

CEH Lancaster Fume Cupboard Ductwork

August 2015

Services Specification

1. Particulars

1.1 PROJECT OVERVIEW:

The Centre for Ecology and Hydrology (CEH), Lancaster is located on the Lancaster University Campus

Lancaster Environment Centre
Library Avenue
Bailrigg
Lancaster
LA1 4AP

This project is to replace the roof exposed fume cupboard ductwork from the risers to the fans and the return ductwork to the stacks. The client also requires the routes of the ductwork to the stacks re-designed to minimise the amount of ductwork on the roof. The work includes 4 no Microbiological Safety Cabinets and 14 no Fume Cupboards. It is estimated that there will be approximately 320 lm of new 400m dia. insulated ductwork and 100 lm of surplus ductwork. The design includes 2no new stack locations and supports to the centre of the roof. The fans are to remain in their current locations and to be serviced as part of the works in accordance with SFG20. The contractor to replace the roof facing plywood panels to the 4 no existing stacks. As this is an operational site the works are to be undertaken in phases to minimise the downtime of the fume cupboards etc.

The works shall include but are not limited to:

- Stripping out of redundant ductwork (including disposal in accordance with COSHH Sheets)
- Positioning of new ductwork and stacks
- Crane Hire.
- Support framework
- Earth and bonding
- Commissioning on completion.
- Building work to stacks and making good.
- Mains electrical wiring including final connections to all items of plant.
- Service Fans to SFG20 standard
- Control wiring.
- Any working outside normal hours.

All works shall be priced as a single packaged tender including specialists sub-contractors for the respective components.

1.2 MAINTENANCE OF EXISTING SERVICES:

The site shall remain fully operational throughout the period of the Fume Cupboard Ductwork project. All mechanical and electrical services shall be maintained to areas outside the 'work area' throughout the duration of the contract. The contractor is to provide any additional work and materials necessary to maintain these services at all times during the duration of the Contract. Downtime of the Fume Cupboards must be limited to a minimum and shall be restricted to the respective zones. Any existing services disturbed by the Works are to be reinstated fully in accordance with the standards of quality defined in the specification and to the satisfaction of the Employers.

The programme shall be developed by the Contractor, in discussion with the Employer. The programme for any mechanical and electrical shut-downs shall be agreed before work commences.

1.3 THE EMPLOYER:

Employer: Centre for Ecology and Hydrology
Roger Merritt
Facilities Operations Manager
rjmer@ceh.ac.uk

1.4 CONTRACTOR:

1.5

This document has been prepared to be issued to a specialist ductwork contractor. All associated builders works in connection with the works outlined in this specification shall be provided by specialist sub-contractors and be the responsibility of the contractor.

1.6 SITE INVESTIGATION:

1.7

The Contractor shall:

- Have the opportunity to visit site during the tender period, no additions will be accepted as a result of not carrying out a site visit. The site visit shall be arranged with the client.
- Ascertain the nature of the site and all local conditions and restrictions likely to affect the execution of the Works.
- Before commencing work, carry out a survey and examination of building, structure, asbestos register and engineering services affected by the works. Bring all issues raised to the attention of the ED.
- Examine all available drawings of the engineering services and report any discrepancies to the ED.
- Take record photographs of current systems, and any existing building defects in the areas of works.

2. GENERAL QUALITY STANDARDS/CONTROL:

The entire installation shall comply with the requirements of the Statutory Bodies and the following:

- British Standards
- Health & Safety at Work Act
- 17th Edition of IEE Wiring Regulations
- COSHH Regulations
- F-GAS Regulations
- Gas Safety Regulations Act and CORGI Regulations and Recommendations
- Control of Pollution Act
- The Pressure Systems and Transportation Gas Containers Regulations
- BSRIA Commissioning Publications
- B&ES Association Guidance
- CDM 2015 Regulations
- Associated Statutory Acts.

The Chartered Institute of Building Services Engineers (CIBSE) & B&ES Association Guides shall be adhered to wherever they are relevant.

All materials and equipment shall be installed in accordance with the manufacturer's recommendations. Any conflicts between the manufacturer's details and this specification must be raised to the Contract Administrator prior to proceeding.

The design has been based on visual non-intrusive surveys and therefore, exact positions and routes for the new installations must be established on site by the Contractor to co-ordinate with the existing building layout and services.

The contractor shall allow in his tender for locating equipment and outlets within one metre of the position shown on the contract drawing at no additional cost to the contract.

The contractor is reminded that the site shall be occupied throughout the contract and that all services must remain operational at all times except for those previously agreed with the ED. The Contractor shall not be allowed to disconnect any of the existing services that are not directly connected to the works without prior agreement with the ED.

