client : The Royal College of Anaesthetists
address: 35 Red Lion Square
London
WC1R 4SG

date: 08.08.06

PLANNING APPLICATION - SUPPLEMENTARY INFORMATION
Application Ref: 2006/2586/INVALID

Contents

1.0 Environmental Noise Report

ROYAL COLLEGE OF ANAESTHETISTS

ENVIRONMENTAL NOISE REPORT

HOARE LEA
Acoustics

Glen House
200 - 208
Tottenham
Court Road
London
W1T 7PL

Tel: 020 7890 2637
Fax: 020 7436 8466

HOARE LEA ACOUSTICS

AUDIT SHEET

REVISION	DESCRIPTION	DATE	ISSUED BY	REVIEWED BY
0	Draft	19th August 2004	JA	-

ROYAL COLLEGE OF ANAESTHETISTS

ENVIRONMENTAL NOISE REPORT

HOARE LEA ACOUSTICS

CONTENTS

August 2004
IA/KF/10-01266

1.0 INTRODUCTION

The Royal College of Anaesthetists proposed to refurbish and occupy Churchill House commercial premises located at 35 Red Lion Square, WC1, in the London Borough of Camden.

At the request of Tilney Shane, Hoare Lea Acoustics have undertaken an assessment to determine environmental noise criteria applicable to new mechanical and electrical (M&E) plant items proposed to be installed at roof level as part of the refurbishment. This report provides details of this assessment and the subsequent proposed day and night environmental noise emission limits.

2.0 SITE/SCHEME DESCRIPTION

Churchill House is presently an unoccupied 8 storey building. The buildings that surround Churchill House comprise a mix of commercial and residential uses; commercial being the predominant use in the immediate vicinity.

Characteristic of the site's central London location, the noise environment at the site is dominated by local and distant road traffic movements.

Former occupants of the building are understood to have utilised existing M&E services plant located at rooftop level, that are no longer operational. This equipment is proposed to be replaced with new M&E plant commensurate with the requirements of the Royal College of Anaesthetists, and is expected to comprise a combination of condenser and air handling plant

3.0 CRITERIA

Planning Policy Guidance 24 1994 (PPG 24) is the current Government advice to Local Planning Authorities concerning environmental noise. The guidance outlines some of the main considerations which local planning authorities should take into account in drawing up development plan policies and when determining planning applications for development which will either generate noise or be exposed to existing sources.

Annex 3 of PPG 24 provides detailed guidance on the assessment of noise from different sources. In relation to noise from commercial development, the guidance states that the likelihood of noise disturbance from machine related noise sources can be assessed using the guidance provided by BS 4142 'Rating industrial noise affecting mixed residential and industrial areas'. The guidance refers to the 1990 version of the standard, however a revised version was issued in 1997 and is considered the appropriate reference document for the purposes of this assessment.

BS 4142 provides a method of assessment which is based on the evaluation of a "rating level" for the noise occurring at any surrounding noise sensitive premises as a result of the source in question. The rating level refers to the noise in question, adjusted by the addition of correction factor where appropriate to account noise features may increase the likelihood of disturbance. The likelihood of complaint is subsequently indicated by the difference between the rating level from the development and the existing background noise in the area. The standard states that a difference of around +10 dB or higher indicates that complaints are likely, while a rating level of +5dB is considered to be of marginal significance. A rating level 10dB below the background noise is considered a positive indication that complaints are unlikely.

In relation to the above assessment method, the following specific definitions are provided for the referenced terms:

- Rating Level: The energy averaged 'A-weighted' equivalent noise level, $L_{Aeq,T}$ dB of the source in question, plus any 'correction factors' for any distinguishing acoustic features. The subscript 'T' refers to the time period over which the noise is measured; between 07:00 and 23:00 the period is 1 hour, and between 23:00 and 07:00 the period is 5 minutes.
- A-Weighting: A weighting system that adjusts linear levels to an approximation of how the human ear perceives sound.
- Correction Factors: A value of 5 dB that is to be added to the measured source level to account for the influence of any annoying features such as tones or impulses. The 5 dB is to be added for each identified feature.
- Background Noise Level: The 'A-weighted' noise level in the absence of the source in question, that is not exceeded for more than 90% of a given measurement period, $L_{A90,T}$. The time period, T, is as described above for the Rating Level.

Based on past experience of the requirements of the London Borough of Camden's Environmental Health Department, we anticipate their requirements concerning environmental noise criteria are derived from the above described BS 4142 assessment method, and that a permissible rating level 5 dB below the prevailing background noise in the area will need to be adhered to.

4.0 ASSESSMENT

The assessment method described in the preceding section necessitated measured data for the prevailing background noise environment in the vicinity of the development, in order to determine the appropriate environmental noise criteria.

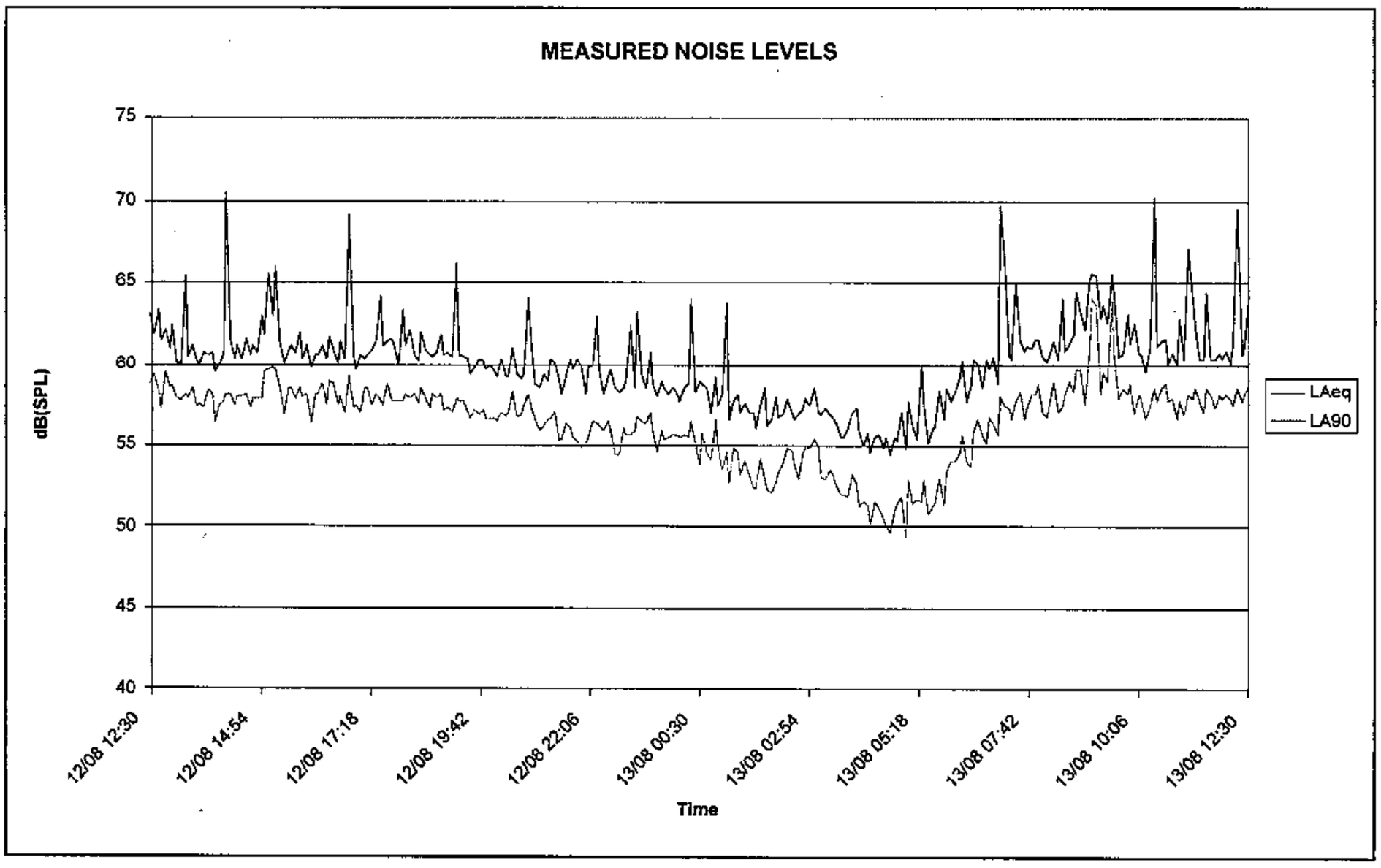
The distance to the nearest adjacent building (believed to be an office) with windows directed at Churchill House was approximately 25 to 30m but extended to a reduced height some 2 storey's below that of Churchill House. The nearest residential dwellings to Churchill House are believed to lie to the east of Red Lion Square, approximately 100m away, extending to a reduced height some 4 storey's below that of Churchill House.

