

HILTON HOTEL CONFERENCE AREA : SOUND ISOLATION ACCEPTANCE TESTS

1. INTRODUCTION

The glazing as specified by Pro Acoustic (PA) has been installed by Aluglass-Huppe. The main recommendations carried out were:

- The single glazing with doors in the Conference Room were replaced with double glazing without doors.
- The single glazing with doors in the Pre Function to Balcony transition were replaced with double glazing and acoustic doors.
- The double door from the Conference Room to the Balcony was closed off with brick.

The sound isolation was measured on the 17 May 2011. The measurements were carried out by using loudspeakers on the balcony and measuring the noise level on the balcony and inside the conference area. The difference in the noise level is the sound insulation. The noise was measured using a calibrated 01dB integrating sound level meter.

2. MEASUREMENT RESULTS

The summary of the results are given below: (The detailed results are provided in the appendix)

	Actual R_w'	Required R_w
Conference area to Balcony	60	55
Pre Function Area and Balcony	43	39



3. CONCLUSIONS

The glazing meets the specifications provided by Pro Acoustic. Therefore the noise level from the Hilton Conference area should not exceed the background noise as specified by SABS 10103:2008, "The measurement and rating of noise with respect to annoyance and speech communication", in the Courtyard Hotel area. Note that the area around the Hilton Hotel has been classified by PA as an urban district with one or more of the following: workshops; business premises; and main roads.

The alterations should now ensure that the council acoustic requirements are met. However the Hotel operator must still ensure that the doors from the Pre Function area to the Balcony remain closed during a noisy function in the Conference Area.

