# SDCC Rathcoole Housing Development

Volume 2 of the Environmental Impact Assessment Report (EIAR)
Appendix 11.4 Noise and Vibration

South Dublin County Council (SDCC)

October 2026

## Quality information

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## Revision History

| Revision | Revision date | Details | Authorized | Name | Position |
|---|---|---|---|---|---|
| 0 | 07/09/2026 | Draft | N | Richard O'Callaghan | Project Director |
| | | | | | |
| | | | | | |
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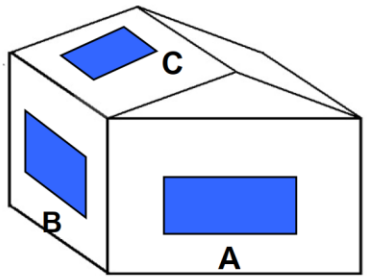
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# Appendix 11.4.1 House and Apartment Façade Calculations

## Table 1 House Living Area - Façade Calculations with Recommended Mitigation

Calculation Based on BS 8233:2014 Equation G.1 and EN 12354-3
Prediction of internal noise level attributed to external sources.

| | | |
|---|---|---|
| **Project Details:** | Rathcoole | |
| **Room Details:** | HT04 - Living Area | |




| | |
|---|---|
| Façade A area ($m^2$) | 11.8 |
| Façade B area ($m^2$) | 11.5 |
| Ceiling Area C area ($m^2$) | 20.2 |
| Room Volume ($m^3$) | 51.8 |
| Glazing Area A ($m^2$) | 2.8 |
| Glazing Area B ($m^2$) | 2.7 |
| Rooflight Area C ($m^2$) | 0 |
| Room Volume ($m^3$) | 51.8 |

**Room RT** 0.5

$L_{Aeq,ff}$ 60 dB

$L_{AFmax,ff}$ dB

**Break in Areas:**

Façade Area (Sf) A 11.776 sq m
Façade Area (Sf) B 0 sq m
Ceiling Area (Srr) C 0 sq m
Total Transmitting Area (S) 11.776 sq m

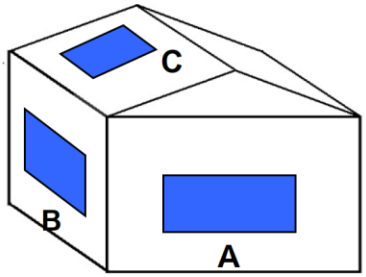
| | Screening dB: | Calculated Using Road Traffic Spectrum (BS8233) 63 Hz | 125Hz | 250Hz | 500Hz | 1kHz | 2kHz | 4kHz | |
|---|---|---|---|---|---|---|---|---|---|
| | | 64 | 60 | 56 | 54 | 54 | 50 | 44 | |
| | 0 | | | | | | | | |
| | 0 | | | | | | | | |
| | | | | | | | | | dB(A) |
| **Normalised Leq,ff External Free Field** | | 66 | 62 | 58 | 56 | 56 | 52 | 46 | **60.0** |
| **Construction** | **Element** | 3 | Number of Vents: | | | | | | |
| Hit & Miss Trickle (4000mm^2) | **Ventilation $D_{n,e}$** | 22 | 29 | 22 | 32 | 30 | 29 | 29 | |
| 28 dB Rw + Ctr - Acoustically Upgraded Double Glazing | **Glazing SRI $R_{wi}$ (A: Facade)** | 21 | 21 | 20 | 28 | 38 | 38 | 41 | |
| Cavity Brick Wall (120/50/100) 400kg/m2 | **Wall SRI $R_{ew}$ (A: Facade)** | 40 | 41 | 46 | 52 | 58 | 64 | 64 | **57** |
| | Glazing SRI $R_{wi}$ (B: Facade) | | | | | | | | |
| | Wall SRI $R_{ew}$ (B: Facade) | | | | | | | | |
| | Roof SRI $R_{rr}$ (C: Roof) | | | | | | | | |
| | Roof Glaze SRI $R_{wi}$ (C: Roof) | | | | | | | | |
| **Predicted External Noise Break In LAeq** | | **19.9** | **22.2** | **29.7** | **23.9** | **26.9** | **25.0** | **18.7** | **33.6** |

**Predicted Internal $L_{Aeq,T}$ (63Hz - 4kHz)** **33.6** **dB**

## Table 2 House Bedroom Area - Façade Calculations with Recommended Mitigation

Calculation Based on BS 8233:2014 Equation G.1 and EN 12354-3
Prediction of internal noise level attributed to external sources.

| | | | |
|---|---|---|---|
| **Project Details:** | Rathcoole | | |
| **Room Details:** | HT01 - Bedroom | | |
| Façade A area ($m^2$) | 6.6 | | |
| Façade B area ($m^2$) | 6.9 | **Room RT** | 0.5 |
| Ceiling Area C area ($m^2$) | 7.6 | | |
| Room Volume ($m^3$) | 18.5 | | |
| Glazing Area A ($m^2$) | 1.4 | | |
| Glazing Area B ($m^2$) | 1.4 | $L_{Aeq,ff}$ | 54 dB |
| Rooflight Area C ($m^2$) | 0 | $L_{AFmax,ff}$ | 69 dB |
| Room Volume ($m^3$) | 18.5 | | |