An environmental noise survey was carried out at the site from midday Thursday 12/08/04 to midday Friday 13/08/04. The survey comprised automatic unattended noise logging at the eastern edge of the 8th floor roof level of Churchill House. The logger continuously sampled average and statistical noise parameters at consecutive 5 minute intervals.

The ambient noise climate at the survey location consisted primarily of local road traffic noise, with background noise controlled by more distant road traffic movements in surrounding areas. Items of plant were located adjacent to the noise monitor, however these items of plant were not operational during the course the survey period.

Meteorological conditions throughout the survey period were dry with light cloud cover and occasional light breezes. These conditions are not considered to have significantly affected the measurement results.

The following graph illustrates the range of noise levels measured during the course of the unattended survey:



Based on the results indicated by the above, the following typical minimum background values have been derived for the day and night time periods:

- Day (07:00 to 23:00) – 57 dB L_{A90}
- Night (23:00 to 07:00) – 52 dB L_{A90}

The above day night noise levels are considered the relevant figures upon which to derive the permissible rating level of 5 dB below background for emissions associated with refurbished M&E plant, consistent with the anticipated requirements of Camden Environmental Health.

5.0 CONCLUSIONS

- The Royal College of Anaesthetists propose to refurbish and occupy Churchill House, Red Lion Square. As part of the refurbishment new M&E services plant are proposed to be installed.

- An environmental noise assessment has been commissioned to determine appropriate environmental noise criteria that will limit the likelihood of community disturbance occurring as a result of operation of the proposed new plant.

- Consistent with relevant Government Planning Policy Guidance (PPG 24), and the anticipated requirements of Camden Environmental Health, an environmental noise survey has been carried out to determine the prevailing background noise levels required for an assessment based on the guidance provided by BS 4142:1997.

- The results of 24 hour unattended noise logging at the site have been used to determine typical day and night time background noise levels.

- Based on the typical day and night time background noise levels determined for the site, and the anti), and the anticipated requirements of Camden Environmental Health, the following environmental noise criteria is proposed.

  The rating noise level associated with new mechanical M&E plant proposed to be installed as part of the refurbishment of Churchill House shall not exceed 52 dB $L_{Aeq,\ 1hour}$ at any time during the day time period (07:00 – 23:00), and 47 dB $L_{Aeq,\ 5min}$ during the night time period (23:00 – 07:00), when measured at a not less than 1m from the facade of any surrounding residential properties.

2.0 Specification, Manufacturers Details & Noise Output

2.1 General AHU

QUOTATION N° : 4177 **Sheet N° 2 of 5**

CUSTOMER : MILLER CONSULTING **Date : 14.10.04**

JOB REFERENCE : ROYAL COLLEGE OF ANAESTHETISTS

UNIT SIZE 816 **UNIT TYPE** STANDARD

UNIT LAYOUT
HORIZONTAL -DOUBLE DECKED
GENERAL AREA SUPPLY

O/A DIMENSIONS METRES
3.2 Metres Long x 1.6 Metres Wide x 1.7 Metres High

PRE-FILTER PANEL EU4 **SECONDARY** BAG EU8 **FINAL**

	SUPPLY FAN	EXTRACT FAN
Air Volume (m^3/s)	2.0	2.0
External Static(Pa)	150	150
Fan Static (Pa)	715	329
ABS (kW)	2.83	2.85
Motor Size (kW)	4.0	4.0
Start Current (x)	x 7.2	x 7.2
Run Current (FLC)	8.1	8.1
Electrical Supply	400	400
Noise: @ Hz 63	68	68
125	65	65
250	61	61
500	67	67
1k	63	63
2k	79	79
4k	80	80
8k	74	74
Fan Type	F C	F C
Fan Ref.		
Fan Speed (RPM)	1360	1212
Outlet Velocity m/s	12.3	12.3
COOLING COIL	CU-AL	
On coil	28 DB	21 WB
Off coil	20 DB	
Cooling media	CW	
Media temp	Flow 3	Return 12
Coil size	20 kW	
HEATING COIL	CU/AL	
	FROST PRE	HEATUP
On coil	-4 5	5
Off coil	5 20	22.5
Heating media	LPHW LPHW	
Temp	82/71 82/71	
Coil size	25 kW 40 kW	64% eff

Our price for the supply of the above Air Handling Unit would amount to the sum of £6,160 each net, ex-works and exclusive of V.A.T. (1 off Unit(s) in Number)

This quotation is subject to our Standard Terms and Conditions of Trading. (Copy of which is available upon request).

This offer is for our standard product and design with the exception of any speciality items listed under "Additional Items & General Notes".

Unless otherwise stated, no controls, wiring or commissioning has been included.

