If a building becomes architecture, then it is art. Clearly, if a building is not functionally and technically in order, then it isn't architecture either – it's just a building.
Arne Jacobsen

Mechanical Engineering
Lighting Design
Sustainable Design
Electrical Engineering

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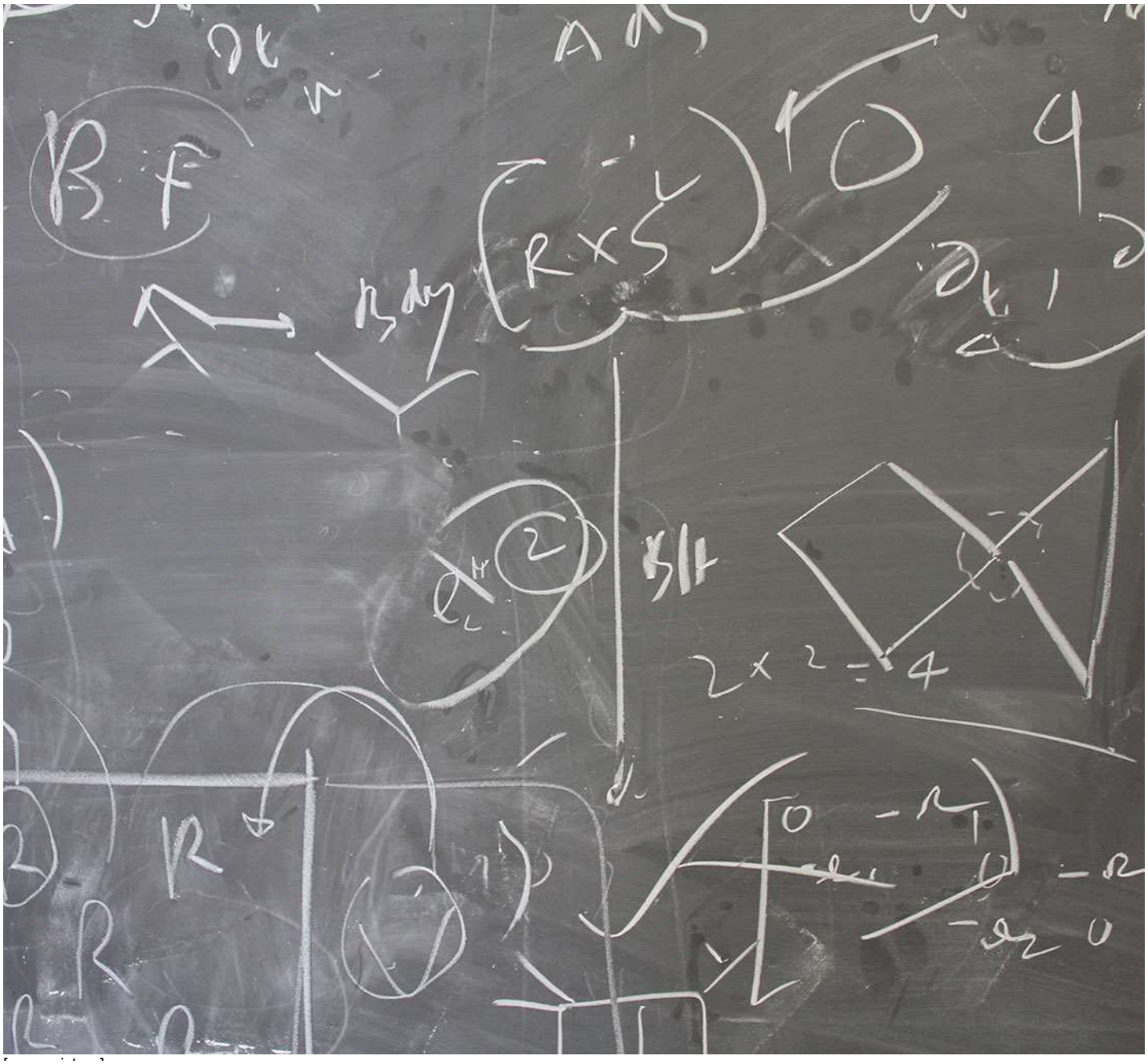
MECHANICAL ENGINEERING

STEENSEN VARMING

Transforming Imperial War Museum, London
Level 4 Refurbishment
Specification - Equipment Schedules



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STEENSEN VARMING

London, March 7th, 2018

Document Revision and Status

Date	Rev	Issue	Notes	Checked	Approved
09-03-2018	01	For Tender		ADB	
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STEENSEN VARMING

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1.0 Introduction

This equipment schedules document of the overall specification forms part of the contract documents and has been developed to outline to the Contractor the performance requirements for equipment.