Jean Knoppersen

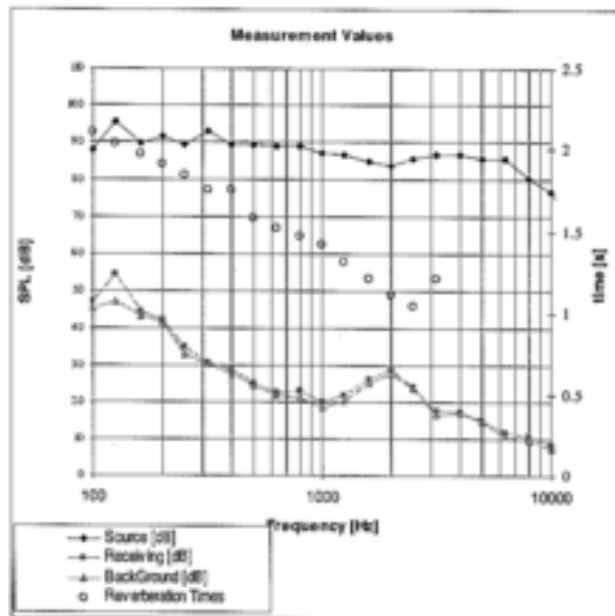
21 May 2011

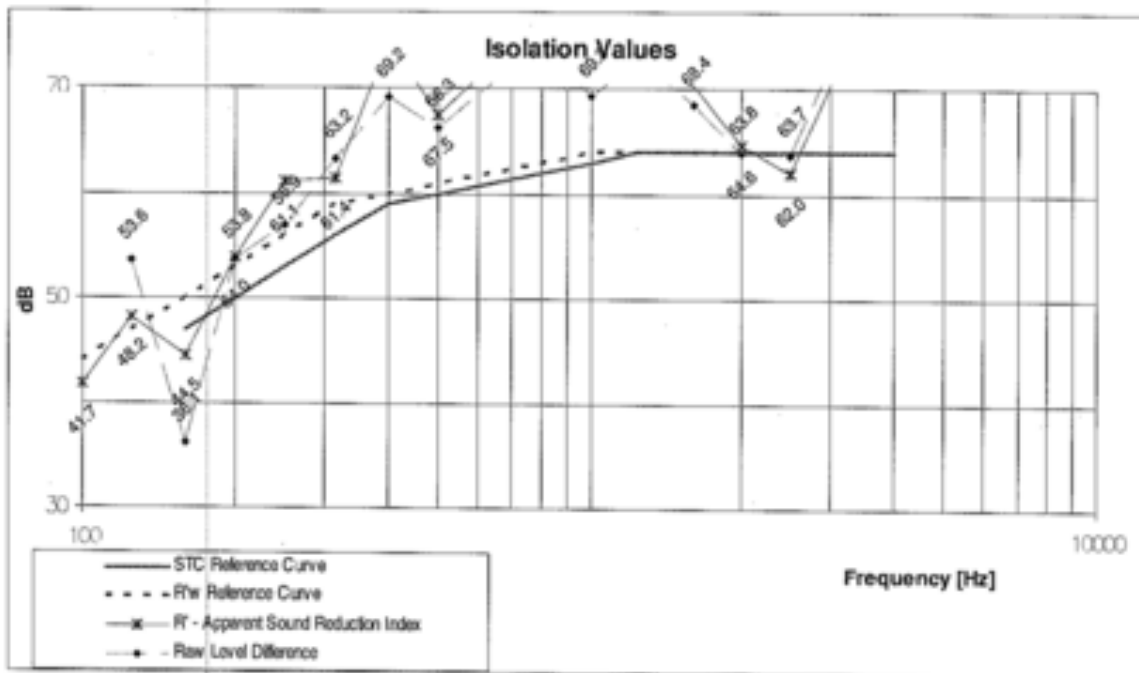
4. APPENDIX DETAILED TEST RESULTS

4.1. Conference Room To Balcony

Sound Isolation	Date	17-May-	
	Place	Hilton Hotel Sandton	
Test	Product	Aluglass Glass	
	Rating	Façade	
Room Characteristics	Equipment		
	Source	2 x JBL Eon Power 10	
	Measurement	01dB Sound Level Meter	
	Volume of Reception Room		1120.00 m ³
	Partition Area		160 m ²

Frequency	Raw Level	SPL	R'
Hz	Difference	dB	dB
	dB	dB	dB
50	43.89	43.9	32.0
63	36.20	36.2	27.6
80	48.97	49.0	40.9
100	36.85	36.9	41.7
125	53.60	53.6	48.2
160	36.09	36.1	44.5
200	53.80	53.8	54.0
250	56.94	56.9	61.1
315	63.20	63.2	61.4
400	69.16	69.2	74.5
500	66.27	66.3	67.5
630	70.37	70.4	72.2
800	73.84	73.8	74.9
1 k	69.31	69.3	71.8
1.25 k	72.67	72.7	73.3
1.6 k	68.45	68.4	70.3
2 k	63.80	63.8	64.6
2.5 k	63.67	63.7	62.0
3.15 k	74.66	74.7	72.7
4 k	75.17	75.2	73.8





Isolation Results :

Weighting	Source dB	Receiving dB	Background dB	Rw'	60	dB	ISO 717-1 (ISO 140-4)
A	98.9	43.5	41.6	STC	60	dB	ASTM E413-87
Linear	102.7	62.4	59.6	dBA (diff)	55.4	dB	

NOTES :

THE ISO 140-4 determination of the Apparent Sound Reduction Index corrects the measurements for Sound Absorption and Background Noise

The ASTM E413-87 determination of the STC uses the Raw Level Difference as measured

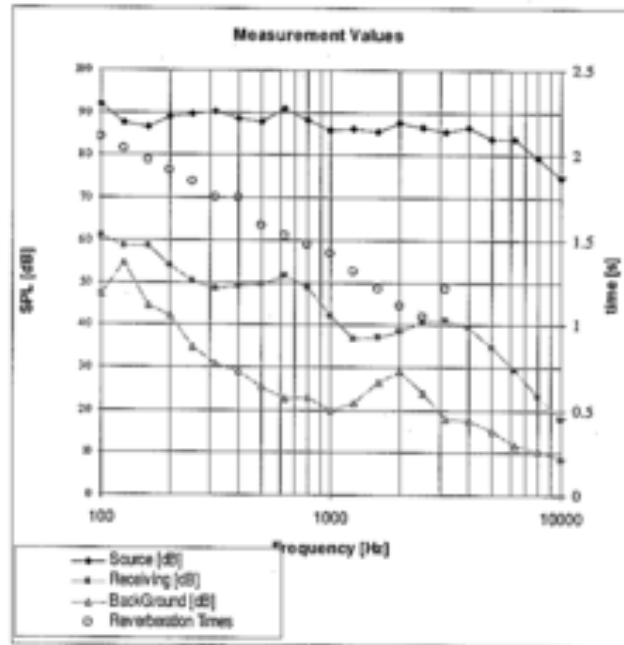
Acoustic Test by :

