Manor Developments

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124 High Road
Ruislip

Conversion
From Commercial to Residential

Sound Insulation Assessment

January 2026

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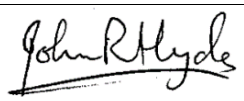
Signature			
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1. INTRODUCTION

At the request of Richard Hennessy, a sound insulation assessment has been carried out for the proposed conversion of the first-floor commercial premises to residential at 124 High Street, Ruislip. In order to assess the potential impact of noise from the Tesco warehouse area on the proposed residential development, measurements have been carried out to assess the sound insulation of the first floor.
Measurements were also carried out between the first and second floor areas.

The measurements and assessment have been carried out by John Hyde, a Member of the Institute of Acoustics and Chartered Physicist who has over 35 years' experience as a noise and acoustics consultant.

2 NOISE GUIDELINES

The requirements of BS8233 are summarised as follows:

Criterion	*Situation*	$L_{Aeq,T}$
Reasonable resting or sleeping conditions	Living Rooms	35dB Day (16hrs)
	Bedrooms	30dB Night (8hrs)

In addition to internal average noise level criteria, BS8233 recommends that a limit should be placed on maximum internal noise levels at night due to individual external events, such as passing vehicles, although a specific guideline is not proposed. However, WHO Noise Guidelines recommend that internal maximum noise levels due to individual events at night, should not regularly exceed 45dB(A) on no more than 10 occasions.

3 MEASUREMENTS

The measurements were carried out using the following equipment:

SVAN 955 Sound Level Meter	S/N 27330
SV12L pre-amp	S/N 25706
ACO 7052E Microphone	S/N 49605
SVAN 977 Sound Level Meter	S/N 36438
SV12L pre-amp	S/N 42471
ACO 7052E Microphone	S/N 56754
NOR 1251Calibrator	S/N 29151

The above equipment fulfils IEC 61672 Class 1 and is traceable to calibration under BS7580: Part 1:1997. The meters were calibrated before and after the measurements and no significant drifting of the calibration signal was observed. In

addition, the sound source was a Pyle PPHP1542B Portable PA 400W Portable PA System

The following parameters were measured at 1-minute intervals.

- L_{Aeq} The equivalent continuous noise level
- L_{Amax} The maximum noise level during each period
- L_{A90} The level exceeded for 90% of the time, the background level
- Third octave band frequency levels

The results are summarised below in Table 1 and shown in detail in Appendix 1.

Table 1: Results of measurements

Results summary	LAeq,T [dB]
Sound source on first floor	98.0
Sound source in warehouse	54.6
Background in warehouse	54.4
Warehouse plant and activity	65.3
Sound source on first floor	98.0
Sound source on second floor	75.1
First floor background	34.9

3 ASSESSMENT

The background noise in the ground floor warehouse area did not change when the sound source was activated. The sound source was imperceptible in the warehouse, meaning that the sound insulation of the floor was greater than the measured 44dB difference. A concrete floor would provide a typical sound reduction index of 45-50dB.

The activity and plant noise averaged 65dB when measured in the warehouse with peak levels of 76dB. However, assuming a conservative sound reduction of 44dB, the average level would be reduced to 21dB and the peak levels to less than 32dB at the existing first floor. When the finished flooring is installed in the proposed flats, these levels would be reduced by a further 10dB and not likely to be perceptible to residents.

The sound insulation of the second floor was assessed as 23dB. This would need to meet Part E requirements of D_{nTw} 45dB with resilient floating floors in the second floor flats and suspended ceilings in the first floor proposed flats. Robust Details provide suitable designs.

