

02 March 2021

Mr Mark Telford  
JCP Newcastle

Quotation Ref: AHS21960-Rev-04  
Project Ref: L2054 DMH Phase 3

For the attention of: Mr Mark Telford  
Dear Mark,

We thank you for your valued enquiry regarding the above project and have pleasure in submitting our proposal for the supply of the enclosed Air Handling Units.

Performance data and dimensional information are provisional only and will be finalised upon construction issue drawing submittal.

Air Handling Systems Ltd reserve the right to amend without any prior notification.

We trust our quotation meets with your approval but should you have any further queries do not hesitate to contact the writer.

For and on Behalf of Air Handling Systems Ltd,

Mr. Richard Ivers  
Email: richard.ivers@ahs.uk.com  
Mob: 07985 202100

## QUOTATION

**Project:** AHS21960-Rev-04  
**Date of Quotation:** 02 March 2021

AHU No.	AHU Model	Description	QTY	Unit Price	Total Price
1 - 0	AIR FLEX 41	AHU01	1	£31010	£31010
Transport to site (Excludes Offloading)					£347
<b>Total Cost Delivered</b>					<b>£31357</b>
<b>Optional Costs:</b>					
Outdoor unit to suit fitted DX Coil					£5996
1 soare motor per size inc commando plugs					£703
Spare Panel Filters (x1 set)					£159
Spare Bag Filters (x1 set)					£193
<b>Total</b>					<b>£7051</b>

### Summary Notes:

AHU(s) selected in accordance with ErP2018.  
 AHU(s) manufactured to AHS standard specification and construction methods.  
 Fan motors are selected to be inverter driven (Frequency inverters supplied and installed by others.)  
 Test points fitted between components.  
 Portholes & bulkhead lights fitted to fan & access sections.  
 All interconnecting wiring from bulkhead lights to single switch excluded.  
 Coil selected to match AHS condensing unit, should an alternative outdoor unit be used additional costs may apply to the AHU coil.  
 Unit(s) generally selected in accordance with HTM03-01 recommendations.  
 Off loading final positioning and assembly by others  
 Units delivered on a standard 40ft trailet  
 Delivery costs quoted during normal working hours  
 Quoted costs exclude VAT

## TERMS AND CONDITIONS OF SALE

### 1) INTERPRETATION

In these conditions the following definitions apply :

- 1.1) **'US/OUR/WE'** means Air Handling Systems Ltd (registered in England under number 03933476) whose registered office is at 3-5 Furnace Industrial Estate, Shildon, County Durham, DL4 1QB;  
**'YOU/YOUR'** means the person, company or body that accepts Our tender for the sale of the Goods;  
**'GOODS'** means the Goods (including instalment of the Goods or any parts of them), which We supply in accordance with these Terms;  
**'CONTRACTS'** means the contract of sales and purchase of the Goods;  
**'FORCE MAJEURE'** means matters beyond Our reasonable control described under 'Warranties and Liabilities';  
**'INCOTERMS'** means the international rules for the interpretation of trade Terms of the International Chamber of Commerce as in force at the date when the Contract is made;  
**'TERMS'** means the standard Terms of sale set out in this document and (unless the context otherwise requires) includes any specific Terms agreed in Writing between You and Us;  
**'DATE OF DELIVERY'** means the date confirmed in Our order acknowledgement;  
**'ORDER ACKNOWLEDGEMENT'**, means the written acknowledgement issued by Us accepting the order You have placed subject to these conditions;  
**'WRITING'**, and any similar expression, includes facsimile transmission and electronic mail and comparable means of communication;  
**'VESTING CERTIFICATE'**, means the certificate issued by Us to You transferring ownership of the Goods.
- 1.2) The headings in these Terms are for convenience only and shall not affect their interpretation.

### 2) BASIS FOR SALE

- 2.1) We shall sell, and You shall purchase Goods in accordance with Our written tender. The acceptance of Our tender includes acceptance of these Terms which shall govern the contract to the exclusion of any other Terms subject to which any such tender is accepted by You. No variation to these Terms shall be binding unless agreed in Writing between the authorised representatives of You and Us.
- 2.2) Our employees or agents are not authorised to make any representations concerning the Goods unless confirmed by Us in Writing. In entering into the Contract, You acknowledge that You do not rely on any such representations, which are not confirmed, but nothing in these Terms affects the liability of either party for fraudulent misrepresentation. Any advice or recommendations given by Us to You or Your employees regarding the application of Use of the Goods which is not confirmed in Writing by Us, but is acted upon or followed is entirely at Your own risk.
- 2.3) Any typographical, clerical or other error or omission in any sales literature, quotation, price list, tender, invoice or other document or information issued by Us shall be subject to correction without any liability on Our part.
- 2.4) Any amendments made to the original purchase order requested by You to Us will require an additional or amended purchase order before the amendments can be processed.

### 3) TENDERS AND SPECIFICATIONS

- 3.1) Our tender is open for acceptance within 30 days starting from when it is issued to You. Should an order be placed within this period then prices given will remain fixed for three calendar months from the date of tender.
- 3.2) You shall be responsible for ensuring the accuracy of the Terms of any information (including any applicable specification) submitted by You to Us and for giving Us any necessary information relating to the Goods within a sufficient time to enable Us to perform the Contract in accordance with its Terms. If We are unable to proceed with the Contract forthwith We shall be entitled to amend the tender prices to cover any increase in cost which is incurred after acceptance of the tender and before receipt of the necessary information.
- 3.3) If the Goods are to be manufactured or any process is to be applied to the Goods by Us in accordance with a specification by You, You shall indemnify Us against all loss, damages, costs, and expenses incurred by Us in connection with or agreed to be paid by Us in settlement of any claim for infringement of any patent, design, trade mark, or intellectual property rights of any other person which results from Our Use of Your specification.
- 3.4) All descriptive and shipping specifications, drawings, and particulars of weights and dimension submitted with Our tender are approximate only.
- 3.5) We do not accept sub-contract orders for supply of equipment and as such all reference to sub contact orders and their associated terms and conditions are specifically excluded from Our tenders.
- 3.6) Retentions are also excluded.
- 3.7) We reserve the right to make any changes in the specification of the Goods which are required to conform to any applicable statutory or E.U. requirements or where the Goods are to be supplied to Our specification which do not materially affect their quality or performance.
- 3.8) You are responsible for satisfying that the specification of the Goods is sufficient for Your purposes. As We are not system designers We will not accept liability for the performance of the Goods in their final operating environment whether or not details of the final operating environment have been made available to Us. Our Goods are put forward to You as a proposal only.
- 3.9) Our Goods are the subject of inspection and procedures and where applicable submitted to Our standard tests at Our works before despatch. If You require tests outside those specified in Our tender or You or Your representatives wish to be present during any tests additional costs will apply.