The total estimated delivery charge would be as sheet 1 covering 5 off unit (s) as shown on Sheet (s) 1 – 5

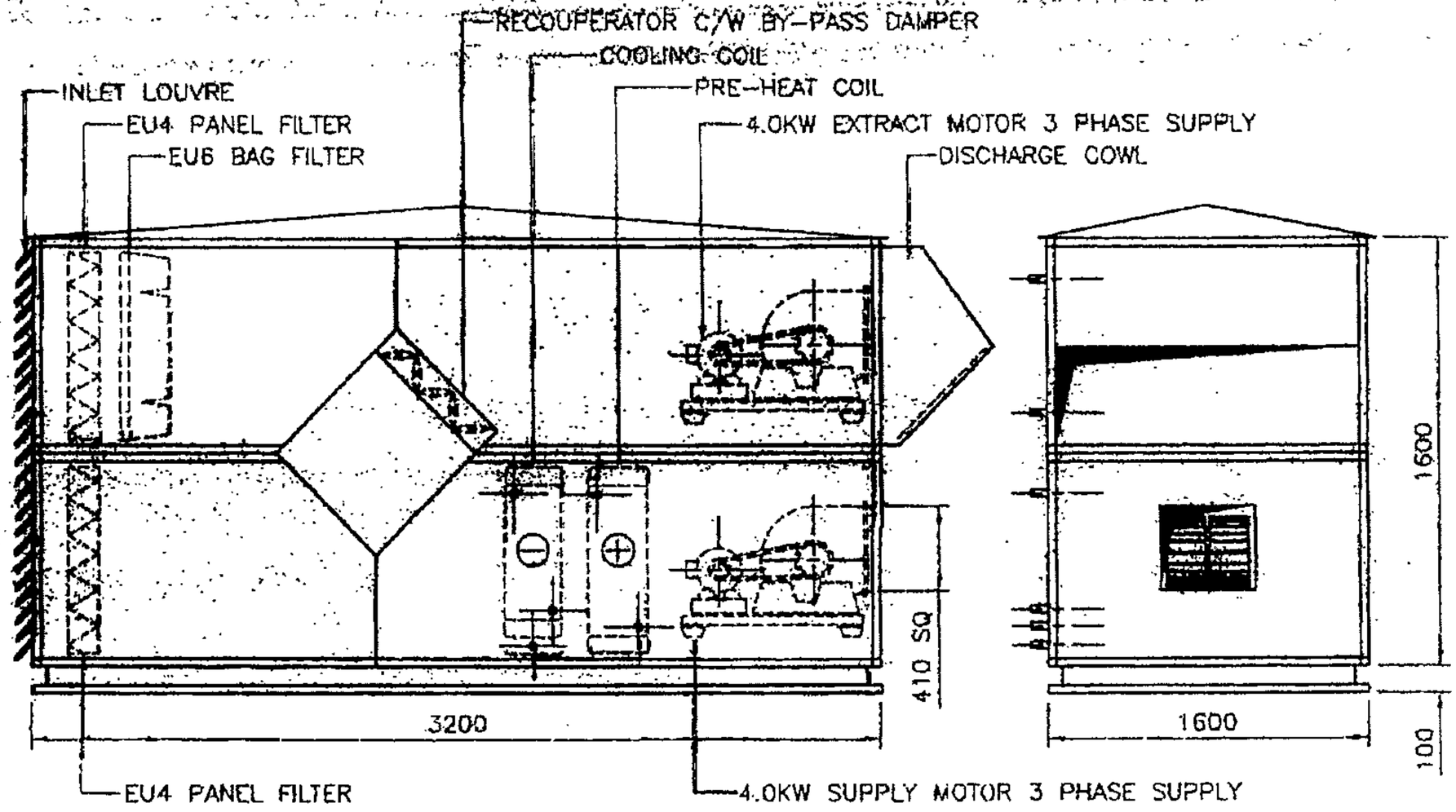
The delivery time from receipt of full details and written order would be 4-6 weeks, but should be checked at time of placing order.

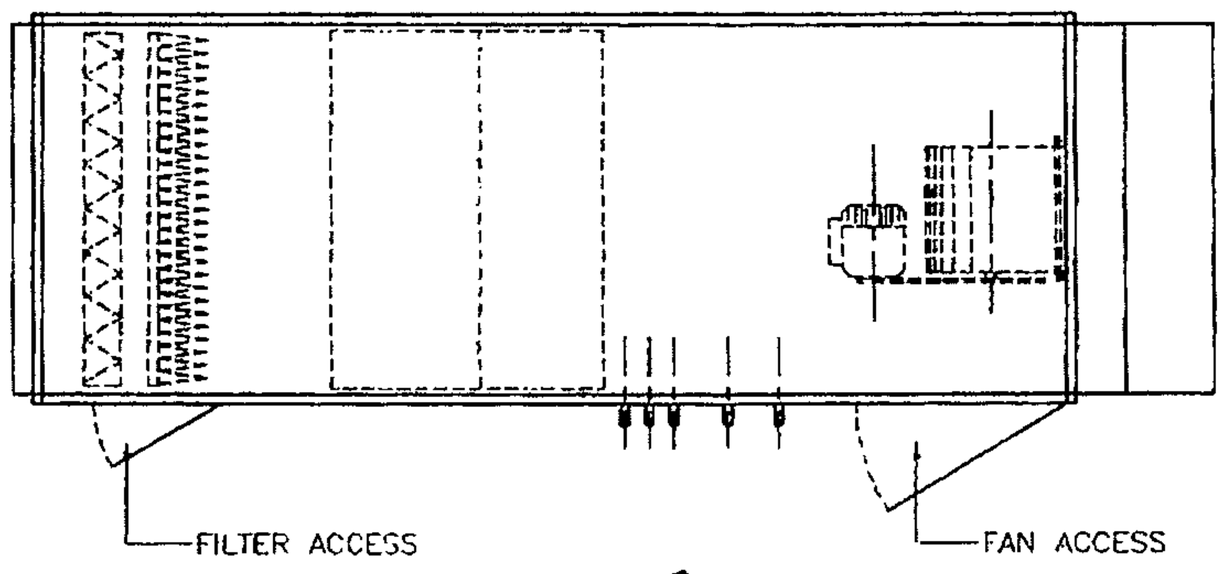
ADDITIONAL ITEMS & GENERAL NOTES

Unit to be weatherproof, double skinned complete with 100 mm channel base, inlet and exhaust louvres.

Recuperator to have face and bypass dampers.

Supply air and terturn air connections at opposite ends.





1. Fan And Motor Access.
2. Filter Access.
3. Duct Connection Size
4. Fan And Motor For Side Withdrawal, Direct Drive – Flexibly Mounted, Belt Driven On Internal Base With Flexible Conn. And Anti-Vibration Isolators
5. Heating Coil In Slides For Future Side Withdrawal.
6. Cooling Coil With Integral Drain Tray. All In Slides For Future Side Withdrawal.
7. Drain Connection. Provide Trap Of Adequate Depth Other Coil Condensate Will Not Drain.
8. Filters In Slides For Side Withdrawal.
9. Damper Drive Spindle 12mm Dia.
10. Demountable Panel For Access To Section.

NOTE:
Keep Drop Rods (If Any) And Pipework Etc. Clear Of Access And Withdrawal Positions.

