

Project: **PORT STREET
MANCHESTER**

Project no. 230010

Client: Renaker Build Ltd

Architects: Simpson Haugh & Partners

Report: **Z1-FOC-G251-RP-XX-006**

Object: **IN-OUT ACOUSTIC TEST RESULTS**

Issued by: **Focchi**

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1. INTRODUCTION

According to Acoustic Performance Specification for the project Port Street in Manchester, the sound reduction index of the vision panels and associated framing systems has been differentiated into 4 categories listed in the following tables. (category A refers to podium facades out of Focchi's scope of work).

Vision Panel/Window Type	Sound Reduction Index (dB) @ Octave Band Centre Frequency (Hz)						
	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2kHz	4kHz
TYPE A	25	28	35	40	44	48	53
TYPE B	25	28	31	38	41	44	53
TYPE C	22	26	27	35	38	38	45
TYPE D	20	24	24	31	37	37	37

Table 4: Minimum sound reduction index of vision panels and windows to habitable rooms

The sound reduction index of the non-vision panels is requested as follow (If required, the acoustic benefit of the drylining to the non-vision panels can be allowed to contribute to the performance of the panels):

Non-Vision Panel Type/ Location	Sound Reduction Index (dB) @ Octave Band Centre Frequency (Hz)						
	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2kHz	4kHz
Non-vision panel	17	28	38	45	50	50	50

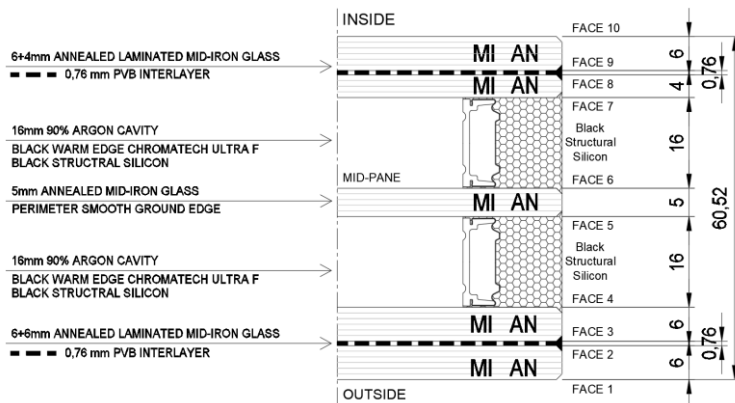
Table 3: Minimum sound reduction index of non-vision panels to dwellings

Measurements are carried out in a laboratory in accordance with BS EN ISO 10140-2: 2021 and rated in accordance with BS EN ISO 717-1: 2020.

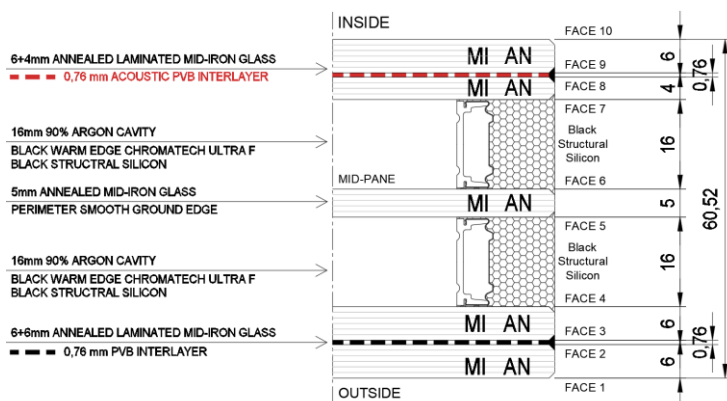
2. TEST SAMPLES

The following mock-ups have been tested.