### 4) DRAWING APPROVAL

- 4.1) We shall endeavour to issue design drawings to You to enable You to approve them as soon as possible, however, the parties acknowledge that it is not often reasonably possible for Us to issue the design drawings prior to the issue of the Order Acknowledgment.

## 5) DELIVERY AND INSPECTION

- 5.1) All delivery costs quoted are for all Goods supplied in a single shipment, or for all Goods to be supplied in a minimum number of shipments (as calculated by Us). If a specific delivery schedule is required, please advise before placing an order and We will review / quote accordingly.
- 5.2) Unless expressly stated otherwise, all delivery costs are quoted at a Monday to Friday rate, during the hours of 11am-3pm (Monday) and 7.00am-3.00pm (Tuesday-Friday), on Our standard 45Ft flatbed vehicles.
- 5.3) Anything that falls outside of clause 5.2) times, or 5.2) standard size vehicles, will require re-pricing and can be quoted for upon request.
- 5.4) Sections that are delivered in heavy duty shrink packaging are intended for protection during transport only and not for long term storage.
- 5.5) Delivery shall be made by Us delivering the Goods to the UK mainland address stated on Your purchase order, affected when the Goods are removed from the delivery vehicle.
- 5.6) If You are collecting the Goods from Us then We will notify You when the Goods are ready for collection and You will be responsible for collecting the Goods from Our premises on said date. Loading / Handling charges will apply and quoted accordingly.
- 5.7) Any dates specified in Our tender for the completion of the Goods for despatch from Our works premises are indicative only and shall run from the date We issue an Order Acknowledgement and are in possession of all necessary information and prerequisites to enable Us to put the work in hand, including but not limited to Your acceptance of Our specifications and drawings if required, any necessary licences and government approvals and satisfactory arrangements securing payments. In all cases, should a delay in despatch be caused by Your instructions (or lack of them) or as a result of a Force Majeure the time for despatch shall be extended by a reasonable period.
- 5.8) Any dates quoted for delivery of the Goods are approximate only and We shall not be liable for any delay in delivery of the Goods however caused. Time for delivery shall not be of the essence of the contract unless previously agreed to Us in Writing. The Goods may be delivered by us in advance of the quoted Delivery Date on giving reasonable notice to You.
- 5.9) Where the Goods are to be delivered in instalments, each delivery shall constitute a separate contract and Our failure to deliver any one or more of the instalments in accordance with these Terms, or any claim by You in respect of any one or more instalments shall not entitle You to treat the contract as a whole as repudiated.
- 5.10) To meet the agreed Delivery Date purchasing of all bought out parts will commence on receipt of a purchase order and any future changes will incur extra / cancellation costs.
- 5.11) We include for 2 hours waiting time per vehicle on site. Costs will be incurred if the waiting time is exceeded. Deliveries on weekends or out of normal working hours, as described in 5.2) will be subject to a 100% surcharge. An additional order / amended order will need to be raised by You and sent to Us for the additional charges. If an order is not received within 24 hours We reserve the right to raise an invoice to cover the additional costs, or hold any deliveries not yet made.
- 5.12) Returned deliveries will be charged both ways. An order from You to Us must be received before delivery can be re-arranged back to site.
- 5.13) Where there is a delay in the delivery from the originally contracted Delivery Date, a Vesting Certificate will be raised alongside Your invoice for the Goods in question. The Vesting Certificate and invoice will be raised in the month that delivery was originally agreed.
- 5.14) Where there is a delay in the Delivery Date from the originally contracted date, We are unable to store the Goods for You. The Goods will need to be delivered to You and stored by You.
- 5.15) The Goods will need to be delivered to You or stored by You within 7 working days of You confirming to US that there is a delay from the original contracted Delivery Date.
- 5.16) If the time limits given in 5.15) are exceeded then costs will be incurred for handling and down time and will be chargeable at a rate of £50.00 + VAT per day per unit.
- 5.17) The costs named in 5.16) will be payable to Us from You on a pro-forma basis due prior to despatch of the Goods.

## 6) PRICE OF THE GOODS

- 6.1) The price of the Goods shall be Our quoted price in the tender and does not include VAT.
- 6.2) Unless otherwise agreed the Contract price shall be increased to reflect increases in the cost to Us due to any factor beyond Our control by reason of the making or amendment after the date of Our tender of any law or of any order, regulation, or bye-law having the force of law.
- 6.3) If We incur extra costs between the date of Our tender and the Delivery Date of despatch of the Goods or the date of completing any work, owing to delay in starting work or the suspension of the work due to Your instructions or inadequacy or absence of instructions, rectifications of errors in drawings or specifications prepared by You or other causes for which You are responsible, that shall affect the performance of Our obligations under the Contract, We shall be entitled to add the extra costs which We incur to the Contract price.
- 6.4) Our tender only includes such Goods, accessories and work specified within the tender. Any additional items shall be charged at the applicable rate.

## 7) TERMS OF PAYMENT

- 7.1) We shall invoice You on or after the Delivery Date of the Goods.
- 7.2) You shall pay the price of the Goodson a 30-day net month end payment term, applicable from the month of invoice, unless other payment Terms are agreed to with Us in Writing, notwithstanding that delivery may not have taken place and the property in the Goods has not been passed to You.
- 7.3) If You fail to make payment on the due date We may cancel the contract or suspend any further deliveries to You.
- 7.4) Any account beyond Our credit Terms of reference, where no reasons are given in line with clause 9.1), then the debt will be passed into the hands of Thomas A. Higgins and Co. Solicitors for recovery.
- 7.5) Due to high interest charges, a credit charge of 15% pa will be made if the invoice is not paid by the due date. All such accounts will also be subject to any other costs incurred in obtaining settlement.
- 7.6) We only accept BACS or CHAP as payment methods. If cheques are sent as payment there will be a £ 2.50 surcharge added on to Your next invoice.

## 8) OPERATING AND MAINTENANCE MANUALS

- 8.1) Our Operating and Maintenance Manuals are supplied as standard in electronic form after the Goods have been delivered. All further copies required in a different format shall be charged as an extra and must be requested prior to contractual completion.
- 8.2) Our Operating and Maintenance Manuals will be supplied in Our standard format.

## 9) COMPLAINTS

- 9.1) Any complaints by the customer relating to an invoice must be notified in Writing within 14 days of the invoice.