Unit Double Skinned

Finish:
Galvanised
Galvanised & Weatherproof Finish
Galvanised Inner & Plastisol Outer
Colour: WEDGEWOOD BLUE

A: Allow 1800mm For Withdrawal Of Filters, Fan And Motor.

B: Allow 1800mm For Withdrawal Of Coils etc.

Approx. Weight: 750 kgs.

Unit Shipped In ONE Pieces

AHU REF: GENERAL AREA FRESH AIR SUPPLY
DESIGN AIR VOLUME: 2.0 m³/s S/E
WEATHERPROOF EXTERNAL AHU

AIRCRAFT AIR HANDLING

Unit 20, Moorfields Industrial Estate
Cobex Heath, Stafford, ST21 6QY
Tel: (01782) 791545/791623
Fax: (01782) 791283

Job Title: ROYAL COLLEGE
Job No: 4177
Original Drawing Date: 24.10.04
Issue & Date: B, 29.03.05

Drawing No: CL 743

2.0 Specification, Manufacturers Details & Noise Output

2.2 Lecture Theatre AHU

QUOTATION N° : 4177 **Sheet N° 1 of 5**

CUSTOMER : MILLER CONSULTING **Date : 14.10.04**

JOB REFERENCE : ROYAL COLLEGE OF ANAESTHETISTS

UNIT SIZE	UNIT TYPE	UNIT LAYOUT
816	STANDARD	HORIZONTAL -DOUBLE DECKED LECTURE THEATRE

O/A DIMENSIONS METRES
4.0 Metres Long x 1.6 Metres Wide x 1.7 Metres High

PRE-FILTER	SECONDARY	FINAL
PANEL EU4	BAG EU6	

	SUPPLY FAN	EXTRACT FAN
Air Volume (m³/s)	2.0	2.0
External Static(Pa)	150	150
Fan Static (Pa)	706	670
ABS (kW)	2.78	2.65
Motor Size (kW)	4.0	4.0
Start Current (x)	x 7.2	x 7.2
Run Current (FLC)	8.1	8.1
Electrical Supply	400	400
Noise: @ Hz 63	88	88
125	85	85
250	89	89
500	87	87
1k	83	83
2k	79	79
4k	80	80
8k	74	74
Fan Type	F C	F C
Fan Ref.		
Fan Speed (RPM)	1351	1312
Outlet Velocity m/s	12.3	12.3

COOLING COIL	CU-AL	
On coil	28 DB	21 WB
Off coil	10.5 DB	10 WB
Cooling media	CW	
Media temp	Flow 8	Return 12
Coil size	75 kW	

HEATING COIL	CU-AL		
	FROST	PRE	REGUP
On coil	-4	6	5
Off coil	5	20	12.5
Heating media	LPHW	LPHW	
Temp	82/71	82/71	
Coil size	25 kW	40 kW	50% eff

HUMIDIFIER TYPE
800 Long section for future humidification

Our price for the supply of the above Air Handling Unit would amount to the sum of £7,340 each net, ex-works and exclusive of V.A.T. (1 off Unit(s) in Number)

This quotation is subject to our Standard Terms and Conditions of Trading. (Copy of which is available upon request).

This offer is for our standard product and design with the exception of any speciality items listed under "Additional Items & General Notes".

Unless otherwise stated, no controls, wiring or commissioning has been included.

The total estimated delivery charge would be £480.00 covering 5 off unit (s) as shown on Sheet (s) 1 – 5

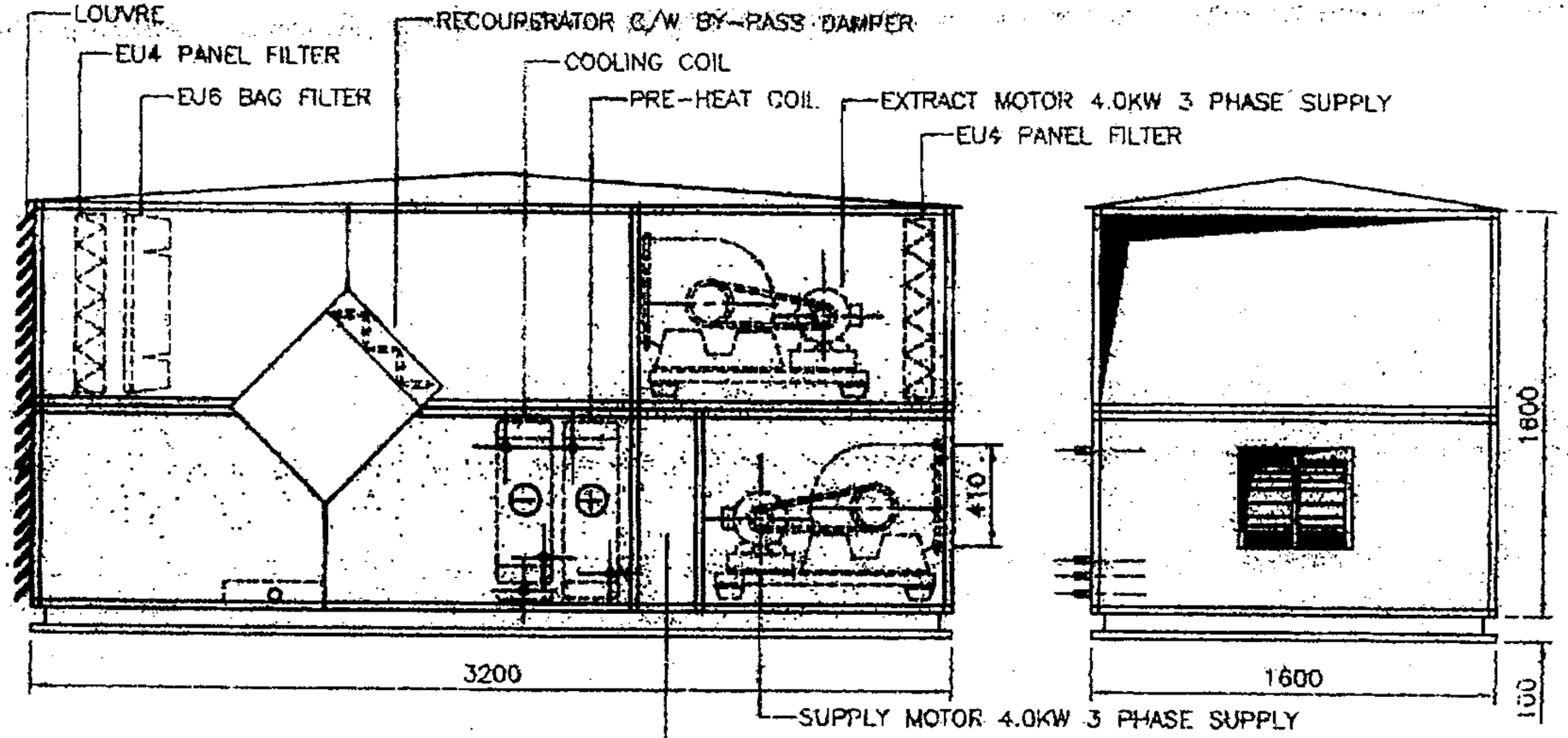
The delivery time from receipt of full details and written order would be 4-6 weeks, but should be checked at time of placing order.