- Vision Mock-Up 01 – Standard Pvb**



- Vision Mock-Up 02 – Acoustic pvb on the internal pane**



- Non-Vision Mock-Up 01 – Non Vision panels WITHOUT dryline**
- Non-Vision Mock-Up 02 – Non Vision panels WITH dryline**

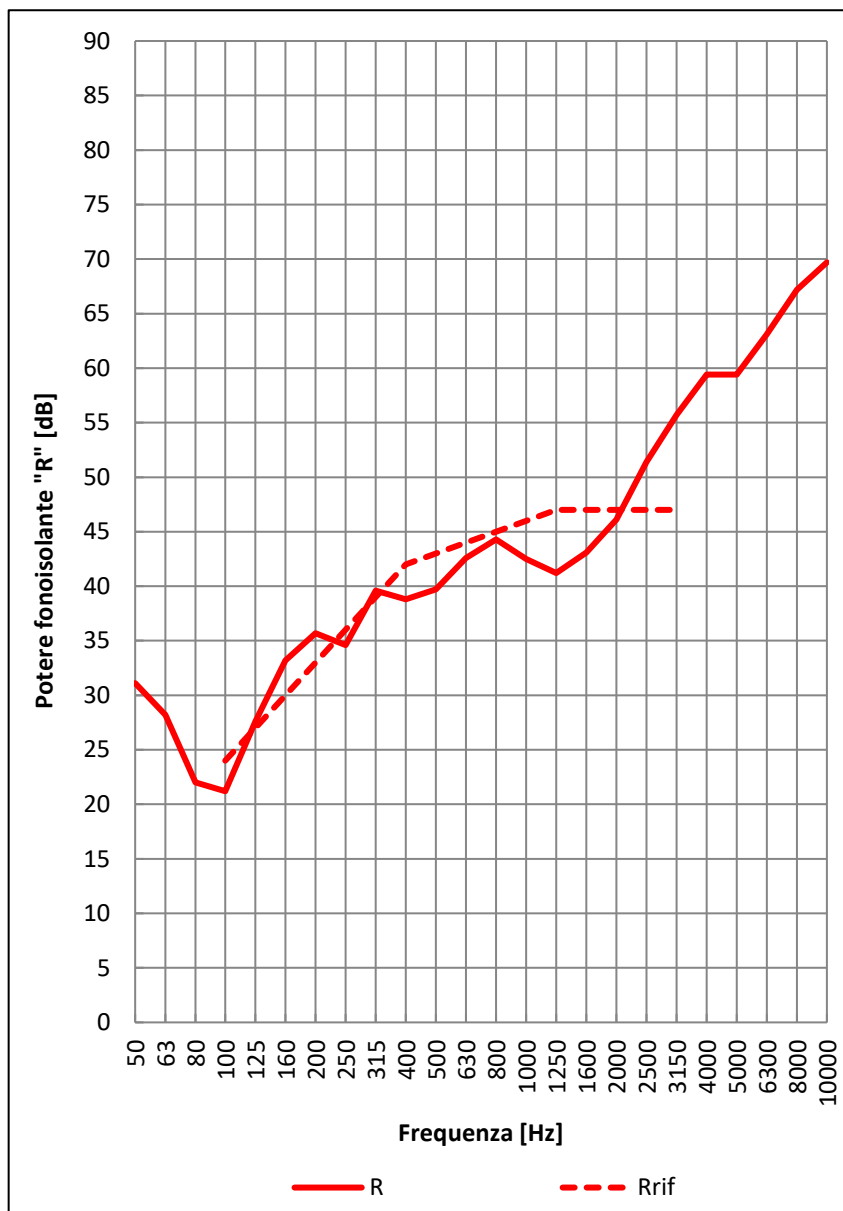
3. TEST RESULTS

The sound reduction has achieved the following performances.