## 10) RISK OF DAMAGE OR LOSS

- 10.1) Risk of damage to or loss of the Goods shall pass to You;
- 10.2) In the case of the Goods being collected from Our works premises, at the time when We notify You that the Goods are available for collection;
- 10.3) In the case of the Goods being delivered to You, at the time of delivery, or if You wrongfully fail to take delivery on the Delivery Date.

## 11) RETENTION OF TITLE

- 11.1) Title shall not pass to You until We have received cleared funds of the payment that is due to Us from You of the price of the Goods and all other Goods agreed to be sold to You by Us.
- 11.2) If any of the Goods are incorporated in or used as material for other Goods before payment to Us, the property in the whole of those Goods shall remain with Us until payment has been received or the other Goods have been sold and all Our rights under the Contract, and it is the intention of both parties that ownership of that material and/or Goods shall vest in Us.
- 11.3) Until such a time as the property in the Goods passes to You, You shall hold the Goods as Our fiduciary agent and bailee, and shall keep the Goods separate from Your own Goods and those of any third parties, and at Your own cost keep them properly stored, protected and insured and identified as Our property. You shall not remove or obscure or tamper with any identifying marks with the goods, but You may resell or Use the Goods in the ordinary course of Your business.
- 11.4) Until such a time as the property in the Goods passes to You, We may at any time require You to deliver up the Goods to Us or Our agents and, if You fail to do so forthwith, enter on any of Your premises or the premises of any third party where the Goods are stored and repossess the Goods. Repossession of the Goods shall include detachment of the Goods from any other Goods to which they may have been attached where such detachment can be achieved without damage to the other goods.
- 11.5) You shall not be entitled to pledge or in any way charge by way of security for any indebtedness any of the Goods which remain Our property but if You do so all moneys owing by You to Us shall become immediately due and payable.

## 12) AFTER SALES SERVICE

- 12.1) In order to maintain the maximum benefit from the Goods and to comply with Our guarantee, the Goods must be properly maintained. Periodic servicing on a contract basis is available upon request. Please note if the equipment is not maintained, in accordance with the O&M's, warranty could be void.

## 13) WARRANTIES AND LIABILITY

- 13.1) Subject to the following provisions, We warrant that the Goods will correspond with their specification at the time of the agreed Delivery Date and will be free from defects in material and workmanship for a period of 12 months, from the originally agreed Delivery Date.
- 13.2) The above warranty is given subject to the following conditions:
  - 13.2.1) You have informed Us in Writing in of any defects within time scales set out in clause 9.1);
  - 13.2.2) You have not permitted other persons not approved or authorised by Us to affect any replacement of parts substantial adjustments or repairs to the Goods;
  - 13.2.3) You have compiled, in all material respects, with any instructions or other directions given in the Contract documents or Our operating & maintenance manual;
  - 13.2.4) The Goods being properly stored prior to installation;
  - 13.2.5) The Goods have been installed and fitted incorrectly or subjected to any incorrect, abnormal or improper load, Use or application, whether by You or any third party;
  - 13.2.6) We shall be under no liability in respect of any defect in the Goods from any drawing, design or specification supplied by You;
  - 13.2.7) We shall be under no liability in respect of any defect arising from fair wear and tear, wilful damage, negligence, abnormal working conditions, failure to follow Our instructions, misuse or alteration or repair of the Goods without approval;
  - 13.2.8) We shall be under no liability under the above warranty if the total price for the Goods has not been paid by the due date for payment;
  - 13.2.9) The above warranty does not extend to parts, materials or equipment not manufactured by Us, in respect of which You shall only be entitled to benefit of any such warranty or guarantee as is given by the manufacturer to Us;
  - 13.2.10) You shall not be entitled to assign the benefit of the warranty provided in clause 13.1) without Our prior written consent;
  - 13.2.11) Subject as expressly provided in these Terms all warranties, conditions or other Terms are implied by statute or common law are excluded to the fullest extent permitted by law;
  - 13.2.12) We shall investigate all complaints, claims of faulty or damaged Goods, defective installation by Us, or shortfall of Goods, notified to Us in Writing within the specified notice period in clause 13.2.1);
  - 13.2.13) You shall provide Us with all information, documentation or other evidence reasonably requested for the purposes of Our investigation. We reserve the right to reject any complaint, claim of faulty or damaged Goods or other claim by You if You fail to supply adequate evidence in support of such claim;
  - 13.2.14) A claim in respect of any defect, failure to comply with the Contract specification, non-delivery of any Contract or any part of the contract shall not entitle You to cancel the Contract or refuse delivery of payment for the Goods or any other order;
  - 13.2.15) Where a valid claim in respect of any of the Goods which is based on a defect in the quality or condition of the Goods or their failure to meet specifications is notified to Us in accordance with these Terms, We may at Our sole discretion repair or replace the Goods free of charge or, refund You the price of the Goods, in which case We shall have no further liability to You. Where any repair or replacement is to be carried out by Us, You shall be liable for Our reasonable expenses of travelling to and from the site and, where necessary Our reasonable accommodation and subsistence expenses, and You shall ensure that We are provided with suitable direct access to the Goods to enable Us to carry out the repair or replacement and power if required at the time of Our attendance. Costs for assembly/disassembly shall be borne in full by You. All Goods replaced by Us shall become Our property.
  - 13.2.16) Except in respect of death or personal injury caused by Our negligence, or liability for defective Goods under the Consumer Protection Act 1987, We shall not be liable to You by reason of any representation (unless fraudulent), or any implied warranty, condition or other term, or any duty at common law, or under the express Terms of the contract for loss of profit or for any indirect, special or consequential loss or damage, costs, expenses or other claims for compensation whatever (whether caused by Our negligence or that of Our employees or agents or otherwise) which arise out of or in connection with the supply of Goods (including any delay in supplying or any failure to supply the Goods in accordance with the contract or at all) or their Use or resale by You and Our entire liability under or in Connection with the Contract shall not exceed the price paid for the particular Goods subject of a claim, except expressly provided in these Terms or in the Contract.
  - 13.2.17) We shall not be liable to You or be deemed to be in breach of the Contract by reason of any delay in performing, or any failure to perform, any of Our obligations in relation to the Goods, if the delay or failure was due to any cause beyond Our reasonable control. Without limiting the foregoing, the following shall be regarded as causes beyond Our reasonable control:
    - 13.2.18) Act of God, explosion, flood, tempest, fire or accident;
    - 13.2.19) War or threat of war, sabotage, insurrection, civil disturbance or requisition;
    - 13.2.20) Acts, restrictions, regulations, bye-laws, prohibitions or measures of any kind on the part of government, parliamentary or local authority;
    - 13.2.21) Import or export regulations or embargoes;
    - 13.2.22) Strikes, lock-outs or other industrial actions or trade disputes (whether involving employees of Our or of a third party);
    - 13.2.23) Difficulties in obtaining raw materials, labour, fuel, parts or machinery; and
    - 13.2.24) Power failure or breakdown in machinery.