APPENDIX 1 – Results of sound insulation measurements

Third Octave Band (Hz)	Background Warehouse - Lzeq,1m [dB]			Average
100 Hz	51.6	51.1	51.4	51.4
125 Hz	67.1	67.0	66.7	66.9
160 Hz	48.4	47.5	47.2	47.7
200 Hz	44.4	42.5	42.3	43.1
250 Hz	47.1	45.4	44.7	45.7
315 Hz	47.6	44.2	43.2	45.0
400 Hz	48.3	46.2	45.4	46.6
500 Hz	46.1	43.2	43.3	44.2
630 Hz	47.4	44.4	45.2	45.7
800 Hz	45.1	42.8	44.6	44.2
1000 Hz	44.5	41.6	44.2	43.4
1250 Hz	40.9	37.1	39.4	39.1
1600 Hz	40.4	37.2	38.2	38.6
2000 Hz	38.9	35.2	36.7	36.9
2500 Hz	36.9	32.8	35.1	34.9
3150 Hz	42.3	36.2	39.3	39.3
4000 Hz	37.2	32.2	34.8	34.7
5000 Hz	35.2	30.5	32.5	32.7
dBA	55.5	53.6	54.1	54.4

Third Octave Band (Hz)	Warehouse activity, Plant Running - Lzeq,1m [dB]					Average
100 Hz	55.7	55.1	55.7	54.7	52.1	55.5
125 Hz	66.6	66.0	65.7	65.3	65.3	66.1
160 Hz	55.2	55.0	51.0	50.1	47.5	53.7
200 Hz	59.8	55.6	49.5	51.9	46.6	55.0
250 Hz	65.3	60.4	56.1	54.0	48.0	60.6
315 Hz	60.1	58.5	55.7	53.7	47.3	58.1
400 Hz	60.8	60.1	57.0	53.9	47.9	59.3
500 Hz	55.5	57.6	55.0	53.8	47.7	56.0
630 Hz	54.7	57.5	57.4	54.7	47.9	56.5
800 Hz	54.0	56.5	54.9	52.2	45.7	55.1
1000 Hz	52.7	53.7	53.1	51.8	45.5	53.2
1250 Hz	52.7	51.9	52.4	51.0	44.0	52.3
1600 Hz	51.8	51.1	54.9	52.1	44.1	52.6
2000 Hz	51.5	50.4	54.2	51.6	43.7	52.0
2500 Hz	52.2	49.8	53.1	50.8	42.9	51.7
3150 Hz	52.8	49.4	53.5	51.0	44.0	51.9
4000 Hz	53.0	48.7	52.5	51.4	44.9	51.4
5000 Hz	53.4	48.5	51.6	50.3	43.0	51.2
dBA	65.9	64.7	65.3	63.3	56.9	65.3

Third Octave Band (Hz)	Warehouse, Sound Source Running - Lzeq,1m [dB]				Average
100 Hz	55.9	55.7	55.7	49.8	54.3
125 Hz	63.4	63.3	63.6	50.2	60.1
160 Hz	50.1	49.1	49.4	47.6	49.1
200 Hz	49.1	46.0	46.1	46.0	46.8
250 Hz	49.3	46.8	46.8	43.7	46.7
315 Hz	48.0	45.1	45.1	42.3	45.1
400 Hz	51.3	49.1	48.9	41.3	47.7
500 Hz	49.6	44.2	44.0	41.8	44.9
630 Hz	51.1	45.1	44.5	40.1	45.2
800 Hz	48.8	44.1	43.5	41.3	44.4
1000 Hz	46.2	41.9	41.6	39.0	42.2
1250 Hz	44.5	38.0	37.3	39.1	39.7
1600 Hz	43.9	37.1	37.1	38.0	39.0
2000 Hz	42.0	35.1	36.3	36.6	37.5
2500 Hz	40.9	31.4	37.6	35.2	36.3
3150 Hz	41.8	37.1	37.6	33.4	37.5
4000 Hz	41.3	33.4	37.0	30.8	35.6
5000 Hz	42.0	31.2	36.2	28.6	34.5
dBA	57.4	53.0	53.3	49.5	54.6