Vision Mock-Up 01 – Standard Pvb

Frequenza [Hz]	R [dB]	Rrif [dB]	R oct [dB]
50	31.1	//	25.4
63	28.2	//	
80	22.0	//	
100	21.2	24.0	24.9
125	27.6	27.0	
160	33.2	30.0	
200	35.7	33.0	36.2
250	34.6	36.0	
315	39.6	39.0	
400	38.8	42.0	40.1
500	39.7	43.0	
630	42.6	44.0	
800	44.3	45.0	42.5
1000	42.5	46.0	
1250	41.2	47.0	
1600	43.1	47.0	45.7
2000	46.1	47.0	
2500	51.4	47.0	
3150	55.7	47.0	57.8
4000	59.4	//	
5000	59.4	//	
6300	63.1	//	65.8
8000	67.2	//	
10000	69.7	//	

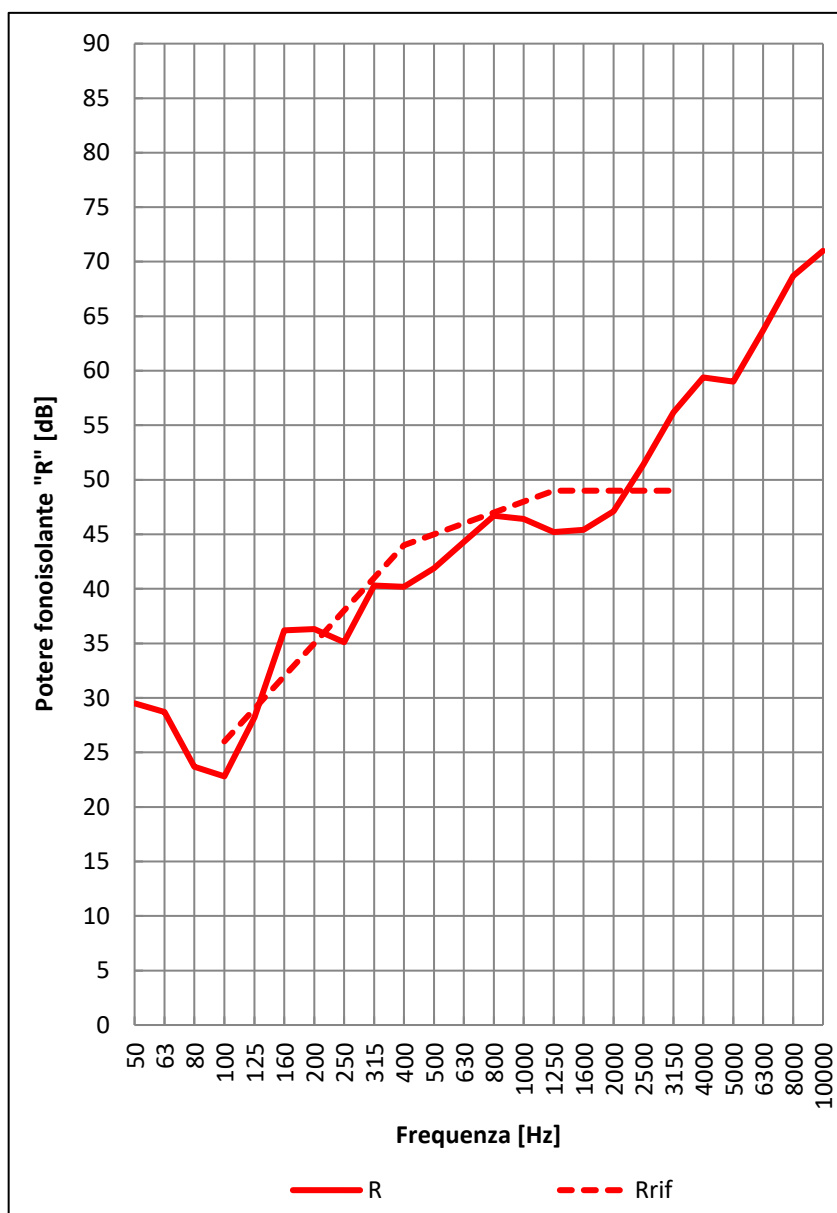
Rw	43	43.5	[dB]
C 100-3150	-1	41.8	[dB]
Ctr 100-3150	-5	37.7	[dB]