## 14) CANCELLATION

- 14.1) No tender which has been accepted by You may be cancelled by You except with Our prior written agreement and on Terms that You shall indemnify Us in full against all loss (including loss of profit) costs (including the cost of all labour, under recovery of overheads and materials Used) damages, charges and expenses incurred by Us as a result of the cancellation.

## 15) INDEMNITY AND YOUR WARRANTY

- 15.1) If a claim is made against You that the Goods infringe or that their Use or resale infringes the patent, copyright, design, trade mark or other industrial or intellectual property rights of any other person, then unless the claim arises from;
- 15.1.1) The Use of a drawing, design, instruction or specification supplied by You;
  - 15.1.2) The Use of a part or material supplied by You or Use of such parts or materials in a manner or for a purpose instructed by You;
  - 15.1.3) Use of the Goods in another country not specified or disclosed to Us;
- 15.2) We shall indemnify You against all reasonable loss, damages, costs and expenses awarded against or incurred by You in connection with the claim, or paid or reasonably agreed to be paid by You in settlement of the claim, provided that;
- 15.2.1) You give Us notice in Writing of the claim or threatened action as soon as You become aware of it;
  - 15.2.2) We are given full control of any proceedings or negotiations in connection with the claim;
  - 15.2.3) You give Us reasonable assistance for the purposes of any such proceedings or negotiations;
  - 15.2.4) Except pursuant to a final award, You shall not pay or accept the claim, or compromise any such proceedings without Our consent (which shall not be unreasonably held);
  - 15.2.5) You shall do nothing which would or might vitiate any policy of insurance cover which You may have in relation to such infringement, and this indemnity shall not apply to the extent that You recover any sums under any such policy or cover (which You shall Use Your best endeavours to do);
  - 15.2.6) We shall be entitled to the benefit of, and You shall accordingly account to Us for, all damages and costs (if any) awarded in Your favour, which are payable by, or agreed with Your consent (which consent shall not be unreasonably withheld) to be paid by, any other party in respect of such a claim;
  - 15.2.7) Without limiting any duty You have at common law, We will require You to take such steps as We may reasonably require mitigating or reducing, any such loss, damages, costs or expenses for which We are liable to indemnify You under this clause.
- 15.3) You warrant that any design, specification or instruction supplied by You shall not cause Us to infringe the patent, copyright, design, trade mark or other industrial or intellectual property rights or any other person.
- 15.4) The title and all intellectual property rights in respect of any improvement, development or enhancement made, developed or acquired by either party shall belong to that party, but We may Use any improvement, which is made, developed or acquired by You, and any applicable intellectual property You may have in such improvements, for Our own purposes by way of a non-exclusive, royalty free licence without limit of time.

## 16) TERMINATION AND YOUR INSOLVENCY

- 16.1) This clause 16 applies if :
- 16.1.1) You make a voluntary arrangement with Your creditors or (being an individual or firm) become bankrupt or (being a company) become subject to an administration order or goes into liquidation (otherwise than for the purposes of amalgamation or reconstruction);
  - 16.1.2) An encumbrancer takes possession or a receiver is appointed, of any of Your property or assets;
  - 16.1.3) You cease, or threaten to cease, to carry on business;
  - 16.1.4) We reasonably apprehend that any of the events mentioned above is about to occur in relation to You and notify You accordingly; or
  - 16.1.5) You fail to make every payment due to Us, whether under the Contract or any other contract, on the due date;
  - 16.1.6) If this clause 16 applies, then, without limiting any other right or remedy available to Us, We may cancel the Contract or suspend any further deliveries under the Contract without liability to You, and;
  - 16.1.7) If the Goods have been delivered but not paid for, the price shall become immediately due and payable notwithstanding any previous agreement or arrangement to the contrary;
  - 16.1.8) If the Goods have not been delivered then We shall be entitled to deal with the Goods in accordance with clause 5.

## 17) DATA PROTECTION

- 17.1) We may disclose any personal data received from You to a person to whom We propose to transfer Our rights and/or responsibilities under any Contract with You to which these Terms apply or to whom We transfer Our business or a relevant part of Our business or a relevant part of Our business. Such a person shall be entitled to process such data in the same manner that We process the data, which is in accordance with the Data Protection Act 1998.

## 18) EXCLUSIONS

1. Value Added tax at date of invoice.
2. Any off-loading, site positioning or equipment assembly.
3. Any provision of lifting tackle required for site off loading.
4. Any builders, plumbers or electrical work.
5. Any chilled or hot water pipework, pumps, valves or fittings.
6. Any spare parts unless separately identified.
7. Any duct mounted equipment unless separately identified.
8. Any special witness testing unless separately identified
9. Any preparation of foundations which may be required for sib bases or making good.
10. Any necessary planning permission.
11. Any building structural checks of proposed equipment loading.
12. Any site measurement checks for equipment installation.
13. Any equipment protection and packaging.
14. Any fitting or associated wiring of control items.
15. Supply or installation of frequency inverters unless separately identified.
16. Any commissioning or testing of airside systems unless separately identified.
17. Any reference to a specification other than to which is Our standard and to which the basis of the tender was formed.
18. Any contractors discount, retention or any liquidated or other associated damages.
19. Contingency for high winds or unforeseeable Weather condition.

## TECHNICAL SPECIFICATION

### PROJECT DETAILS

<b>Project Name</b>	L2054 DMH Phase 3	<b>Quote No.</b>	AHS 21960
<b>Unit Reference</b>	AHU01	<b>Revision</b>	0
<b>Unit Model</b>	AIR FLEX 41	<b>Date</b>	02 Mar 2021

### MECHANICAL STANDARD ( BS EN 1866 )

#### CASING

Strength	D1
Air Leakage	L2

#### THERMAL

Transmittance	T3
Bridging	TB3

### PERFORMANCE DATA

#### SUPPLY

Air Volume	2.000	m <sup>3</sup> /s
Ext. Stat. Pressure	250	Pa

#### EXTRACT

Air Volume	2.000	m <sup>3</sup> /s
Ext. Stat. Pressure	250	Pa

#### ERP Compliance

Internal SFP	699.68	W/m <sup>3</sup> /s
ERP Compliance	2018	

### UNIT CONSTRUCTION

#### PANEL

Nom. Thickness	50	mm
Outer Material	Goosewing Grey Coated Steel	
Inner Material	Coated Steel	
Insulation Type	Polyurethane Foam	