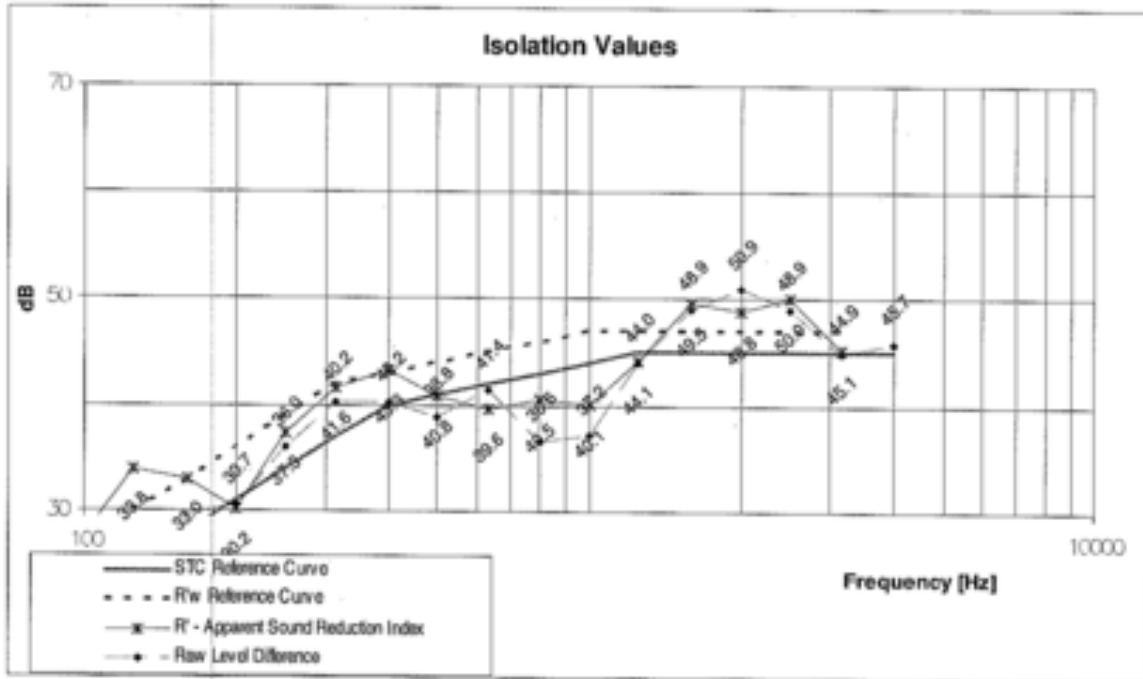
Analysis by :

4.2. Pre Function Area to Balcony

Sound Isolation	Date	17-May-11
	Place	Hilton Hotel Sandton Aluglass Glass Façade
Test	Product Rating	
	Equipment	2 x JBL Eon Power
Room Characteristics	Source	10
	Measurement	01dB Sound Level Meter
	Volume of Reception Room	1120.00 m ³
	Partition Area	160 m ²

Frequency	Raw Level	SPL STC	R'
Hz	Difference	dB	dB
	dB	dB	dB
50	24.15	24.2	4.5
63	21.33	21.3	9.2
80	30.40	30.4	25.9
100	27.15	27.2	27.6
125	26.78	26.8	33.8
160	29.72	29.7	33.0
200	30.67	30.7	30.2
250	36.00	36.0	37.3
315	40.23	40.2	41.6
400	40.17	40.2	43.3
500	38.84	38.8	40.8
630	41.42	41.4	39.6
800	36.61	36.6	40.5
1 k	37.21	37.2	40.1
1.25 k	44.03	44.0	44.1
1.6 k	48.94	48.9	49.5
2 k	50.91	50.9	48.8
2.5 k	48.93	48.9	50.0
3.15 k	44.89	44.9	45.1
4 k	45.72	45.7	43.2





Isolation Results :

Weighting	Source	Receiving	Background						
	dB	dB	dB		Rw'	43	dB	ISO 717-1	(ISO 140-4)
A Weighted	98.7	57.7	43.5		STC	41	dB	ASTM	E413-87
Linear	101.4	71.9	62.4		dBA (diff)	41	dB		

NOTES :

THE ISO 140-4 determination of the Apparent Sound Reduction Index corrects the measurements for

Sound Absorption and Background Noise

The ASTM E413-87 determination of the STC uses the Raw Level Difference as measured

Acoustic Test by :

Analysis by :
