

QF2973A/PF2865

EMTEC PRODUCTS LTD.

APPENDIX A

Raw Data – Noise Survey
20th to 21st April 2006

NOISE SURVEY DATA FROM BACKGROUND NOISE LEVEL SURVEY - 34-36, JAMESTOWN ROAD, NW1.

Project : 34-36, Jamestown Road, London NW1.
 Client : Peter Deer & Associates
 Ref : QF2973A
 Date : 24th April 2006

Measure No.	Start Time	MaxP (dBA)	L1 (dBA)	L10 (dBA)	L50 (dBA)	L90 (dBA)	L99 (dBA)	Leq (dBA)
1	13:15	95.7	62.9	59.4	50.9	49.4	48.4	53.6
2	13:35	91	62.9	58.9	52.4	50.4	49.4	54.5
3	13:55	97.5	72.4	54.4	50.9	49.4	48.9	58.2
4	14:15	81.9	59.4	53.9	51.4	49.9	49.4	52.2
5	14:35	81.5	61.4	55.4	51.4	49.9	48.9	53.2
6	14:55	77.3	60.4	55.4	51.9	49.9	48.9	53.1
7	15:15	88	58.9	54.4	50.9	49.4	48.4	52.4
8	15:35	75.8	57.4	53.4	50.9	49.4	48.4	51.8
9	15:55	78.8	58.4	54.9	51.9	49.9	48.9	52.8
10	16:15	82.9	58.4	55.4	51.9	49.9	48.9	52.8
11	16:35	82.3	61.9	54.9	51.4	49.9	48.9	53.2
12	16:55	84.9	62.4	55.9	51.9	50.4	49.4	54.1
13	17:15	76.3	57.9	53.9	51.4	49.9	48.9	52.2
14	17:35	77	57.4	53.4	50.9	49.4	48.9	51.6
15	17:55	82.2	62.9	53.4	50.9	49.4	48.4	52.8
16	18:15	74.7	56.9	53.4	50.4	49.4	48.4	51.5
17	18:35	78.5	59.4	54.9	51.4	49.9	48.9	52.9
18	18:55	73.9	57.4	53.9	50.9	48.9	48.4	51.7
19	19:15	78.6	58.9	53.9	50.9	49.4	47.9	52
20	19:35	76.3	60.9	54.9	51.4	48.9	47.9	52.8
21	19:55	83.2	60.9	54.4	50.9	48.9	47.9	52.8
22	20:15	79.6	60.4	52.9	49.9	48.4	48.9	51.5
23	20:35	76.4	60.4	53.4	49.4	47.4	46.4	51.3
24	20:55	75	56.4	52.4	48.9	47.4	46.4	50.3
25	21:15	79.5	60.4	51.9	48.9	47.4	46.4	50.8
26	21:35	78.8	60.9	52.4	48.4	46.4	45.9	50.6
27	21:55	81.7	60.9	53.9	49.4	47.4	46.4	52
28	22:15	87.9	60.9	53.4	50.4	47.9	46.4	52.9
29	22:35	77	60.4	53.4	49.4	48.9	45.9	51.6
30	22:55	85.7	59.9	52.4	46.4	46.9	45.9	51.4
31	23:15	89.4	53.4	49.9	47.9	46.4	45.4	49.3