#### GENERAL

Location	External
Roof Type	Pitched Roof
Base Type	Full with Legs
Base Material	150x75 P.F.C

### UNIT DIMENSIONS

#### BOTTOM DECK

Width	1,350	mm
Height	1,200	mm
Length	9,800	mm
Base	150	mm

#### TOP DECK

Width	1,350	mm
Height	1,200	mm
Length	8,500	mm
Base		mm

#### O/ALL

Width	2,700	mm
Height	1,450	mm
Length	11,500	mm
Weight +/- 10%	4,783	kg

### SPECIFIC FAN POWER

#### SUPPLY FAN

Filter Condition	Clean	
Absorbed Power	1.99	kW
Drive Efficiency	100	%
Inverter Efficiency	97	%
Motor Efficiency	88	%

#### EXTRACT FAN

Filter Condition	Clean	
Absorbed Power	1.38	kW
Drive Efficiency	100	%
Inverter Efficiency	97	%
Motor Efficiency	87	%

#### SFP<sub>v</sub>

1.98 w/l/s

### NOTES

AHU will be delivered to site in 5 sections. Should further splits be required additional costs and length will be incurred.



## SUPPLY PATH

### INLET SECTION

Component 001

Conn. Type	None		Damper	Yes	Face Velocity	1.450	m/s
Conn. Size	N/A	mm	Location	External	Actuator	By Others	
			Type	Low Loss			
			Size (WxH)	1250 x 1100 mm			
			Material	Galvanised Steel			

### ATTENUATOR SECTION

Component 002

AIR SIDE			SPECIFICATION			CONSTRUCTION		
Air Volume	2.000	m <sup>3</sup> /s	Melinex	Yes		Splitter Length	870	mm
Air Press. Drop	13	Pa				Splitter Width	200	mm
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Ins. Loss (dB)	7	14	17	28	38	30	23	18

### PLENUM SECTION

Component 003

Access Type Hinged Door

#### INCLUDED OPTIONS / NOTES

LED Bulkhead Light c/w Switch  
Test Point  
Lifting Points Fitted to AHU Base

### FROST COIL SECTION

Component 004

AIR SIDE			WATER SIDE			CONSTRUCTION		
Air Volume	2.000	m <sup>3</sup> /s	Medium	Water		Tube Material	Cu - standard	
Air on (db)	-5.00	°C	Inlet Temp.	90.00	°C	Fin Material	None	
Air off (db)	5.00	°C	Outlet Temp.	70.00	°C	Casing Material	Galv Steel	
Total Duty	24.61	kW	Flow Rate	0.29	l/s	Header Material	Copper	
Air Press. Drop	6	Pa	Fluid Press. Drop	15	kPa	Inlet Conn. Size	1"	BSPM
Face Velocity	1.92	m/s	Internal Volume	21.64	l	Outlet Conn. Size	1"	BSPM
						Dims (WxH)	1260x 1040 mm	
						Dims (D)	220 mm	

### FILTER SECTION

Component 005

AIR SIDE			SPECIFICATION		DETAILS	
Air Volume	2.000	m <sup>3</sup> /s	Type	Panel	Qty	4
Face Velocity	1.69	m/s	Grade	G4	Nom. Size (WxHxD)	610x508x50 mm
Air Pd ( Clean )	46	Pa	Withdrawal	Front		
Air Pd ( Average )	73	Pa				
Air Pd ( Dirty )	100	Pa				

#### INCLUDED OPTIONS / NOTES

Minihelic Gauge (0-250Pa)  
LED Bulkhead Light c/w Switch  
Test Point  
AHU Joining Kit (Galv)



**PLATE HEAT EXCHANGER SECTION**

Component 006

WINTER ( F/A )			WINTER ( EXHAUST )			CONSTRUCTION	
Air Volume	2.000	m3/s	Air Volume	2.000	m3/s	Fin Material	Standard
Air on (db)	5.00	°C	Air on (db)	21.00	°C	Bypass Damper	Yes
RH	50	%	RH	50	%		
Air off (db)	18.00	°C	Air off (db)	9.20	°C		
RH	21.1	%	RH	100	%		
Total Duty	31.6	kW	Total Duty	31.6	kW		
Air Press. Drop	148	Pa	Air Press. Drop	151	Pa		
Tot. Efficiency	81.4	%	Tot. Efficiency	81.4	%		
Dry Efficiency	74.42	%	Dry Efficiency	74.42	%		
SUMMER ( F/A )			SUMMER ( EXHAUST )				
Air Volume	2.000	m3/s	Air Volume	2.000	m3/s		
Air on (db)	30.00	°C	Air on (db)	24.00	°C		
RH	41.3	%	RH	50	%		
Air off (db)	25.50	°C	Air off (db)	28.50	°C		
RH	53.6	%	RH	38.3	%		
Total Duty	-11.1	kW	Total Duty	-11.1	kW		
Air Press. Drop	158	Pa	Air Press. Drop	157	Pa		
Tot. Efficiency	74.8	%	Tot. Efficiency	74.8	%		
Dry Efficiency	74.42	%	Dry Efficiency	74.42	%		

**AHU DRAIN TRAY**

Material	Galv Steel	Model Type	Fixed
----------	------------	------------	-------

**INCLUDED OPTIONS / NOTES**

- Lifting Points Fitted to AHU Base
- AHU Joining Kit (Galv)
- LED Bulkhead Light c/w Switch
- Test Point
- Test Point
- Test Point
- Test Point
- LED Bulkhead Light c/w Switch

**SUPPLY FAN SECTION**

Component 007

DETAILS			FAN			MOTOR		
Air Volume	2.000	m3/s	Type	Plenum-AC		Efficiency	0.88	
Ext. Static Pressure	250	Pa	Impellor	Backward Curved		Qty	SINGLE	
Tot. Static Pressure	843	Pa	Qty	Single		Power	5.50	kW
Starting Method	Speed Controller		Operation	100	%	Speed	1455	RPM
A. V. Type	Spring		Model	NPA450-IE2		Pole	4	
			Speed	1811	RPM	Full Load Current	10.90	Amp
			Max. Speed	3300	RPM	Electrical Supply	380/3/50	
			Absorbed Power	2.38	kW			
			Total Efficiency	79	%			

Sound Power Lw	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Fan Inlet (dB)	80	79	88	83	76	75	70	65
Fan Outlet (dB)	88	81	86	84	83	78	73	69

