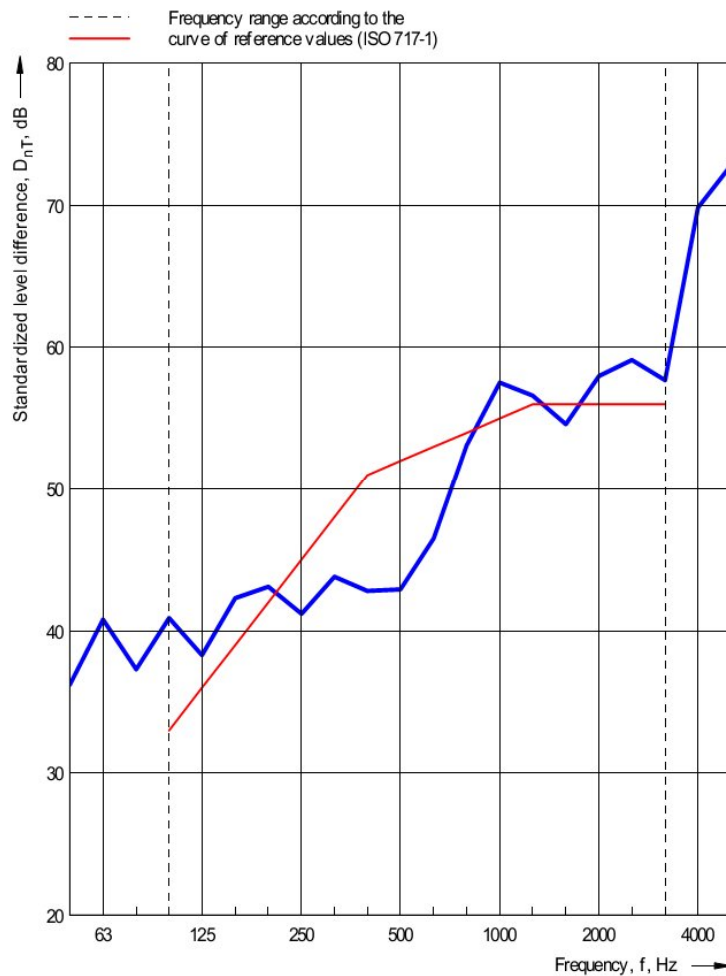
Client: Formcraft Pty Ltd  
 Description: Sound Transmission Loss Assessment for FormPro ER 230

Date of test: 6/6/2013

Object: Insitu test for BCA Party Wall Compliance

Receiving room volume: 50.0 m<sup>3</sup>

Frequency f [Hz]	D <sub>nT</sub> 1/3 octave [dB]
50	36.2
63	40.8
80	37.3
100	40.9
125	38.3
160	42.3
200	43.1
250	41.2
315	43.8
400	42.8
500	42.9
630	46.5
800	53.1
1,000	57.5
1,250	56.6
1,600	54.6
2,000	58.0
2,500	59.1
3,150	57.7
4,000	69.8
5,000	72.8



Rating according to ISO 717-1

$D_{nT,w}(C;C_{tr}) = 51 (-1; -3)$  dB

Evaluation based on field measurement results obtained in one-third-octave bands by an engineering

$C_{50-3150} = -1$  dB

$C_{50-5000} = 0$  dB

$C_{100-5000} = 0$  dB

$C_{tr,50-3150} = -4$  dB

$C_{tr,50-5000} = -4$  dB

$C_{tr,100-5000} = -3$  dB

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No. of test report: 2

Date: 06/06/2013

Signature: alam

### Standardized level difference according to ISO 140-4

Field measurements of airborne sound insulation between rooms

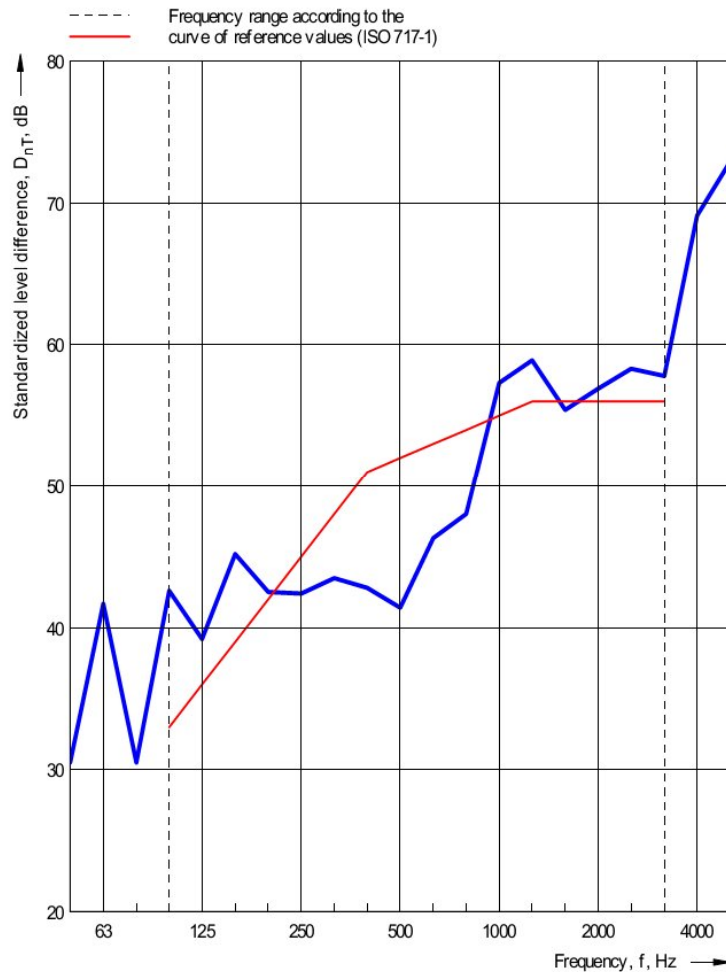
Client: Formcraft Pty Ltd  
 Description: Sound Transmission Loss Assessment for FormPro ER 230

Date of test: 6/6/2013

Object: Insitytest for BCA Party Wall Compliance

Receiving room volume: 50.0 m<sup>3</sup>

Frequency f [Hz]	D <sub>nT</sub> 1/3 octave [dB]
50	30.5
63	41.7
80	30.5
100	42.6
125	39.2
160	45.2
200	42.5
250	42.4
315	43.5
400	42.8
500	41.4
630	46.3
800	48.0
1,000	57.3
1,250	58.9
1,600	55.4
2,000	56.9
2,500	58.3
3,150	57.8
4,000	69.1
5,000	72.9



Rating according to ISO 717-1

$D_{nT,w}(C;C_{tr}) = 50 (-1; -3)$  dB

Evaluation based on field measurement results obtained

in one-third-octave bands by an engineering

$C_{50-3150} = -1$  dB

$C_{50-5000} = 0$  dB

$C_{100-5000} = 0$  dB

$C_{tr,50-3150} = -5$  dB

$C_{tr,50-5000} = -5$  dB

$C_{tr,100-5000} = -3$  dB

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No. of test report: 3

Date: 06/06/2013

Signature: alam