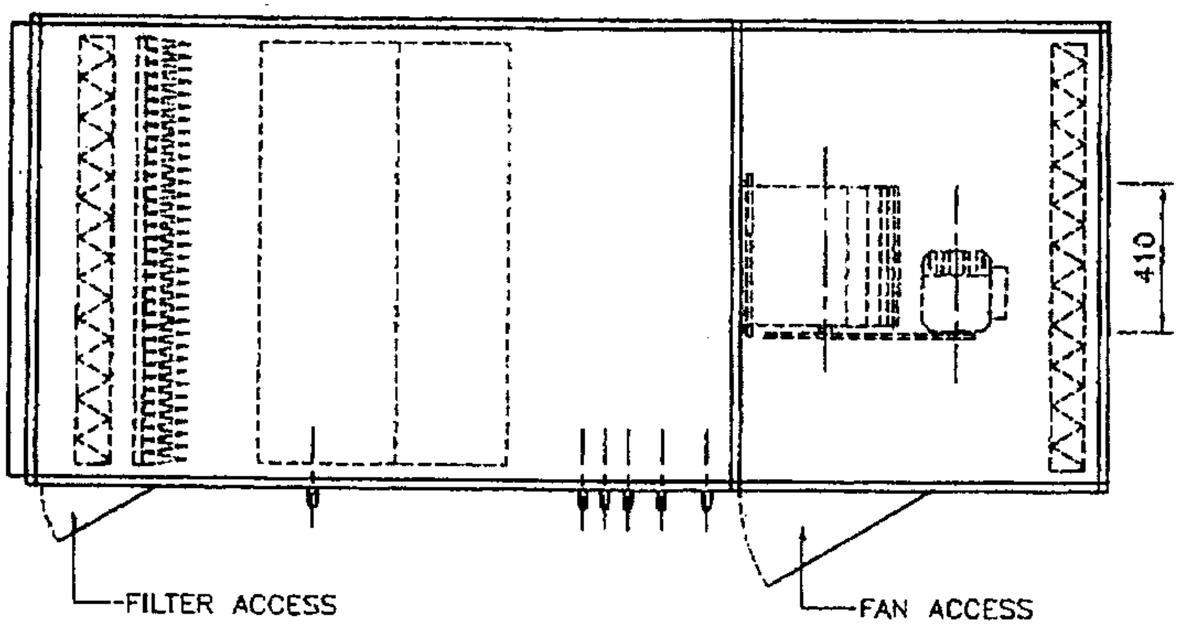
ADDITIONAL ITEMS & GENERAL NOTES

Unit to be weatherproof, double skinned complete with 100 mm channel base, inlet and exhaust louvres.

Recuperator to have face and bypass dampers.

Supply air and return air connections at same end.





1. Fan And Motor Access.
2. Filter Access.
3. Duct Connection Size
4. Fan And Motor For Side Withdrawal. Direct Drive - Flexibly Mounted, Belt Driven On Internal Base With Flexible Conn. And Anti-Vibration Isolators
5. Heating Coil In Slides For Future Side Withdrawal.
6. Cooling Coil With Integral Drain Tray. All In Slides For Future Side Withdrawal.
7. Drain Connection. Provide Trap Of Adequate Depth Other Coil Condensate Will Not Drain.
8. Filters In Slides For Side Withdrawal.
9. Damper Drive Spindle 12mm Dia.
10. Demountable Panel For Access To Section.

NOTE:
Keep Drop Rods (If Any) And Pipework etc. Clear Of Access And Withdrawal Positions.

Unit Double Skinned

Finish:
Galvanised
Galvanised & Weatherproof Finish
Galvanised Inner & Plastisol Outer
Colour: WEDGEWOOD BLUE

A: Allow 1500mm For Withdrawal Of Filters, Fan And Motor.

B: Allow 1800mm For Withdrawal Of Coils etc.

Approx. Weight: 750 kgs.

Unit Shipped In ONE Pieces

AHU REF: LECTURE THEATRE
DESIGN AIR VOLUME: 2.0 m³/s S/E
WEATHERPROOF EXTERNAL AHU

AIRCRAFT AIR HANDLING

Unit 20, Moorfields Industrial Estate
Colwe Heath, Stafford, ST21 6QY
Tel: (01782) 781545/781623
Fax: (01782) 791283

Job Title: ROYAL COLLEGE
Job No: 4177
Original Drawing Date: 24.10.04
Issue & Date: B, 29.03.05

2.0 Specification, Manufacturers Details & Noise Output

2.3 Kitchen AHU

QUOTATION N°. : 4177 **Sheet N°. 3 of 5**

CUSTOMER : MILLER CONSULTING **Date : 14.10.04**

JOB REFERENCE : ROYAL COLLEGE OF ANAESTHETISTS

UNIT SIZE	UNIT TYPE	UNIT LAYOUT
616	STANDARD	HORIZONTAL - KITCHEN SUPPLY

O/A DIMENSIONS METRES
2.4 Metres Long x 1.6 Metres Wide x 0.9 Metres High

PRE-FILTER	SECONDARY	FINAL
PANEL EU4	BAG EU6	

	SUPPLY FAN
Air Volume (m^3/s)	1.8
External Static(Pa)	150
Fan Static (Pa)	448
ABS (kW)	1.7
Motor Size (kW)	2.2
Start Current (x)	x 5.6
Run Current (FLC)	4.8
Electrical Supply	400
Noise: @ Hz 63	83
125	83
250	86
500	82
1k	81
2k	78
4k	80
8k	76
Fan Type	F C
Fan Ref.	
Fan Speed (RPM)	1191
Outlet Velocity m/s	13.8

COOLING COIL	CU-AL	
On coil	28 DB	21 WB
Off coil	14 DB	
Cooling media	CW	
Media temp	Flow 6	Return 12
Coil size	20 kW	

HEATING COIL	CU-AL	
	FROST	PRE
On coil	-4	5
Off coil	5	18
Heating media	LPHW	LPHW
Temp	82/71	82/71
Coil size	30 kW	40 kW

Our price for the supply of the above Air Handling Unit would amount to the sum of £3,440 each net, ex-works and exclusive of V.A.T. (1 off Unit(s) in Number)

This quotation is subject to our Standard Terms and Conditions of Trading. (Copy of which is available upon request).

This offer is for our standard product and design with the exception of any speciality items listed under "Additional Items & General Notes".