Note : Fan manufacturer data used in accordance with DIN 463 Part 38 & 39, BS 848 Part 2 & ISO 5136. A correction of +6dB should be applied across all octave bands for unit casing adjustment

**INCLUDED OPTIONS / NOTES**

- Inlet Guard
- Door Guard
- Inlet Flex Connection
- Inverter Supplied by Others
- Pre-Wire Motor to External Isolator c/w aux contacts
- Test Point
- AHU Joining Kit (Galv)
- Commando Plug (Power and Thermister)

**PLENUM SECTION Component 008**

Access Type            Hinged Door

**INCLUDED OPTIONS / NOTES**

- LED Bulkhead Light c/w Switch
- Test Point
- Lifting Points Fitted to AHU Base
- AHU Joining Kit (Galv)
- Door Guard

**COOLING COIL SECTION Component 009**

AIR SIDE			REFRIG. SIDE			CONSTRUCTION		
Air Volume	2.000	m3/s	Medium	R410a		Tube Material	Cu - 0.7mm	
Air on (db)	30.00	°C	Evap. Temp.	6.00	°C	Fin Material	CuSn - Standard	
Air on (wb)	20.00	°C	Fluid Press. Drop	NaN	kPa	Casing Material	Stainless steel 304	
Relative Humid.	39.8	%	Internal Volume	10.58	l	Header Material	Copper	
Air off (db)	18.00	°C	No. of Ind. Circuits	2		Inlet Conn. Size	28	mm
Air off (wb)	15.60	°C				Outlet Conn. Size	28	mm
Relative Humid.	78	%				Coil Drain Tray	Yes	
Total Duty	33.45	kW				Material	St/St (304)	
Sens. Duty	30.11	kW				Coil Int. Drain Tray	No	
Air Press. Drop	59	Pa				Material	None	
Face Velocity	1.97	m/s				Eliminator	No	
Sens. Heat Ratio	90	%				Loose Flange	No	
						Dims (WxH)	1260x1040	mm
						Dims (D)	190	mm

**AHU DRAIN TRAY**

Material            St/St (304)            Model Type            Fixed

**INCLUDED OPTIONS / NOTES**

- Test Point
- Coil has been selected to suit the proposed AHS condensing unit(s) . Coil size and price may change if alternative condensing units are used

**ELIMINATOR SECTION Component 010**

AIR SIDE			CONSTRUCTION	
Air Volume	2.000	m3/s	Casing Material	Plastic
Air Press. Drop	9	Pa	Dims (WxH)	1250x1040 mm

**INCLUDED OPTIONS / NOTES**

- LED Bulkhead Light c/w Switch
- Test Point
- AHU Joining Kit (Galv)

### HEATING COIL SECTION

Component 011

#### AIR SIDE

Air Volume	2.000	m <sup>3</sup> /s
Air on (db)	5.00	°C
Air off (db)	30.00	°C
Total Duty	61.53	kW
Air Press. Drop	23	Pa
Face Velocity	1.94	m/s

#### WATER SIDE

Medium	Water
Inlet Temp.	90.00 °C
Outlet Temp.	70.00 °C
Flow Rate	0.74 l/s
Fluid Press. Drop	17 kPa
Internal Volume	13.85 l

#### CONSTRUCTION

Tube Material	Cu - standard
Fin Material	Cu - Standard
Casing Material	Galv Steel
Header Material	Copper
Inlet Conn. Size	1 1/4" BSPM
Outlet Conn. Size	1 1/4" BSPM
Dims (WxH)	1260x1040 mm
Dims (D)	160 mm

#### INCLUDED OPTIONS / NOTES

Lifting Points Fitted to AHU Base  
AHU Joining Kit (Galv)  
Steem coil details tbc

### PLENUM SECTION

Component 012

Access Type Hinged Door

#### INCLUDED OPTIONS / NOTES

LED Bulkhead Light c/w Switch

### ATTENUATOR SECTION

Component 013

#### AIR SIDE

Air Volume	2.000	m <sup>3</sup> /s
Air Press. Drop	13	Pa

#### SPECIFICATION

Melindex Yes

#### CONSTRUCTION

Splitter Length	870	mm
Splitter Width	200	mm

	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Ins. Loss (dB)	7	14	17	28	38	30	23	18

### FILTER SECTION

Component 014

#### AIR SIDE

Air Volume	2.000	m <sup>3</sup> /s
Face Velocity	1.72	m/s
Air Pd ( Clean )	48	Pa
Air Pd ( Average )	99	Pa
Air Pd ( Dirty )	150	Pa

#### SPECIFICATION

Type Bag  
Grade F7  
Withdrawal Front

#### DETAILS

Qty 4  
Nom. Size (WxHxD) 610x508x520 mm

#### INCLUDED OPTIONS / NOTES

Minihelic Gauge (0-250Pa)  
LED Bulkhead Light c/w Switch  
Test Point

### OUTLET SECTION

Component 015

Conn. Type	None	Damper	Yes	Face Velocity	1.450	m/s
Conn. Size	N/A	Location	External	Actuator	Manual	
		Type	Low Loss			
		Size (WxH)	1250 x 1100 mm			
		Material	Galvanised Steel			

#### INCLUDED OPTIONS / NOTES

Locking Quadrant For Manual Damper

## EXTRACT PATH

### INLET SECTION

Component 016

Conn. Type	None		Damper	Yes	Face Velocity	1.450	m/s
Conn. Size	N/A	mm	Location	External	Actuator	Manual	
			Type	Low Loss			
			Size (WxH)	1250 x 1100 mm			
			Material	Galvanised Steel			

### INCLUDED OPTIONS / NOTES

Locking Quadrant For Manual Damper

### ATTENUATOR SECTION

Component 017

AIR SIDE			SPECIFICATION				CONSTRUCTION		
Air Volume	2.000	m <sup>3</sup> /s	Melinox	Yes			Splitter Length	870	mm
Air Press. Drop	13	Pa					Splitter Width	200	mm
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Ins. Loss (dB)	7	14	17	28	38	30	23	18	

### FILTER SECTION

Component 018

AIR SIDE			SPECIFICATION		DETAILS		
Air Volume	2.000	m <sup>3</sup> /s	Type	Panel	Qty	4	
Face Velocity	1.69	m/s	Grade	M5	Nom. Size (WxHxD)	610x508x50	mm
Air Pd ( Clean )	45	Pa	Withdrawal	Front			
Air Pd ( Average )	122	Pa					
Air Pd ( Dirty )	200	Pa					