Vision Mock-Up 02 – Acoustic pvb on the internal pane

Frequenza [Hz]	R [dB]	Rrif [dB]	R oct [dB]
50	29.5	//	26.5
63	28.7	//	
80	23.7	//	
100	22.8	26.0	26.3
125	28.2	29.0	
160	36.2	32.0	
200	36.3	35.0	36.7
250	35.1	38.0	
315	40.3	41.0	
400	40.2	44.0	41.8
500	41.9	45.0	
630	44.3	46.0	
800	46.7	47.0	46.1
1000	46.4	48.0	
1250	45.2	49.0	
1600	45.4	49.0	47.3
2000	47.1	49.0	
2500	51.4	49.0	
3150	56.2	49.0	58.0
4000	59.4	//	
5000	59.0	//	
6300	63.7	//	66.7
8000	68.7	//	
10000	71.0	//	

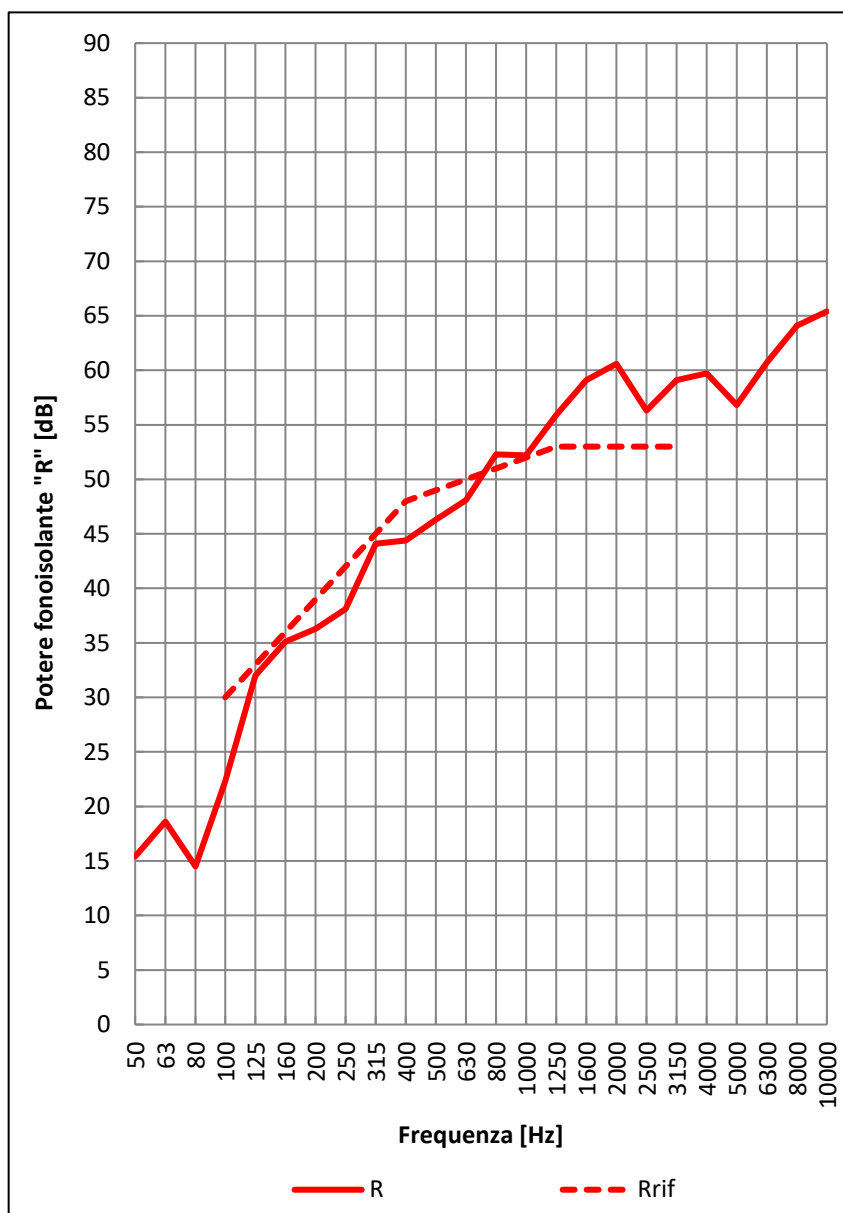
Rw	45	45.3	[dB]
C 100-3150	-1	43.7	[dB]
Ctr 100-3150	-6	39.3	[dB]