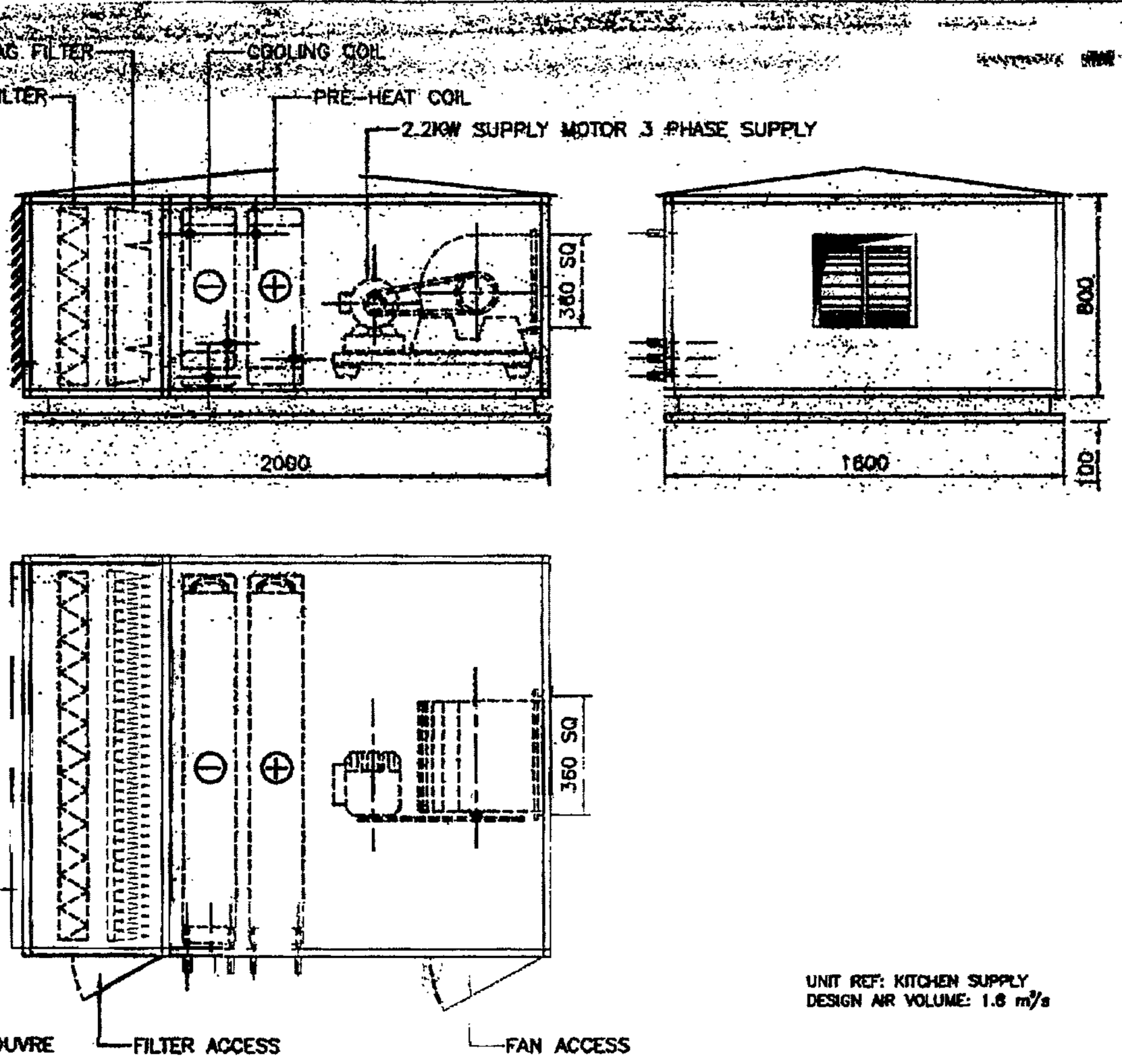
Unless otherwise stated, no controls, wiring or commissioning has been included.

The total estimated delivery charge would be £as sheet 1 covering 5 off unit (s) as shown on Sheet (s) 1 – 5

The delivery time from receipt of full details and written order would be 4-6 weeks, but should be checked at time of placing order.

ADDITIONAL ITEMS & GENERAL NOTES

Unit to be weatherproof, double skinned complete with 100 mm channel base and inlet louvres.



UNIT REF: KITCHEN SUPPLY
DESIGN AIR VOLUME: 1.6 m³/s

1. Fan And Motor Access.
2. Filter Access.
3. Duct Connection Size
4. Fan And Motor For Side Withdrawal, Direct Drive Plenum Mounted, Belt Driven Or Internal Sizes With Flexible Conn. And Anti-Vibration Isolators
5. Heating Coil In Slides For Future Side Withdrawal.
6. Cooling Coil With Integral Drain Tray, All In Slides For Future Side Withdrawal.
7. Drain Connection, Provide Trap Of Adequate Depth Other Coil Condensate Will Not Drain.
8. Filters In Slides For Side Withdrawal.
9. Damper Drive Spindle Upside Up.
10. Demountable Panel For Access To Dampers.

NOTE:
Allow Grille Packs (If Any) And Plenums Min. Clear Of Access And Withdrawal Positions.

Unit Double Skinned

Finish:
Galvanised
Galvanised & Weatherproof Finish
Galvanised Inner & Plastisol Outer
Colour: WEDGEWOOD BLUE

A: Allow 1800mm For Withdrawal Of Filters, Fan And Motor.

B: Allow 1800mm For Withdrawal Of Coils etc.

Approx. Weight: 2 Metric S.

Unit Shipped In ONE Pieces

AIRCRAFT AIR HANDLING

Unit 28, Moorfields Industrial Estate
Cotes Heath, Stafford, ST21 6DY
Tel: (01782) 791648/791823
Fax: (01782) 791283

Job Title: ROYAL COLLEGE
Job No: 4177
Original Drawing Date: 24.10.04
Issue & Date: B, 28.03.05