Each item of equipment shall be of approved make, design and construction, complete with all accessories and fittings as indicated in drawings and specification or as required for satisfactory performance of equipment.

All equipment shall be constructed and installed to comply with this specification and/or any other governing authority and/or specification, and the Superintendent's requirements.

Scheduled equipment duties are indicative only. Provide equipment that achieves the specified volumetric flow rate, at the scheduled conditions, against the "As Installed" system resistance for each item. Calculations shall be graphically presented in conjunction with the proposed equipment data such as fan and pump curves and show all operating points.

The arrangement and dimension of each item of equipment shall be approximately as shown on the drawings and nominated in the specification. Equipment must however, fit within the space and dimensions shown.

The static pressures given in the Schedules are for guidance purposes only and the Contractor must be responsible for selecting the final operating static pressures for both fans and pumps.

Motors must be selected with sufficient power to deliver 10% additional air or water in each system at the resulting system resistance.

This section of the specification must be read together with the following drawings:

Cover Sheet	TIWML4-SV-XX-XX-DR-E-MXXX
Level 4 Proposed and Demolition - Air Conditioning and Ventilation	TIWML4-SV-XX-XX-DR-E-6040
Roof Proposed Pipework	TIWML4-SV-XX-XX-DR-E-6041
Roof Plant Layout – Demolition and Proposed	TIWML4-SV-XX-XX-DR-E-9061
Air and water schematic	TIWML4-SV-XX-XX-DR-E-6000
3D View	TIWML4-SV-XX-XX-DR-E-SK01
Equipment Schedules	TIWML4-SV-SPEC

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2.0 Equipment Schedules

2.1 Air handling units

General	**Ref.**	**-**	AHU-01
	Type	**-**	PLANTROOM FLOOR STANDING
	Make		DALAIR
	Manufacturers Ref:		HSF Modular
	Dimensions	**mm**	4350 L x 1000 H x 800 D
Supply fan details	**Air volume**	**L/s**	410
	Min. outdoor air	**L/s**	230
	External static pressure	**Pa**	300
	Fan Type		PLUG
	Motor Size	**kW**	0.2
	VSD	**Y/N**	EC DRIVE
Cooling coil	**Capacity**	**kW (SENS)**	6.5
		kW (TOT)	10
	On coil	**°C (db)**	26
		°C (wb)	19
	Off coil	**°C (db)**	12
		°C (wb)	11
	Waterflow	**L/s**	0.4
	Chilled water temperatures	**Supply °C**	6
		Return °C	12
Heating coil	**Capacity**	**kW (Total)**	15
	On coil	**°C (db)**	-1
	Off coil	**°C (db)**	33
	Waterflow	**L/s**	0.36
	Heating Water Temperatures	**Supply °C**	80
		Return °C	70
Final Filter	**Type**	**-**	Combined particulate and carbon filter
	Grade	**-**	F8
Supply fan acoustic details	**In-duct Sound Power Level (dB @ 10^-12 watts)**	**63**	-
		125	-
		250	-
		500	-
		1k	-

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		2k	-
		4K	-
		8k	-
Comments			

2.2 Fans

Ref.	**-**	EF-01
Serving	**-**	Relief air
Make	**-**	Systemair
Manufacturers Ref:	**-**	MUB 025 315EC
Air Volume	**L/s**	400
Static Pressure	**(Pa)**	250
Fan Type	**LIST**	EC Centrif.
Fan Speed	**(rps)**	2000
Motor Power	**(kW)**	0.2
Electrical Supply	**V / Ph / Hz**	230/1/50
Inlet PWL (dB)	**63**	-
	125	-
	250	-
	500	-
	1K	-
	2K	-
	4K	-
	8K	-
Sound Pressure	**dB(A) @ 3m**	45
Dimensions	**mm**	500 x 500
VSD	**yes/no**	No -EC drive
Comments	**-**	100% speed controllable