**Break in Areas:**

Façade Area (Sf) A 6.595157 sq m
Façade Area (Sf) B 6.871894 sq m
Ceiling Area (Srr) C 7.556558 sq m
Total Transmitting Area (S) 21.023609 sq m

| | Screening dB: | Calculated Using Road Traffic Spectrum (BS8233) 63 Hz | 125Hz | 250Hz | 500Hz | 1kHz | 2kHz | 4kHz | |
|---|---|---|---|---|---|---|---|---|---|
| | | 63 | 59 | 55 | 53 | 53 | 49 | 43 | |
| | 0 | 56 | 53 | 57 | 70 | 72 | 68 | 57 | $L_{fmax,ff}$ Spectrum |
| | 0 | | | | | | | | |
| **Normalised Leq,ff External Free Field** | | 60 | 56 | 52 | 50 | 50 | 46 | 40 | **54.0** |

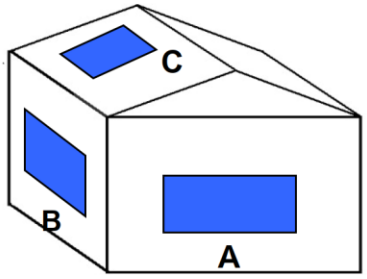
| Construction | Element | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | Number of Vents: | | | | | | |
| Hit & Miss Trickle (4000mm^2) | **Ventilation $D_{n,e}$** | 27 | 34 | 27 | 37 | 35 | 34 | 34 | |
| 28 dB Rw + Ctr - Acoustically Upgraded Double Glazing | **Glazing SRI $R_{wi}$ (A: Facade)** | 21 | 21 | 20 | 28 | 38 | 38 | 41 | |
| Cavity Brick Wall (120/50/100) 400kg/m2 | **Wall SRI $R_{ew}$ (A: Facade)** | 40 | 41 | 46 | 52 | 58 | 64 | 64 | **57** |
| 28 dB Rw + Ctr - Acoustically Upgraded Double Glazing | **Glazing SRI $R_{wi}$ (B: Facade)** | 21 | 21 | 20 | 28 | 38 | 38 | 41 | |
| Cavity Brick Wall (120/50/100) 400kg/m2 | **Wall SRI $R_{ew}$ (B: Facade)** | 40 | 41 | 46 | 52 | 58 | 64 | 64 | **57** |
| Tile Slate 12.5mm plbd,absorbing layer above ceiling | **Roof SRI $R_{rr}$ (C: Roof)** | 20 | 24 | 34 | 40 | 45 | 49 | 50 | **43** |
| | Roof Glaze SRI $R_{wi}$ (C: Roof) | | | | | | | | |
| **Predicted External Noise Break In LAeq** | | **19.9** | **22.8** | **25.8** | **20.7** | **21.2** | **19.1** | **12.7** | **30.1** |

**Predicted Internal $L_{Aeq,T}$ (63Hz - 4kHz) 30.1 dB**

## Table 3 Apartment Living Area - Façade Calculations with Recommended Mitigation

Calculation Based on BS 8233:2014 Equation G.1 and EN 12354-3
Prediction of internal noise level attributed to external sources.

| | | | |
|---|---|---|---|
| **Project Details:** | Rathcoole | | |
| **Room Details:** | AT02 - Living Area | | |
| Façade A area ($m^2$) | 11.3 | Room RT | 0.5 |
| Façade B area ($m^2$) | 13.8 | | |
| Ceiling Area C area ($m^2$) | 25.0 | | |
| Room Volume ($m^3$) | 62.5 | | |
| Glazing Area A ($m^2$) | 3.3 | | |
| Glazing Area B ($m^2$) | 5.7 | $L_{Aeq,ff}$ | 60 dB |
| Rooflight Area C ($m^2$) | 0 | $L_{AFmax,ff}$ | dB |
| Room Volume ($m^3$) | 62.5 | | |




**Break in Areas:**

Façade Area (Sf) A 11.2875 sq m
Façade Area (Sf) B 13.7875 sq m
Ceiling Area (Srr) C 0 sq m
Total Transmitting Area (S) 25.075 sq m