Drawing No: CD3741

2.0	Specification, Manufacturers Details & Noise Output
2.4	Acoustic Screen

GILBERTS

PERFORMANCE DATA

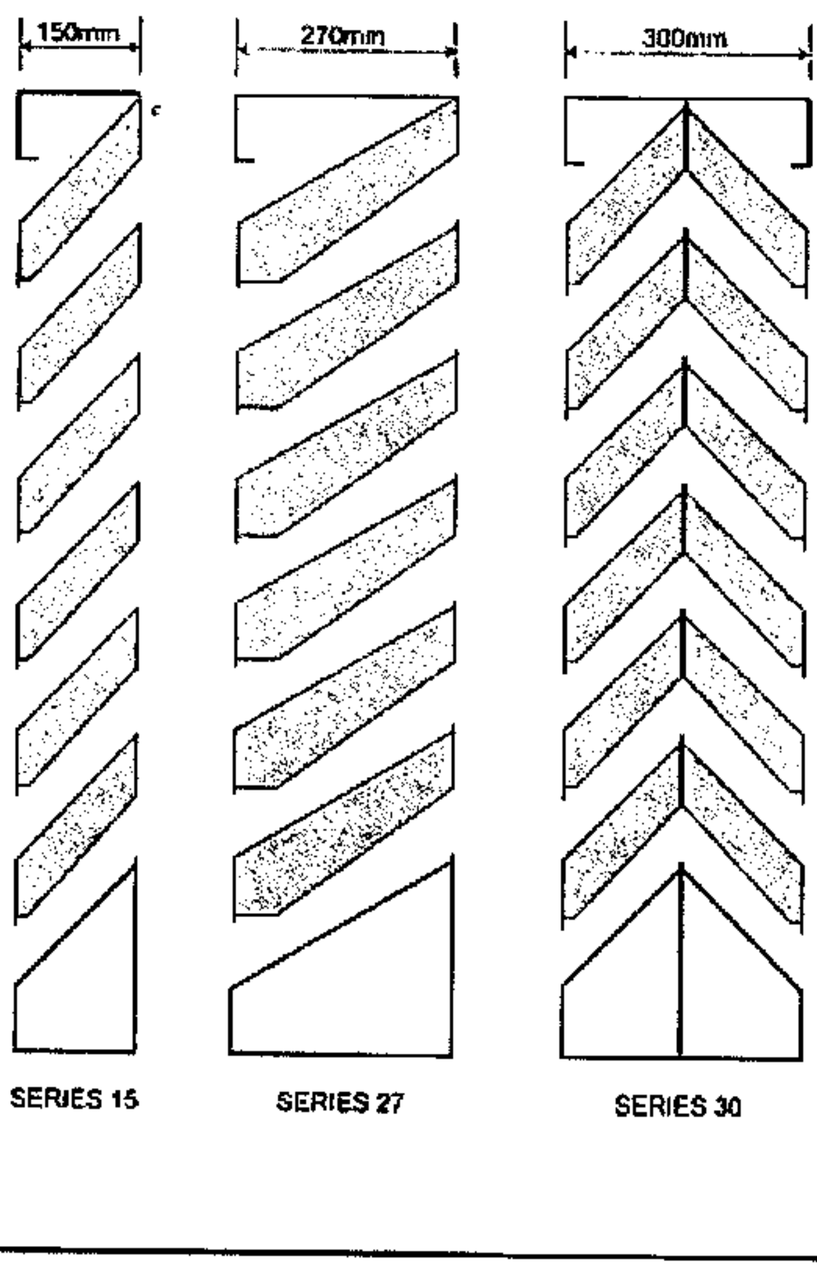
	Octave bands								
	63	125	250	500	1k	2k	4k	8k	Hz
Series 15 Transmission Loss	4	4	6	9	12	17	11	10	dB
Series 27 Transmission Loss	6	7	10	13	17	19	13	11	dB
Series 30 Transmission Loss	6	6	9	14	21	29	27	27	dB

Performance test in accordance with BS 2750:1980

Transmission Loss
This is the acoustic performance (dB) of an acoustic louvre to BS 2750:1980 and is defined as the ratio, in decibels, of acoustic energy transmitted through the louvre sample to that which is incident upon it. Also expressed as Sound Reduction Index SRI.

The aerodynamic performance of single acoustic louvres is as follows:-

Face Velocity (m/s)	Series 15 (N/m²)(Pa)	Series 27 (N/m²)(Pa)	Series 30 (N/m²)(Pa)
1.0	10	10	20
1.5	15	17	27
2.0	20	24	34
2.5	28	35	45
3.0	40	50	56
Weight per m²(kg)	30	55	60

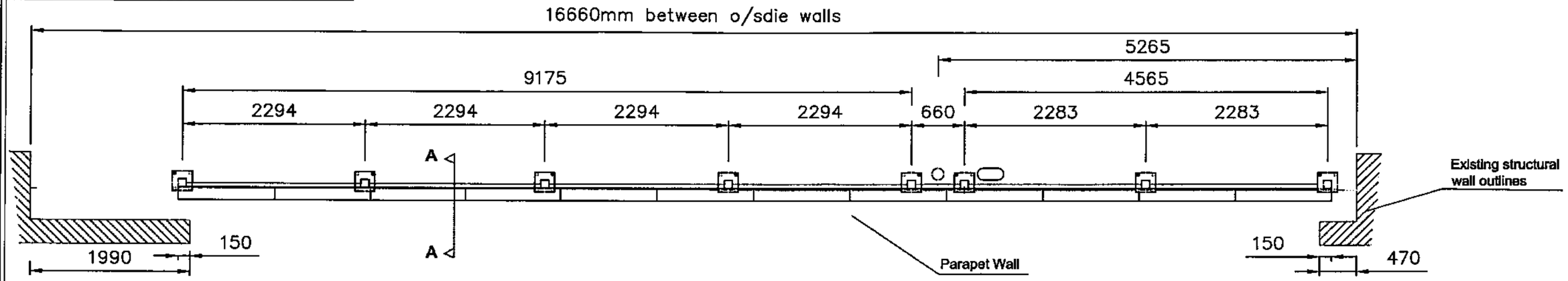


ACOUSTIC WEATHER LOUVRE - SERIES 15, 27 & 30

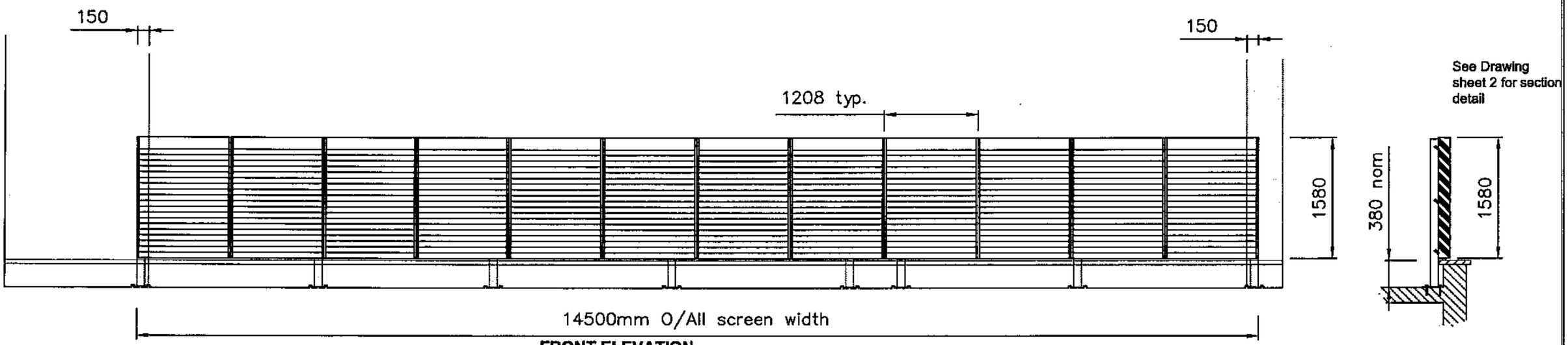
Head Office and Works,
GILBERTS (BLACKPOOL) LTD
Clifton Road,
Blackpool, Lancashire FY4 4QT,
Telephone (01253) 766911, Fax (01253) 767941
E-Mail: sales@gilbertsblackpool.com
Internet: www.gilbertsblackpool.com