32	23:35	91.5	73.4	55.4	47.9	45.9	44.9	57.8
33	23:55	78	54.9	50.9	47.9	45.9	44.9	48.8
34	00:15	81	56.9	52.4	47.4	45.4	44.4	50
35	00:35	86.9	62.9	51.9	47.9	46.4	45.4	51.9
36	00:55	75.3	54.9	51.4	46.9	45.4	44.4	48.2
37	01:15	72.3	54.9	51.4	46.4	44.9	43.4	48.1
38	01:35	70.2	50.4	46.9	44.4	42.9	41.9	45.1
39	01:55	72	53.4	49.4	44.4	42.4	41.4	46.3
40	02:15	72.5	54.4	51.4	45.4	42.9	41.9	47.8
41	02:35	78.5	58.9	51.9	45.4	42.9	41.9	49.1
42	02:55	72.1	50.4	46.4	44.4	43.4	42.4	45
43	03:15	74.2	58.4	50.4	44.9	43.4	42.4	48.1
44	03:35	78.1	58.9	51.4	45.9	43.9	43.4	49.4
45	03:55	70.1	53.9	51.4	45.4	43.4	42.4	47.5
46	04:15	74.5	56.4	52.4	46.9	44.9	43.4	49
47	04:35	80.7	63.9	51.4	46.9	44.9	43.9	51.5
48	04:55	77.7	58.9	53.9	46.9	44.9	43.9	50.2
49	05:15	78	59.4	52.4	46.4	44.9	44.4	50.1
50	05:35	80.2	52.4	48.9	46.9	45.9	44.9	47.4
51	05:55	79.1	56.9	52.4	47.9	46.4	45.4	49.9
52	06:15	76.9	61.4	53.9	50.4	47.9	46.9	52.1
53	06:35	86.9	59.9	54.9	50.9	49.9	48.9	53.1
54	06:55	78.5	59.4	55.9	51.4	49.4	47.9	52.8
55	07:15	76.9	57.4	54.4	51.4	49.4	48.4	52.1
56	07:35	80.6	58.4	54.9	51.4	49.9	49.4	52.6
57	07:55	82.8	64.4	57.4	52.4	50.4	49.4	55
58	08:15	80.4	59.4	55.4	52.4	50.9	49.9	53.5
59	08:35	77.7	62.4	55.4	52.4	50.9	49.9	53.9
60	08:55	74.4	56.9	53.9	51.4	49.9	49.4	52.3
61	09:15	79.8	62.4	57.9	52.9	50.9	49.9	54.9
62	09:35	81.4	60.9	56.4	52.4	50.9	49.9	53.9
63	09:55	83.6	63.4	56.4	52.4	50.4	49.4	54.3
64	10:15	86.2	63.9	56.9	51.9	49.9	49.4	54.7
65	10:35	82.2	66.4	57.9	53.4	50.9	49.4	56.1
66	10:55	80.4	64.9	56.4	52.9	50.4	49.9	54.9
67	11:15	79.1	58.9	54.9	51.9	50.4	49.4	53.1
68	11:35	85.7	63.9	58.4	52.4	50.4	49.4	55.2
69	11:55	80.3	60.9	56.9	53.9	50.9	49.9	54.6
70	12:15	80.7	59.4	55.4	51.9	50.4	48.9	53.1