### INCLUDED OPTIONS / NOTES

Minihelic Gauge (0-250Pa)  
LED Bulkhead Light c/w Switch  
Test Point

### EXHAUST FAN SECTION

Component 019

DETAILS			FAN			MOTOR		
Air Volume	2.000	m <sup>3</sup> /s	Type	Plenum-AC	Efficiency	0.87		
Ext. Static Pressure	250	Pa	Impellor	Backward Curved	Qty	SINGLE		
Tot. Static Pressure	635	Pa	Qty	Single	Power	4.00	kW	
Starting Method	Speed Controller		Operation	100 %	Speed	1445	RPM	
A. V. Type	Spring		Model	NPA500-IE2	Pole	4		
			Speed	1411 RPM	Full Load Current	8.12	Amp	
			Max. Speed	2850 RPM	Electrical Supply	380/3/50		
			Absorbed Power	1.79 kW				
			Total Efficiency	78 %				

Sound Power Lw	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Fan Inlet (dB)	73	74	82	73	70	69	66	62
Fan Outlet (dB)	84	76	83	79	79	74	71	67

Note : Fan manufacturer data used in accordance with DIN 463 Part 38 & 39, BS 848 Part 2 & ISO 5136. A correction of +6dB should be applied across all octave bands for unit casing adjustment

**INCLUDED OPTIONS / NOTES**

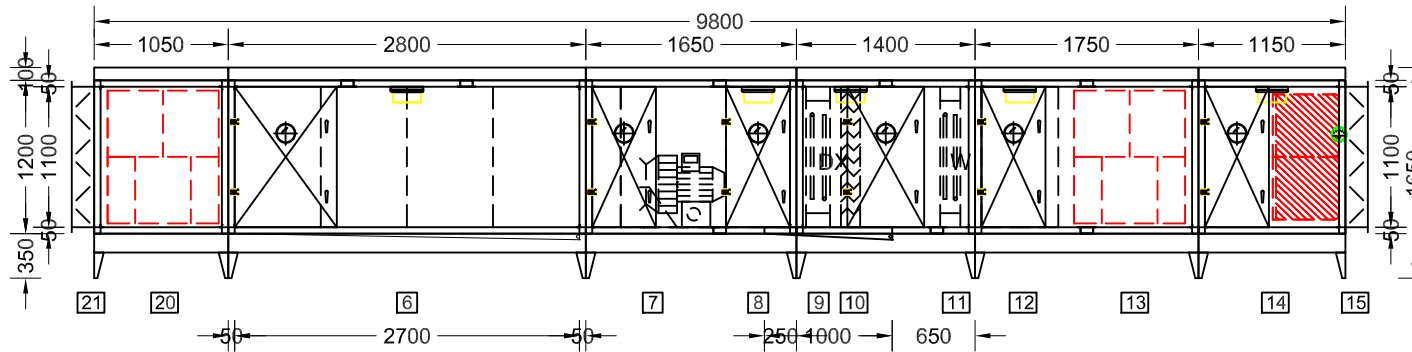
- Inlet Guard
- Door Guard
- Inlet Flex Connection
- Inverter Supplied by Others
- Pre-Wire Motor to External Isolator c/w aux contacts
- LED Bulkhead Light c/w Switch
- Commando Plug (Power and Thermister)

**ATTENUATOR SECTION** Component 020

AIR SIDE			SPECIFICATION			CONSTRUCTION		
Air Volume	2.000	m <sup>3</sup> /s	Melindex	Yes	Splitter Length	870	mm	
Air Press. Drop	13	Pa			Splitter Width	200	mm	
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Ins. Loss (dB)	7	14	17	28	38	30	23	18

**OUTLET SECTION** Component 021

Conn. Type	None	Damper	Yes	Face Velocity	1.450	m/s
Conn. Size	N/A	Location	External	Actuator	By Others	
		Type	Low Loss			
		Size (WxH)	1250 x 1100 mm			
		Material	Galvanised Steel			



Section A: Weight +/- 10% = 729Kgs

Components

- 1 Inlet Section
- 2 Attenuator
- 3 Plenum Section
- 4 Frost Coil
- 5 Panel Filter

Section B: Weight +/- 10% = 1124Kgs

Components

- 6 Plate Heat Exchanger

Section C: Weight +/- 10% = 493Kgs

Components

- 7 Plenum Fan
- 8 Plenum Section

Section D: Weight +/- 10% = 420Kgs

Components

- 9 DX Cooling Coil
- 10 Eliminator
- 11 LPHW Heating Coil

Section E: Weight +/- 10% = 453Kgs

Components

- 12 Plenum Section

Section F: Weight +/- 10% = 318Kgs

Components

- 13 Attenuator

Section G: Weight +/- 10% = 869Kgs

Components

- 14 Bag Filter
- 15 Outlet Section

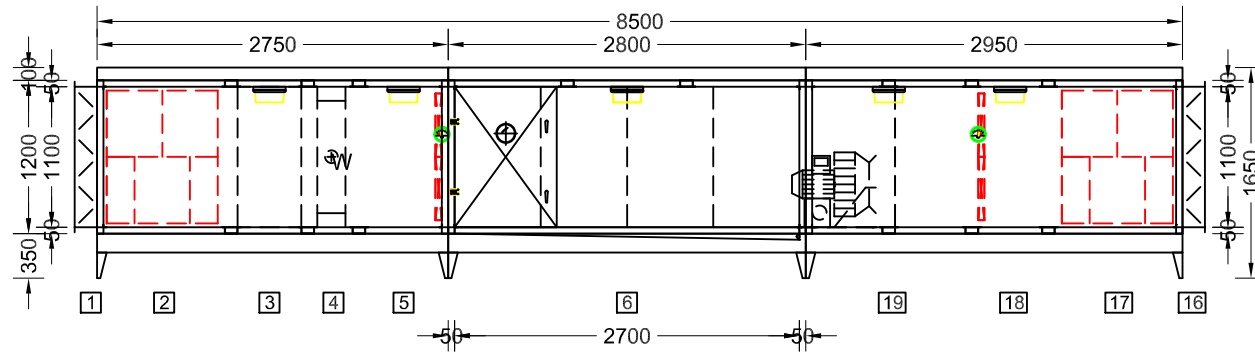
Section H: Weight +/- 10% = 376Kgs

Components

- 16 Inlet Section
- 17 Attenuator
- 18 Panel Filter
- 19 Plenum Fan

## ELEVATION FRONT

Customer	JCP Newcastle	Air flow	2/2	m3/s	Not To Scale All Dimensions shown are in mm		This Drawing is property of AHS and should not be re-produced in any form		<b>AIR HANDLING SYSTEMS LTD.</b>  3 - 5 FURNACE INDUSTRIAL ESTATE SHILDON, COUNTY DURHAM. DL4 1QB	No.	Revision	Date
Project	L2054 DMH Phase 3	Weight	4783	Kg	AHU No.	1						
Location	AHU01	E.S.P	250 / 250	Pa	Dwg No.	21960-1-0						
Model	AIR FLEX 41 / AIR FLEX 41	Quantity	1	Nos.								