Non-Vision Mock-Up 01 – Non Vision panels WITHOUT dryline

Frequenza [Hz]	R [dB]	Rrif [dB]	R oct [dB]
50	15.4	//	15.8
63	18.6	//	
80	14.5	//	
100	22.3	30.0	26.4
125	32.0	33.0	
160	35.1	36.0	
200	36.3	39.0	38.5
250	38.1	42.0	
315	44.1	45.0	
400	44.4	48.0	46.0
500	46.3	49.0	
630	48.1	50.0	
800	52.3	51.0	53.2
1000	52.2	52.0	
1250	55.9	53.0	
1600	59.1	53.0	58.3
2000	60.6	53.0	
2500	56.3	53.0	
3150	59.1	53.0	58.3
4000	59.7	//	
5000	56.8	//	
6300	60.7	//	62.9
8000	64.1	//	
10000	65.4	//	

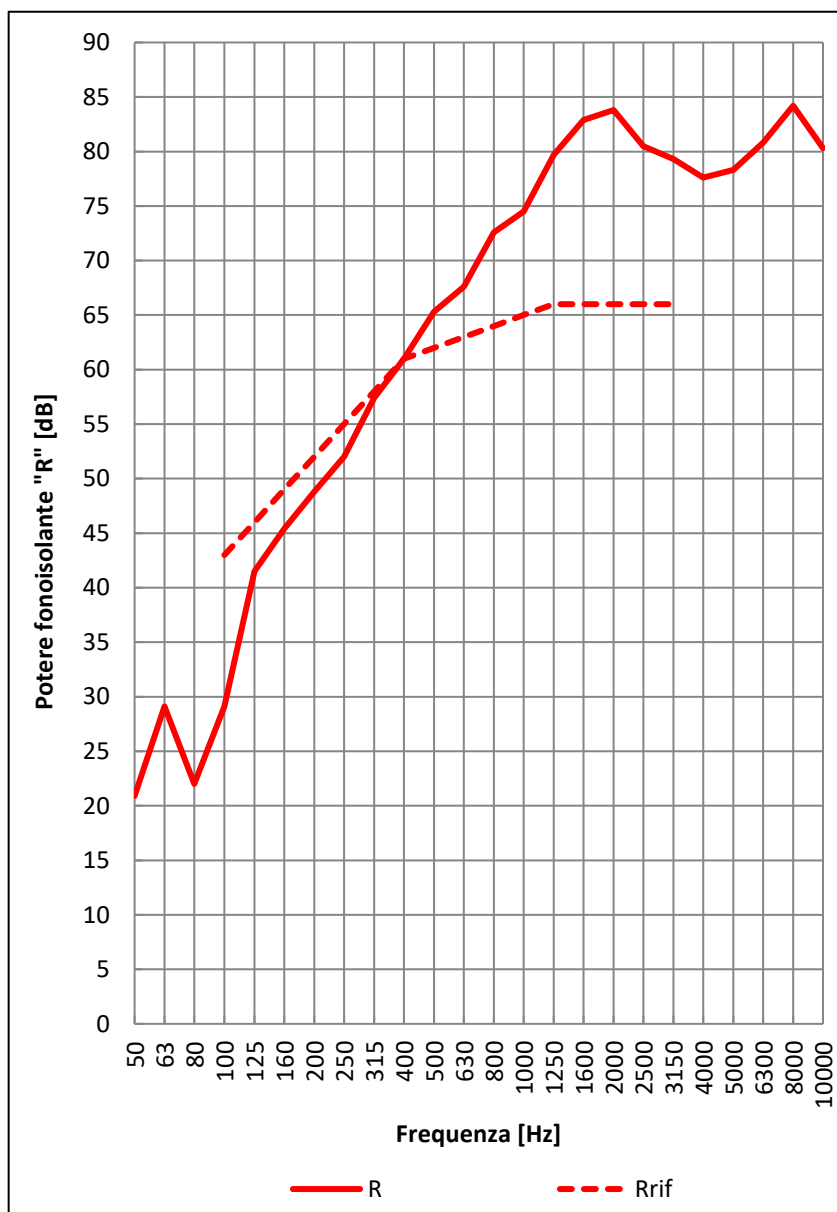
Rw	49	49.6	[dB]
C 100-3150	-2	46.9	[dB]
Ctr 100-3150	-9	40.5	[dB]