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2.3 Fan coil units

General	**Ref.**	**TEXT**	FCU-01
	Type	**-**	PLANTROOM CEILING SLUNG
	Make		Systemair
	Manufacturer Ref:		VH Fan Coil Unit
Supply fan details	**Air volume**	**L/s**	540
	Min. outdoor air	**L/s**	540
	External static pressure	**Pa**	200
	Fan Type	**-**	EC Centrif.
	Motor Size	**kW**	0.3
	VSD	**Y/N**	No - EC DRIVE
Cooling coil	**Capacity**	**kW (SENS)**	8.5
		kW (TOT)	8.5
	On coil	**ºC (db)**	26
		ºC (wb)	20
	Off coil	**ºC (db)**	15
		ºC (wb)	14
	Waterflow	**L/s**	0.34
	Chilled water temperatures	**Supply ºC**	6
		Return ºC	12
Heating coil	**Capacity**	**kW (Total)**	15
	On coil	**ºC (db)**	-1
	Off coil	**ºC (db)**	19
	Waterflow	**L/s**	0.36
	Heating Water Temperatures	**Supply ºC**	80
		Return ºC	70
Final Filter	**Type**	**-**	Particle
	Grade	**-**	G4
Supply fan acoustic details	**In-duct Sound Power Level (dB @ 10^-12 watts)**	**63**	-
		125	-
		250	-
		500	-
		1k	-
		2k	-
		4K	-
		8k	-
Comments			-

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2.4 Air outlets

Ref.	**-**	SA-01
Volume Flow Rate Range	**l/s**	40-115
Type	**-**	Adjustable curved vane grille/diffuser – wall mounted
Manufacturer	**-**	Waterloo or approved equal
Manufacturer's Model Ref:	**-**	ACD
Face Size	**mm**	200x200
Comments	**-**	

2.5 Extract grilles

Ref.		EA-01	EA-02
Volume Flow Rate Range	**l/s**	180	400
Type	**-**	Wall mounted extract	Extract grille with plenum box for duct connection
Manufacturer	**-**	Waterloo	Waterloo
Manufacturer's Model Ref:	**-**	Aircell E	Aircell E with plenum box
Face Size	**mm**	300x200	900x600
Comments	**-**	-	-

2.6 Transfer grilles

Ref.	**-**	TG-01	TG-02
Volume Flow Rate Range	**l/s**	40-200	400
Type	**-**	Wall mounted transfer	Security and fire protected transfer
Manufacturer	**-**	Waterloo or approved equal	Waterloo or approved equal
Manufacturer's Model Ref:	**-**	NS	WFV

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Face Size	**mm**	300x200 and 600x200	300x200
Comments	-		

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2.7 Radiators and radiant heaters

Ref.	**-**	R-01	R-02	R-03	R-04	R-05	R-06	R-07
Serving	**-**	-	-	-	-	-	Store	Store
Type	**-**	-	-	-	-	-	Steel panel	Steel panel
Manufacturer	**-**	-	-	-	-	-	Stelrad or approved equal	Stelrad or approved equal
Manufacturer's Model ref	**-**	-	-	-	-	-	Compact	Compact
Capacity	**kW**	-	-	-	-	-	0.5	0.5
Mean Water Temperature	**ºC**	-	-	-	-	-	55	55
Inlet Water Temperature	**ºC**	-	-	-	-	-	80	80
Outlet Water Temperature	**ºC**	-	-	-	-	-	70	70
Dimensions	**mm**	-	-	-	-	-	1000	1000
	mm	-	-	-	-	-	450	450
	mm	-	-	-	-	-	-	-
Weight	**kg**	-	-	-	-	-	-	-
Comments		EXISTING RETAINED	EXISTING RETAINED	EXISTING RETAINED	EXISTING RETAINED	EXISTING RETAINED	NEW	NEW

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2.8 Humidifiers

Reference	**-**	HUM-01
Type	**-**	Resistive steam humidifier
Manufacturer	**-**	Condair or approved equal
Manufacturer's Model ref	**-**	RS
Min Steam Injection Rate	**kg/hr**	3.2
Total Airflow Rate	**L/s**	410
Outdoor Airflow Rate	**L/s**	230
Absorbtion Length	**mm**	1,000
Electrical Supply	**V/Ph/Hz**	230/1/50
Comments	**-**	

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2.9 Attenuators

Ref.			ATT-01	ATT-02	ATT-03
Fan / AHU Ref.			EF-01	AHU-01	FCU-01
Type			RECTANGULAR SPLITTER	RECTANGULAR SPLITTER	RECTANGULAR SPLITTER
Air Volume		**L/s**	400	410	540
Maximum Pressure Drop		**(Pa)**	40	40	40
Nominal Dimensions	**length**	**mm**	1200	1200	1200
	Circ Ø	**mm**	-	-	-
	Rect Height	**mm**	400	400	400
	Rect Width	**mm**	300	300	300
Room Design Background Noise level		**NR**	35	35	35
Dynamic Insertion Loss (DIL dB) & Entering Sound Power Levels (SWLdB re 10^{-12} W)		**63**	6	6	6
		125	11	11	11
		250	27	27	27
		500	39	39	39
		1K	54	54	54
		2K	60	60	60
		4K	47	47	47
		8K	40	40	40
Comments					