Section A: Weight +/- 10% = 729Kgs

Components

- 1 Inlet Section
- 2 Attenuator
- 3 Plenum Section
- 4 Frost Coil
- 5 Panel Filter

Section B: Weight +/- 10% = 1124Kgs

Components

- 6 Plate Heat Exchanger

Section C: Weight +/- 10% = 493Kgs

Components

- 7 Plenum Fan
- 8 Plenum Section

Section D: Weight +/- 10% = 420Kgs

Components

- 9 DX Cooling Coil
- 10 Eliminator
- 11 LPHW Heating Coil

Section E: Weight +/- 10% = 453Kgs

Components

- 12 Plenum Section
- 13 Attenuator

Section F: Weight +/- 10% = 318Kgs

Components

- 14 Bag Filter
- 15 Outlet Section

Section G: Weight +/- 10% = 869Kgs

Components

- 16 Inlet Section
- 17 Attenuator
- 18 Panel Filter
- 19 Plenum Fan

Section H: Weight +/- 10% = 376Kgs

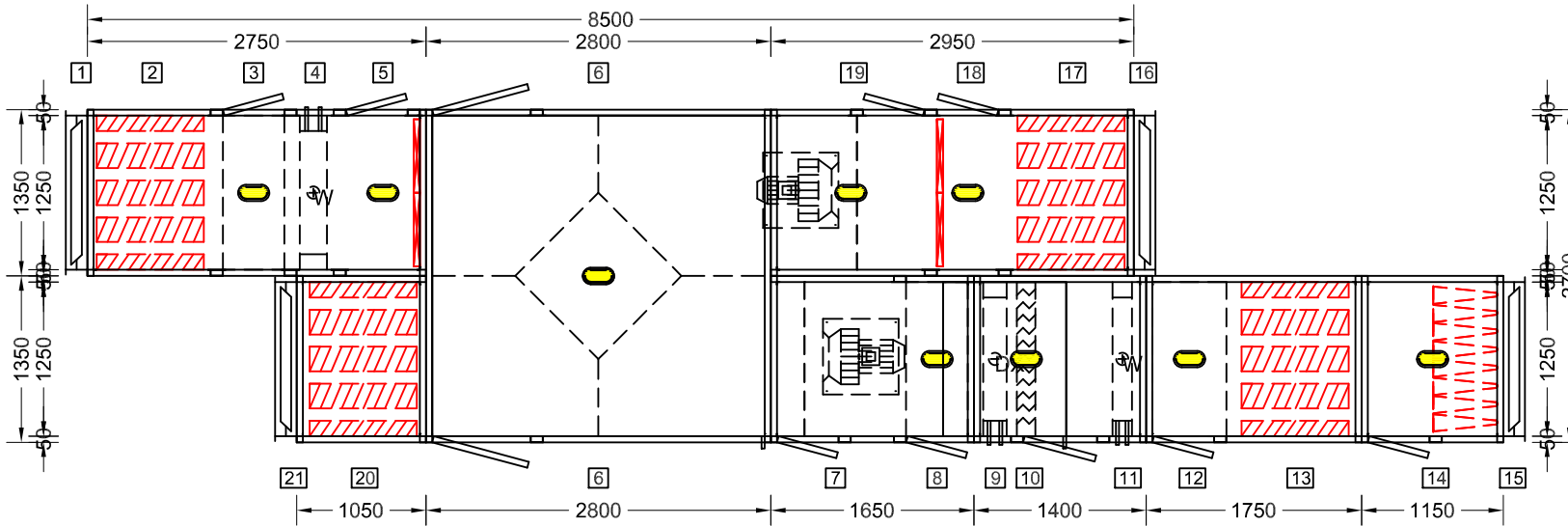
Components

- 20 Attenuator
- 21 Outlet Section

## ELEVATION BACK

Customer	JCP Newcastle	Air flow	2/2	m3/s	Not To Scale All Dimensions shown are in mm		This Drawing is property of AHS and should not be re-produced in any form		<b>AIR HANDLING SYSTEMS LTD.</b>  3 - 5 FURNACE INDUSTRIAL ESTATE SHILDON, COUNTY DURHAM. DL4 1QB	No.	Revision	Date
Project	L2054 DMH Phase 3	Weight	4783	Kg	AHU No.	1						
Location	AHU01	E.S.P	250 / 250	Pa	Dwg No.	21960-1-0						
Model	AIR FLEX 41 / AIR FLEX 41	Quantity	1	Nos.								





- Section A: Weight +/- 10% = 729Kgs**  
 Components  
 1 Inlet Section  
 2 Attenuator  
 3 Plenum Section  
 4 Frost Coil  
 5 Panel Filter
- Section B: Weight +/- 10% = 1124Kgs**  
 Components  
 6 Plate Heat Exchanger
- Section C: Weight +/- 10% = 493Kgs**  
 Components  
 7 Plenum Fan  
 8 Plenum Section
- Section D: Weight +/- 10% = 420Kgs**  
 Components  
 9 DX Cooling Coil  
 10 Eliminator  
 11 LPHW Heating Coil
- Section E: Weight +/- 10% = 453Kgs**  
 Components  
 12 Plenum Section  
 13 Attenuator
- Section F: Weight +/- 10% = 318Kgs**  
 Components  
 14 Bag Filter  
 15 Outlet Section
- Section G: Weight +/- 10% = 869Kgs**  
 Components  
 16 Inlet Section  
 17 Attenuator  
 18 Panel Filter  
 19 Plenum Fan
- Section H: Weight +/- 10% = 376Kgs**  
 Components  
 20 Attenuator  
 21 Outlet Section

## PLAN DECK

Customer	JCP Newcastle	Air flow	2/2	m3/s	Not To Scale All Dimensions shown are in mm		This Drawing is property of AHS and should not be re-produced in any form		<b>AIR HANDLING SYSTEMS LTD.</b> 3 - 5 FURNACE INDUSTRIAL ESTATE SHILDON, COUNTY DURHAM. DL4 1QB	No.	Revision	Date
Project	L2054 DMH Phase 3	Weight	4783	Kg	AHU No.	1						
Location	AHU01	E.S.P	250 / 250	Pa	Dwg No.	21960-1-0						
Model	AIR FLEX 41 / AIR FLEX 41	Quantity	1	Nos.								