Enterprise House, Blyth Road, Hayes, Middx. UB3 1DD

Telephone: 020 8848 3031 Fax: 020 8573 3605

QF2973A/MGR/CG

25th April 2006

Peter Deer & Associates,
Northway House,
1379 High Road,
Whetstone,
London.
N20 9LP

For the attention of Stefano Lazzarini

Dear Sir,

Re: The Iceworks, 34-36 Jamestown Road, London

We attach herewith our quotation for the acoustic equipment required to attenuate duct borne fan noise to the following criteria:-

Internal Criteria:

Main kitchen	:	NR45
Toilets	:	NR40
Offices & Gym	:	NR38
Dining Area	:	NR35
Lounges, Living Areas, Meeting Room, Boardroom and Chairman's office	:	NR30
Sleeping Areas	:	NR25

External Criteria

37 dBA at 1 metre from adjacent residential properties.

In selecting the necessary silencers we have used the Sound Power level data listed on the attached tables of equipment as the basis of our calculations.

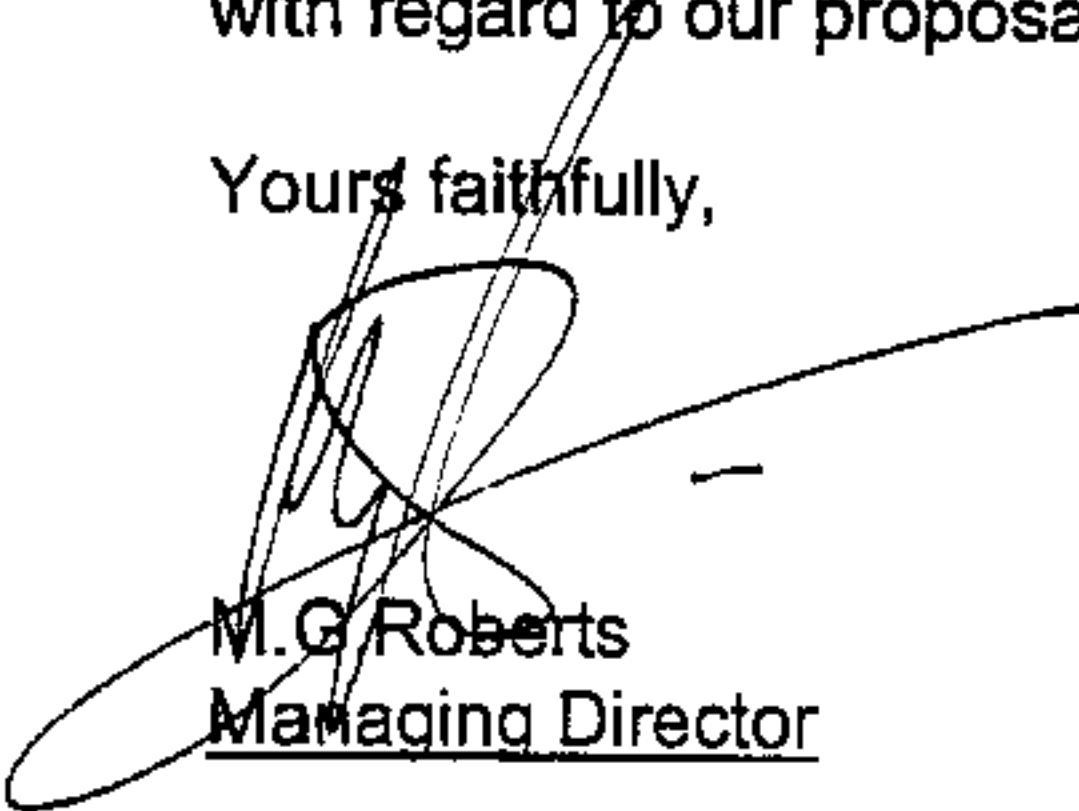
The silencers shown on the Saiver quotation for the Air Handling Units will not be required and are replaced by the silencers listed on our attached schedule.

Certain CAM units will require acoustic plinths, some will require acoustic plinths and silencers and some, in the offices, will need no acoustic treatment. For these units the standard manufacturer's plinths can be utilised.

We will be visiting your offices on Wednesday the 25th of April at 3.00pm and we will discuss the detail of the attached schedule of silencers with you at that time.

We trust that the above is in line with your requirements, but should you have any queries with regard to our proposals, please do not hesitate to contact the undersigned.

Yours faithfully,



M.G. Roberts
Managing Director

SOUND POWER LEVELS OF EXTERNAL PLANT
ON 34-36 JAMESTOWN ROAD OFFICE REDEVELOPMENT

Equipment	Manufacturer/Model	Sound Power Level (dB ref 10^{-12} watts)							
		63	125	250	500	1k	2k	4k	8k
Office Chiller	Lennox WA230 DKLN	76	87	86	85	84	84	79	72
Kitchen Extract Fan (1.25m ³ /sec @ 273pa)	Ferrari FR502 6N2B	82	79	78	77	72	69	61	52
Fresh Air (AHU) Supply fan (3m ³ /sec @ 709 pa)	Saiver RDH 315G2K2	-	96	94	89	86	85	80	72
Exhaust Air (AHU) – Extract Fan (1m ³ /sec @ 175pa)	Saiver PAEF315	72	73	72	70	68	63	57	51

Note: The above data was taken from Lennox data sheet, Kiloheat technical data sheet and Saiver proposal No. 44370000.

SOUND PRESSURE LEVELS OF EXTERNAL PLANT
ON 34-36 JAMESTOWN ROAD OFFICE REDEVELOPMENT

Equipment	Manufacturer/Model	Sound Pressure Level (dB ref 2×10^{-5} N/m ²)							
		63	125	250	500	1k	2k	4k	8k
AC Units to server rooms – External condenser at 1 metre free field	Daikin RZQ100B7V3B	52	50	48	48	46	37	29	21

Note: The above data was taken from Daikin's technical data sheet

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SOUND POWER LEVELS OF INTERNAL PLANT
ON 34-36 JAMESTOWN ROAD, OFFICE REDEVELOPMENT