Non-Vision Mock-Up 02 – Non Vision panels WITH dryline

Frequenza [Hz]	R [dB]	Rrif [dB]	R oct [dB]
50	20.9	//	22.8
63	29.1	//	
80	22.0	//	
100	29.1	43.0	33.5
125	41.5	46.0	
160	45.4	49.0	
200	48.8	52.0	51.5
250	52.0	55.0	
315	57.4	58.0	
400	61.0	61.0	63.8
500	65.3	62.0	
630	67.6	63.0	
800	72.6	64.0	74.7
1000	74.5	65.0	
1250	79.7	66.0	
1600	82.9	66.0	82.2
2000	83.8	66.0	
2500	80.5	66.0	
3150	79.3	66.0	78.3
4000	77.6	//	
5000	78.3	//	
6300	80.8	//	81.5
8000	84.2	//	
10000	80.3	//	

Rw	62	62.4	[dB]
C 100-3150	-5	56.7	[dB]
Ctr 100-3150	-14	48.5	[dB]



4. COMPARISON OF RESULTS

Vision Mock-Up 01 Standard Pvb			
Hz	Performance D	Test result	
63	20	25	+5
125	24	25	+1
250	24	36	+12
500	31	40	+9
1000	37	43	+6
2000	37	46	+9
4000	37	58	+21

Vision Mock-Up 01 Standard Pvb			
Hz	Performance C	Test result	
63	22	25	+3
125	26	25	-1
250	27	36	+9
500	35	40	+5
1000	38	43	+5
2000	38	46	+8
4000	45	58	+13

Vision Mock-Up 01 Standard Pvb			
Hz	Performance B	Test result	
63	25	25	+0
125	28	25	-3
250	31	36	+5
500	38	40	+2
1000	41	43	+2
2000	44	46	+2
4000	53	58	+5

Vision Mock-Up 01 Acoustic pvb on the internal pane			
Hz	Performance B	Test result	
63	25	27	+2
125	28	26	-2
250	31	37	+6
500	38	42	+4
1000	41	46	+5
2000	44	47	+3
4000	53	58	+5

Non-Vision Mock-Up 01 – WITHOUT dryline			
Hz	Performance B	Test result	
63	17	16	-1
125	28	26	-2
250	38	39	+1
500	45	46	+1
1000	50	53	+3
2000	50	58	+8
4000	50	58	+8

Non-Vision Mock-Up 02 – WITH dryline			
Hz	Performance B	Test result	
63	17	23	+6
125	28	34	+6
250	38	52	+14
500	45	64	+19
1000	50	75	+25
2000	50	82	+32
4000	50	78	+28