| | Screening dB: | Calculated Using Road Traffic Spectrum (BS8233) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 63 Hz | 125Hz | 250Hz | 500Hz | 1kHz | 2kHz | 4kHz |
| | 0 | 64 | 60 | 56 | 54 | 54 | 50 | 44 |
| | 0 | | | | | | | |
| | | | | | | | | dB(A) |
| **Normalised Leq,ff External Free Field** | | 66 | 62 | 58 | 56 | 56 | 52 | 46 | **60.0** |
| **Construction** | **Element** | 3 | Number of Vents: | | | | | | |
| Hit & Miss Trickle (4000mm^2) | **Ventilation $D_{n,e}$** | 22 | 29 | 22 | 32 | 30 | 29 | 29 | |
| 28 dB Rw + Ctr - Acoustically Upgraded Double Glazing | **Glazing SRI $R_{wi}$ (A: Facade)** | 21 | 21 | 20 | 28 | 38 | 38 | 41 | |
| Cavity Brick Wall (120/50/100) 400kg/m2 | **Wall SRI $R_{ew}$ (A: Facade)** | 40 | 41 | 46 | 52 | 58 | 64 | 64 | **57** |
| 28 dB Rw + Ctr - Acoustically Upgraded Double Glazing | **Glazing SRI $R_{wi}$ (B: Facade)** | 21 | 21 | 20 | 28 | 38 | 38 | 41 | |
| Cavity Brick Wall (120/50/100) 400kg/m2 | **Wall SRI $R_{ew}$ (B: Facade)** | 40 | 41 | 46 | 52 | 58 | 64 | 64 | **57** |
| | Roof SRI $R_{rr}$ (C: Roof) | | | | | | | | |
| | Roof Glaze SRI $R_{wi}$ (C: Roof) | | | | | | | | |
| **Predicted External Noise Break In LAeq** | | 21.1 | 25.2 | 31.2 | 25.9 | 26.4 | 24.5 | 18.1 | 34.7 |

**Predicted Internal $L_{Aeq,T}$ (63Hz - 4kHz)** 34.7 dB

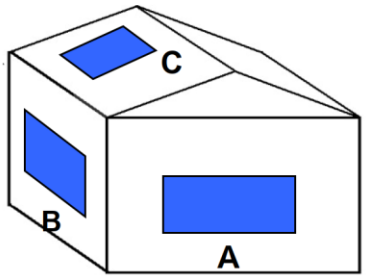
## Table 4 Apartment Bedroom Area - Façade Calculations with Recommended Mitigation

Calculation Based on BS 8233:2014 Equation G.1 and EN 12354-3
Prediction of internal noise level attributed to external sources.

| | |
|---|---|
| **Project Details:** | Rathcoole |
| **Room Details:** | AT03 - Bedroom |
| Façade A area ($m^2$) | 5.4 |
| Façade B area ($m^2$) | 8.4 |
| Ceiling Area C area ($m^2$) | 7.3 |
| Room Volume ($m^3$) | 18.3 |
| Glazing Area A ($m^2$) | 0.0 |
| Glazing Area B ($m^2$) | 2.7 |
| Rooflight Area C ($m^2$) | 0 |
| Room Volume ($m^3$) | 18.3 |

**Room RT** 0.5

$L_{Aeq,ff}$ 54 dB
$L_{AFmax,ff}$ 69 dB




**Break in Areas:**

Façade Area (Sf) A 5.4375 sq m
Façade Area (Sf) B 8.4 sq m
Ceiling Area (Srr) C 0 sq m
Total Transmitting Area (S) 13.8375 sq m

Calculated Using Road Traffic Spectrum (BS8233)

| | Screening dB: | 63 Hz | 125Hz | 250Hz | 500Hz | 1kHz | 2kHz | 4kHz | |
|---|---|---|---|---|---|---|---|---|---|
| | | 63 | 59 | 55 | 53 | 53 | 49 | 43 | |
| | 0 | 56 | 53 | 57 | 70 | 72 | 68 | 57 | $L_{fmax,ff}$ Spectrum |
| | 0 | | | | | | | | |
| **Normalised Leq,ff External Free Field** | | 60 | 56 | 52 | 50 | 50 | 46 | 40 | **54.0** |
| **Construction** | **Element** | 1 | Number of Vents: | | | | | | |
| Hit & Miss Trickle (4000mm^2) | **Ventilation $D_{n,e}$** | 27 | 34 | 27 | 37 | 35 | 34 | 34 | |
| | Glazing SRI $R_{wi}$ (A: Facade) | | | | | | | | |
| Cavity Brick Wall (120/50/100) 400kg/m2 | **Wall SRI $R_{ew}$ (A: Facade)** | 40 | 41 | 46 | 52 | 58 | 64 | 64 | **57** |
| 28 dB Rw + Ctr - Acoustically Upgraded Double Glazing | **Glazing SRI $R_{wi}$ (B: Facade)** | 21 | 21 | 20 | 28 | 38 | 38 | 41 | |
| Cavity Brick Wall (120/50/100) 400kg/m2 | **Wall SRI $R_{ew}$ (B: Facade)** | 40 | 41 | 46 | 52 | 58 | 64 | 64 | **57** |
| | Roof SRI $R_{rr}$ (C: Roof) | | | | | | | | |
| | Roof Glaze SRI $R_{wi}$ (C: Roof) | | | | | | | | |
| **Predicted External Noise Break In LAeq** | | **15.5** | **19.5** | **25.5** | **20.2** | **21.0** | **19.1** | **12.6** | **29.1** |

**Predicted Internal $L_{Aeq,T}$ (63Hz - 4kHz)** **29.1** **dB**