Unit Location	Manufacturer	Airflow (m ³ /sec)	Sound Power Level (dB ref 10 ⁻¹² watts)							
			63	125	250	500	1k	2k	4k	8k
Fan Coil Units – Mezzanine (2off)	Moducel 285312	0.253 @ 80pa	Out In	57 64	52 59	46 53	40 55	36 46	34 40	- -
AC Units in Server rooms	Daikin FAQ100BUVIB	0.383	61 dBA							
Vertical AHU No.01	Saiver A1-0810H-1950W	2.10 @ 227 pa	-	84	81	86	85	87	80	71
Vertical AHU No.02	Saiver A1-0810H-1750W	1.85 @ 228pa	-	82	80	84	84	85	77	68
Vertical AHU No.08	Saiver A1-0650H-1450W	1.00 @ 238pa	-	80	79	77	76	74	72	67
Chairmans Office AHU	Saiver A1-0610H-1350W	0.90 @ 352pa	-	82	83	78	78	76	73	68
Chairmans Flat AHU	Saiver A1-0770H-1850W	1.90 @ 202pa	-	82	80	84	84	85	77	69
Toilet Extract (EF1)	Roof Units QP160B	0.20 @ (in) 180pa (out)	62 56	66 66	50 62	54 61	49 62	49 64	49 62	45 62
Prep Kitchen Extract (EF2)	Vent-Axia ACH 100-12A	0.15 @ (in) 180pa (out)	67 67	63 63	70 70	61 61	64 64	58 58	50 50	42 42

Note: The above data was obtained from Moducels technical submission of the 13th of April 2006; Daikins standard data sheet; Saiver's technical submission No. 44370001 dated the 5th of April 2006, and Roof Units/Vent Axia's standard data sheets.

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SOUND POWER LEVELS OF EXISTING INTERNAL PLANT
BEING REUSED ON 34-36 JAMESTOWN ROAD, OFFICE REDEVELOPMENT

Unit Location	Manufacturer	Airflow	Sound Power Level (dB ref 10 ⁻¹² watts)							
			63	125	250	500	1k	2k	4k	8k
Zone 16 AC Unit	Hiross CAM15 Unit	1.11	72	68	59	48	43	35	27	21
Zones 15, 15, 6 AC Units	Hiross CAM35 Units	2.64	80	73	65	55	49	42	34	31
Zones 9, 10, 5 and Gym AC Units	Hiross CAM25 Units	1.94	73	70	61	51	45	37	30	28

SILENCER SCHEDULE

Client: Peter Deer & Associates

Project: The Iceworks, Jamestown Road

Ref.	Location	Type	Dimensions (mm)			Vol (m³/s)	P.D (Pa)	Dynamic Insertion Loss (dB)								No.Off	Price Each (£)	Total (£)
			W	H	L			63	125	250	500	1k	2k	4k	8k			
<u>A) CAM UNIT ACOUSTIC PLINTHS AND SILENCERS</u>																		
SC1	Cam 15 Acoustic plinth (Zone 16)	PAC30	1000	750	400	1.11	Neg	18	20	28	32	40	41	44	38	1		£488.00
SC1A	Supply air silencers from plinth (Zone 16)	RAAC/53/1200	450	150	1200	0.55	50	3	5	11	22	28	29	20	9	2	£108.00	£216.00
SC1B	Return air silencers to plinth (Zone 16)	RAAC/53/1200	450	150	1200	0.55	50	3	5	11	22	28	29	20	9	2	£108.00	£216.00
SC2	Cam 35 acoustic plinths (Zones 14 and 15)	PAC30	1950	750	400	2.64	Neg	18	20	28	32	40	41	44	38	2	£784.00	£1,568.00
SC3	Cam 25 Units (Zones 9 & 10)	Fit supplier's standard plinths															-	
SC4	Cam 25 Units (Zones 9 & gym)	Fit supplier's standard plinths															-	
SC5	Cam 35 acoustic plinth (Zone 6)	PAC30	1950	750	400	2.64	Neg	18	20	28	32	40	41	44	38	1		£784.00
SC6	Cam25 unit to lounge (Zone 3)	PAC30	1495	750	400	1.94	Neg	18	20	28	32	40	41	44	38	1		£642.00
SC6A	Supply air silencers from plinth (Zone 3)	RAAC/53/1500	500	150	1500	0.724	50	3	8	14	26	30	35	23	11	2	£118.00	£236.00
SC6B	Supply air silencers from plinth (Zone 3)	RAAC/53/1500	340	150	1500	0.492	50	3	8	14	26	30	35	23	11	1		£98.00
SC6C	Return air silencers to plinth (Zone 3)	RAAC/53/1500	700	150	1500	0.97	50	3	8	14	26	30	35	23	11	2	£145.00	£290.00

Total price for CAM unit acoustic plinths and silencers (supply only, ex works)**... £4,538.00**

Notes: - All CAM units not fitted with an acoustic plinth should be fitted with the manufacturer's standard plinth.
 - The exact layout of the plinths and the attachment of the silencers to be finalised after floor layouts are agreed.