All areas would need to be appropriately protected within the working zone and "made good" if

damaged by the contractor.

3. STANDARD CONDITIONS

3.1 TENDER DOCUMENTATION

Any discrepancy or ambiguity with the specification shall be referred to UKSBS at the time of tendering for clarification.

3.2 RESPONSIBILITY

The Contractor shall be responsible for the correct installation of the works as specified and for the proper operation of the installations to the complete satisfaction of the Employer and the r. The Contractor shall be responsible for compliance with all tests called for herein or required by the Employer. In the event of anything described in the Specification being in the Contractor's opinion unsuitable or inconsistent with his guarantee and responsibilities, the Contractor shall draw attention to these matters at the time of Tendering.

The Contractor shall, on appointment, acquaint himself with the general arrangement and layout of other services to ensure that ducts, chases, wall spaces and plant zones are most economically used to accommodate the services which are to be installed. The Contractor shall liaise with the other sub-Contractors to ensure coordinated installation of all services, and the building fabric. If, as a result of failure to comply with this Clause, it is necessary to remove and re-install or to modify any equipment, pipes or cables, which in the opinion of the Employer could have been avoided with reasonable co-operation, the Contractor shall carry out such work as may be required with no extra cost to the Contract.

3.3 MATERIALS AND WORKMANSHIP

All materials supplied and work carried out shall comply with British Standards and statutory requirements including those standards issued in respect of materials manufactured to harmonise and Euro-Norm standards. Where specific British Standards are referred to herein, these shall be deemed to refer to the current edition of such Standards and to include as far as practicable any amended requirements which may become current before the date at which the work is carried out.

Where more than one manufacturer's name is indicated, or where the Contractor puts forward alternatives, such items wherever possible shall be of the same manufacture not a combination of various makes, and shall be CE marked to signify compliance with one or more European product directives appropriate to the item.

Returned Tenders shall be compared on the basis of the specified plant and equipment. Alternatives submitted by the Contractor may be considered after this evaluation.

3.3.1 ALTERNATIVE MANUFACTURERS/SUPPLIERS:

In addition to and at the same time as his costs for the Works as defined in the documents, the Contractor may, at his discretion, submit alternative manufacturers or suppliers for consideration. Alternatives, which would involve significant changes to other work, will not be considered. The tender sum must however be based upon the specified manufacturers/suppliers and alternatives offered as a cost reduction to the specified item.

Such alternative(s) must include all additional costs arising from necessary changes to the details of the installation, including changes to the design and drawings, as well as any associated ancillary equipment items.

Such alternative(s) is/are deemed to be alternative tender(s) and each must include a complete and precise statement of the effects on cost and programme.

Full technical data for each such alternative must be submitted together with details of any consequential amendments to the design and/or construction/installation of other parts of the Works.

3.3.2 SELECTION OF MANUFACTURERS/SUPPLIERS:

Where manufacturers, suppliers or installers of products are NOT identified by name, select products that comply in all respects with the specification and, as and when requested, demonstrate such compliance.

Where manufacturers, suppliers or installers of products are identified by name, or names, but no reference is made to "Or approved equivalent" use these exclusively.

Where manufacturers, suppliers or installers of products are identified by name, or names, but reference is made to "Or approved equivalent" alternatives may be selected and shall be submitted to the CA for approval.

Check that any proposed alternatives comply with any stated British (or other equivalent recognised International) Standards. Confirm equivalence in quality, operation and space requirements to those items, which have been specified by name. If, and when requested demonstrate the proposed alternative is fully equivalent to the specified item and identify any constructional, cost, programme, maintenance or other differences.

3.4 GUARANTEE

The Contractor, in quoting for a specific item of equipment or apparatus, whether specified herein by name or whether of a make selected by the Contractor, shall be deemed to guarantee its satisfactory performance under all working conditions which may be encountered.

The Contractor shall be responsible for any defects which may arise during the Defects Liability Period in accordance with the Provisions of Clause 3.18.

3.5 REJECTION OF UNSUITABLE MATERIALS

The Employer shall be at liberty to reject plant, materials, etc., and workmanship not complying with the requirements of Clause 3.3 hereof or which are in any way unsuitable; and to order the removal and replacement without extra cost to the Employer, of any faulty plant, materials or inferior work. The above shall apply notwithstanding that the Employer may have previously nominated a particular make or type of plant or materials. The Employer's decision as to what constitutes compliance with requirements and suitability shall be final and binding. The true intent and meaning of the Contract being that the whole of the Works shall be completed to the satisfaction of the Employer and the Employer.

3.6 PACKING, STORAGE AND PROTECTION

All plant, equipment, apparatus, materials and parts shall be delivered to the Site in an 'as new' condition and properly packed and protected against damage due to handling, adverse weather or other circumstances and, so far as is practicable, shall be kept in the packing case or under protective covering until required for use.