A3 Drawing No.	Sht No.	Rev.
757/D/1	1	0

DO NOT SCALE – IF IN DOUBT ASK – ALL DIMENSIONS IN MILLIMETRES GENERAL TOLERANCES UNLESS STATED. MACHINED ± 1mm SHEET METAL ± 3.0mm



PLAN VIEW



FRONT ELEVATION
(steels behind parapet indicated for clarity)

SECTION A-A

Construction Notes

1. LOUVRE FRAMES (SIDE CHANNELS)FROM 1.6MM THICK GSS. BLADES FROM 0.9mm GSS.
2. LOUVRES FINISHED (FRONT FACE & TOP) IN A STD STOCK BS OR RAL COLOUR AND FINISH. (tba)
3. UNDERFACE OF BLADES 0.9mm THICK 33% FREE AREA PERFORATED STEEL
4. BLADE INFILL:- FACED MINERAL WOOL FIBRE SHALL BE INERT, NON-HYGROSCOPIC, INCOMBUSTIBLE, ROT AND VERMIN PROOF WITH A DENSITY OF 45Kg/m AT 5% COMPRESSION.
5. BLADES SHALL BE RIVETED TO CHANNEL FRAME.
6. Modular sections bolted together through sides with M6 x 20 S.S.Hex Sets
7. ALL STEELWORK SUPPORTS HOT DIP GALVANISED AFTER MANUFACTURE

CAD REF. 757

Rev.	Description	Mod No	By	App	Date

Title: Acoustic Louvred Screen – TYPE WL –

Client: Mitie Engineering
Site: Red Lion Sq
Order No.: tba

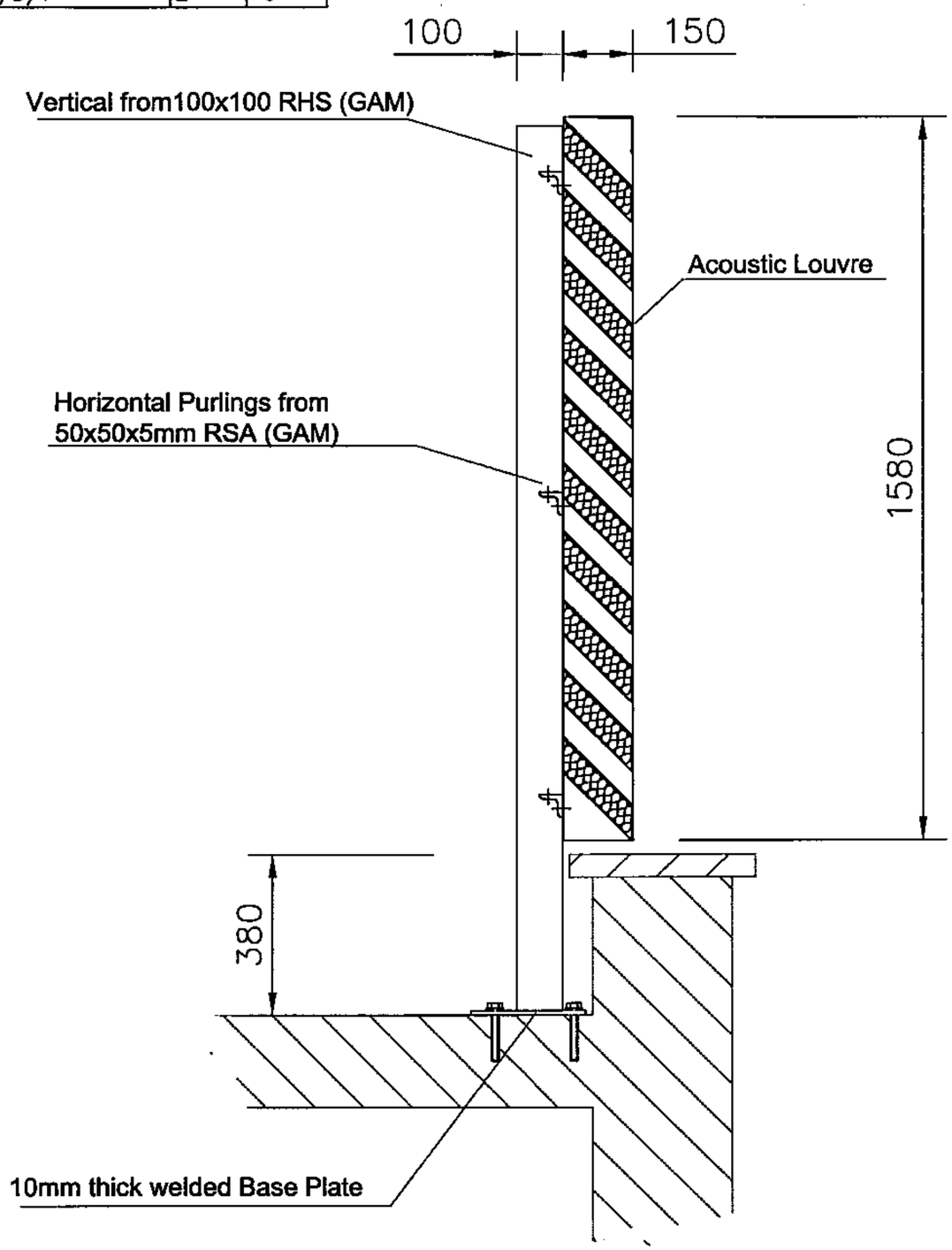
Unit Size
Drawn JF
Date 06/06/05
Chk'd BC
Date 06/06/05
Appv'd
Scale: Don't
Date

Waterloo Acoustics
Prospect Hse., Manor Rise, Bearsted, Maidstone, Kent ME14 4DB
TEL: MAIDSTONE (01622) 730023
FAX: MAIDSTONE (01622) 631981

A3 Drawing No.	Sheet	Rev.
757/D/1	1	0

A3 Drawing No.	Sht No.	Rev.
757/D/1	2	0

DO NOT SCALE – IF IN DOUBT ASK – ALL DIMENSIONS IN MILLIMETRES GENERAL TOLERANCES UNLESS STATED. MACHINED ± 1mm SHEET METAL ± 3.0mm



SECTION A-A

Notes:
All steel work hot dip galvanised after manufacture.
Purlings bolted to welded lugs on vertical posts with M10x25mm Hex Sets.
Base plates fixed to existing concrete roof beam with chemical anchors.

Rev.	Description	Mod No	By	App	Date

Title: Acoustic Louvred Screen SECTION A–A

Client: Mitie Engineering
Site: Red Lion Sq
Order No.: tba

Unit Size	
Drawn	JF
Date	06/06/05
Chk'd	BC
Date	06/06/05
Appv'd	
Date	

Waterloo Acoustics
Prospect Hse., Manor Rise, Bearsted, Maidstone, Kent ME14 4DB
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Scale: Don't

A3 Drawing No.	Sheet	Rev.
757/D/1	2	0

CAD REF. 757