SILENCER SCHEDULE

Client: Peter Deer & Associates

Project: The Iceworks, Jamestown Road

Ref.	Location	Type	Dimensions (mm)			Vol (m³/s)	P.D (Pa)	Dynamic Insertion Loss (dB)								No.Off	Price Each (£)	Total (£)
			W	H	L			63	125	250	500	1k	2k	4k	8k			
<u>B) SYSTEM SILENCERS</u>																		
S1	Chairmans Flat-Zone 17 Supply air to living room	RAAC/48/2100	600	100	2100	0.396	45	5	15	24	38	44	46	35	18	2	£176.00	£352.00
S2	Chairmans Flat-Zone 17 Supply air to living room	RAAC/48/1800	600	100	1800	0.396	45	4	12	20	33	39	40	32	15	2	£155.00	£310.00
S3	Chairmans Flat-Zone 17 Supply to bedroom	RAAC/53/2400	300*	100	2400	0.198	15	6	18	21	36	41	46	38	18	1		£238.00
S4	Zone 17-Lobby Supply	RAAC/38/1500cc	325	150	1600	0.117	12	5	13	24	34	43	42	35	22	1		£186.00
S5	Return air to Zone 17 AHU	RAAC/53/2400	800	300	2400	1.90	50	6	18	21	36	41	46	38	18	1		£214.00
S6	Crosstalk silencers to overnight bedrooms (supply)	RAAC/43/2100	350	150	2100	0.04	Neg	6	16	29	44	50	48	36	21	3	£126.00	£378.00
S7	Crosstalk silencers to overnight bedrooms (return)	RAAC/20/900	500	150	900	0.04	5	9	16	24	37	48	50	50	38	3	£94.00	£282.00
S8 ✓	Fresh air to Zone 16	RAAC/20/1500	450	200	1500	0.15	50	14	25	39	50	50	50	50	49	1		£136.00
S9 ✓	Fresh air to Zone 17	RAAC/38/2100	325	200	2100	0.25	35	7	19	33	47	50	49	41	28	1		£141.00
S10 ✓	Fresh air to all other areas	RAAC/38/1800	700	800	1800	2.60	50	6	16	28	44	47	44	38	24	1		£290.00
S11 ✓	Fresh air intake to AHU	RAAC/25/450C	2000	700	550	3.00	35	4	8	15	23	33	34	33	22	1		£476.00
S12	Exhaust air from AHU	No silencer required																
S13 ✓	Extract air from building	RAAC/43/2100	500	350	2100	1.00	45	6	16	29	44	50	48	36	21	1		£192.00
S14	Toilet extract (EF1)	RAAC/43/900	250	200	900	0.20	20	3	6	13	22	27	26	20	10	1		£73.00
S15	Toilet exhaust to atmosphere	No silencer required																
S16	4th Floor prep kitchen extract	RAAC/38/900cc	250	250	1000	0.15	10	4	7	15	24	32	33	29	18	1		£148.00
S17	4th Floor prep kitchen exhaust to atmosphere	No silencer required																
S18	Acoustic plinth to AHU (Zone 13)	PAC 30	1350	610	400	0.90	Neg	18	20	28	32	40	41	44	38	1		£698.00
S19	Supply air to Chairmans Office	RAAC/43/2100	500	150	2100	0.45	50	6	16	29	44	50	48	36	21	2	£176.00	£352.00
S20	Return air from Chairmans Office	RAAC/38/1500	600	400	1500	0.90	30	5	13	24	34	43	42	35	22	1		£152.00