Third Octave Band (Hz)	First Floor Background - Lzeq,1m [dB]				Average
100 Hz	38.8	38.6	38.6	38.2	38.7
125 Hz	36.9	36.9	36.9	36.5	36.9
160 Hz	35.2	35.6	35.3	35.5	35.4
200 Hz	32.9	32.8	32.5	32.3	32.7
250 Hz	33.7	33.4	33.2	33.3	33.4
315 Hz	30.9	30.7	31.0	30.8	30.9
400 Hz	28.8	28.7	28.4	28.6	28.6
500 Hz	28.0	27.8	27.7	28.1	27.8
630 Hz	26.1	26.1	25.7	25.4	26.0
800 Hz	24.4	24.2	23.8	24.0	24.1
1000 Hz	23.8	24.0	23.9	24.1	23.9
1250 Hz	22.4	22.0	21.9	21.9	22.1
1600 Hz	21.2	21.5	21.7	22.0	21.5
2000 Hz	19.7	19.8	20.2	20.4	19.9
2500 Hz	18.1	18.1	17.7	17.9	18.0
3150 Hz	16.2	15.9	15.5	15.5	15.9
4000 Hz	15.9	15.6	15.6	15.8	15.7
5000 Hz	18.5	18.1	17.7	17.9	18.1
dBA	35.1	35.3	35.2	35.2	35.2

Third Octave Band (Hz)	Second Floor - Sound Source on First Floor -Lzeq,1m [dB]				Average
100 Hz	76.5	79.5	79.6	78.7	78.5
125 Hz	74.3	77.2	77.2	76.3	76.2
160 Hz	74.9	77.9	78.1	77.1	77.0
200 Hz	69.7	72.5	72.4	71.4	71.5
250 Hz	70.5	73.5	73.3	72.3	72.4
315 Hz	70.6	73.5	73.4	72.5	72.5
400 Hz	71.3	74.9	74.7	74.0	73.6
500 Hz	67.5	70.6	70.5	69.6	69.5
630 Hz	62.6	65.9	65.8	65.1	64.8
800 Hz	62.2	65.2	65.1	64.5	64.2
1000 Hz	62.8	66.2	66.0	65.3	65.0
1250 Hz	59.4	62.8	62.6	61.9	61.6
1600 Hz	51.0	54.3	54.2	53.5	53.2
2000 Hz	50.8	54.1	54.1	53.2	53.0
2500 Hz	51.3	54.6	54.5	53.8	53.5
3150 Hz	53.7	56.9	56.9	56.1	55.8
4000 Hz	50.0	53.2	53.1	52.2	52.1
5000 Hz	42.4	45.7	45.7	44.8	44.6
dBA	73.0	76.2	76.1	75.3	75.1

Third Octave Band (Hz)	First Floor Sound Source - Lzeq,1m [dB]				Average
100 Hz	81.0	80.9	80.8	80.9	80.9
125 Hz	81.3	81.2	81.2	81.2	81.2
160 Hz	80.7	80.6	80.7	80.6	80.7
200 Hz	78.9	78.9	78.8	78.9	78.9
250 Hz	81.8	81.7	81.7	81.8	81.7
315 Hz	82.7	82.6	82.7	82.6	82.7
400 Hz	87.2	87.3	87.3	87.3	87.3
500 Hz	85.5	85.5	85.5	85.2	85.5
630 Hz	80.1	80.1	80.1	80.1	80.1
800 Hz	83.8	83.7	83.8	83.7	83.8
1000 Hz	85.0	85.0	85.0	84.9	85.0
1250 Hz	79.4	79.5	79.4	79.4	79.4
1600 Hz	79.0	79.0	78.9	78.9	79.0
2000 Hz	86.5	86.5	86.6	86.6	86.5
2500 Hz	90.5	90.5	90.5	90.5	90.5
3150 Hz	89.6	89.6	89.6	89.6	89.6
4000 Hz	88.1	87.8	87.7	87.5	87.9
5000 Hz	83.3	83.4	83.4	83.5	83.4
dBA	98.0	98.0	98.0	98.0	98.0