QF2973A/MGR/CG

Date: 25th April 2006

SILENCER SCHEDULE

Client: Peter Deer & Associates

Project: The Iceworks, Jamestown Road

Ref.	Location	Type	Dimensions (mm)			Vol (m ³ /s)	P.D (Pa)	Dynamic Insertion Loss (dB)								No.Off	Price Each (£)	Total (£)
			W	H	L			63	125	250	500	1k	2k	4k	8k			
S21	Boardroom Supply air (Zone 8)	RAAC/38/1500	450	325	1500	0.60	35	5	13	24	34	43	42	35	22	1		£135.00
S22	Boardroom Supply air (Zone 8)	RAAC/38/1500	325	300	1500	0.40	35	5	13	24	34	43	42	35	22	1		£108.00
S23	Boardroom Return air (Zone 8)	RAAC/43/1800	1200	150	1800	1.00	40	5	13	23	39	45	41	32	17	1		£322.00
S24	Mezzanine level fan coil inlet (Zones 4 and 18)	RAAC/33/450EF	1330	285	550	0.253	Neg	3	6	13	21	28	29	25	15	2	£216.00	£432.00
S25	Mezzanine level fan coil outlet (Zones 4 and 18)	RAAC/33/450E	1330	285	500	0.253	Neg	3	6	13	21	28	29	25	15	2	£213.00	£426.00
S26	Dining room supply air (Zone 1)	RAAC/48/1800	800	150	1800	0.76	35	4	12	20	33	39	40	32	15	2	£198.00	£396.00
S27	Dining room supply air (Zone 1)	RAAC/48/1800	600	150	1800	0.58	35	4	12	20	33	39	40	32	15	1		£158.00
S28	Return air to dining room AHU (Zone 1)	RAAC/43/1800	700	600	1800	2.1	35	5	13	23	39	45	41	32	17	1		£228.00
S29	Kitchen supply (Zone 2)	RAAC/53/1800	700	150	1800	0.925	50	4	11	17	28	34	40	28	13	1		£176.00
S30	Kitchen return to AHU (Zone 2)	RAAC/43/1800	700	500	1800	1.85	40	5	13	23	39	45	41	32	17	1		£212.00
S31	Kitchen extract (Roomside)	RAAC/48/1800M	350	600	1800	1.25	50	4	12	20	33	39	40	32	15	1		£162.00
S32	Kitchen extract (Atmospheric)	RAAC/43/1500M	500	600	1500	1.25	25	6	12	11	10	13	14	13	13	1		£187.00
S33	Kitchen extract fan acoustic enclosure	PAC 30	1000	1300	1600	-	-	18	20	28	32	40	41	44	38	1		£738.00
Total price for system silencers (Supply only, ex works)																	...	<u>£8,298.00</u>

QF2973A/MGR/CG

Date: 25th April 2006

SILENCER SCHEDULE

Client: Peter Deer & Associates

Project: The Iceworks, Jamestown Road

Ref.	Location	Type	Dimensions (mm) W x H x L	Vol (m ³ /s)	P.D (Pa)	Dynamic Insertion Loss (dB)								No.Off	Price Each (£)	Total (£)
						63	125	250	500	1k	2k	4k	8k			

- Notes: - *Silencer S3 to have a 300mm wide connection at either end but an outside body dimension of 400mm all as our attached sketch No. QF/2973A/S1.
- Crosstalk silencers to overnight bedrooms assume that the walls around the bedrooms will run from floor to ceiling and that the only penetrations of these walls will be the silencers S6 and S7. The underfloor void will be sectioned off accordingly.
 - The fresh air inlet silencer to the Air Handling unit on the roof to be generally as per our attached sketch No. QF/2973A/S2.
 - The silencers shown on the Saiver AHU quote will not be required.
 - Silencers S4 and S16 to have circular spigot connections at either end as per our attached sketch No. QF/2973A/S3.
 - Silencers S24 to fit over inlet to fan coil units and be supplied complete with a mesh filter on inlet to silencer.
 - Silencers S25 to fit over outlet from fan coil units.
 - Silencers S31 and S32 to have Melinex protection to acoustic infill.
 - Kitchen extract fan acoustic enclosure to be designed around the Ferrari FR502 6N2B fan and include inlet and outlet flexibles, anti-vibration mountings and openings to connect directly to silencers S31 and S32.

Terms and Conditions of Quotation

Validity : Prices are fixed for acceptance for 60 days.
 Delivery : 3-4 weeks from receipt of order.
 Carriage: Extra at cost. (£200.00 per delivery to site)
 V.A.T. : Chargeable extra at the appropriate rate.
 Payment: Nett 30 days from date of invoice