Any items damaged in transit or on the Site shall be replaced without extra cost to the Employer. The Contractor shall suitably protect, encase, cover over, etc., as may be appropriate, all installed plant and equipment to prevent damage due to building operations, adverse weather or other causes up to the Date of Completion and shall make good any damage and hand over the entire installation in a new and undamaged condition.

During the progress of the Works all open ends of pipes, ducts, conduits, etc., shall be suitably capped to prevent the ingress of foreign matter.

The Contractor shall take every reasonable precaution to prevent dirt or debris entering plant, equipment or distribution services during installation and shall inspect each length of pipework after jointing to ensure that it is clean inside.

3.7 INSPECTION

The Contractor shall be responsible for inspecting, as necessary, all plant, equipment and materials at the manufacturer's works and for checking its suitability for use and shall, if so requested, make the necessary arrangements for joint works inspections and/or tests of such

Plant, with the Employer. Any such inspections shall not relieve the Contractor of his responsibilities under this Contract.

The Contractor shall provide to the Consulting Engineer a copy of the of Works Test Certificates in respect of all plant, equipment and materials, showing compliance with tests to British Standards and with additional tests specifically called for herein. Additional copies of the Works Test Certificates shall be provided in the O&M Manuals.

3.8 ORDERING

On appointment the Contractor shall obtain confirmation of all particulars and details necessary to enable orders to be placed and shall place such orders for all plant, equipment and materials. The Contractor shall on request, provide to the Employer copies of such orders so placed, together with the approximate cost thereof. In placing such orders it shall be the Contractor's responsibility to ensure that suppliers are aware of, and work strictly to, the requirements of the Contract and the Programme of Works.

3.9 REGULATIONS

The Contractor shall comply with all Acts of Parliament and relevant statutory instruments and regulations (including European Directives) current at the date of Tender.

The plant and materials supplied and installed shall conform to the requirements of the appropriate British Standards or Codes, whether the appropriate Standard or Code is referred to in this Specification or not.

Throughout the execution of the Works the Contractor shall be responsible for ensuring compliance with statutory regulations and British Standards and shall notify the Employer of any infringements which directly or indirectly detract from the safe and satisfactory operation of the installations whether or not such infringements relate to the Works covered by the Contract, associated works of others or existing installations to which the specified works are to interface.

3.10 SETTING TO WORK COMMISSIONING AND TESTING

NOTE: The term "the installation" in the following clauses shall be read to include the complete installation(s) or any part of them which it may be required to commission, test, operate, etc., as separate entities.

Subject to any additional requirements stated in the Particular Specification, the Contractor shall:

1. On completion of the installation of each system ensure that all plant spaces and distribution routes are clear of debris, redundant materials, and are clear of obstruction.
2. Thoroughly clean and blow through all airways, switchboards, panels, cabinets and any other items of equipment, flush all pipework systems and equipment and generally prepare the installations for operation.
3. Commission the installations by provision of all necessary skilled and unskilled operatives and calibrated instrumentation, and prove that they are operating in accordance with the Specification, prior to offering them for demonstration.
4. Operate the installation for reasonable time to allow for the observation of results and subsequent adjustments. The Contractor shall demonstrate to the satisfaction of the Employer that the installations which have been set to work, comply in all respects with the requirements of the Specification.
5. Demonstrate to the satisfaction of the Employer that the Installation(s) already demonstrated separately, are capable of simultaneous operation in accordance with the requirements of the Contract.

3.11 RESULTS OF TESTING AND COMMISSIONING

The Contractor shall record all test results and commissioning data (including test instruments calibration certification) and, where these have been successfully completed, provide a copy of all results to the Employer in an agreed format.

If the tests show that any item of the plant, equipment or system is not operating correctly, due to an installation problem or equipment fault, the Contractor shall carry out all remedial measures or adjustments necessary to achieve the specified operation of each system at no cost to the Client, in order to satisfy the specified design criteria.

3.12 CONTRACTORS DRAWINGS

3.12.1 RECORD DRAWING:

Drawing showing the building and services installations as installed at the date of practical completion are to be provided by the Contractor and shall provide two weeks prior to Practical Completion, two copies of the Record Drawings to the Employer, for approval.

The complete installation shall be detailed on the drawings including plant, equipment, pipe and cable routes. The precise location of all services buried within the structure and any sections of external services shall be declared on the drawings. Each service shall be identified in accordance with relevant labelling and schedules.

The Contractor shall provide at Practical Completion one set of the approved "Record Drawings" on paper, plus a copy on CD together with further sets of prints bound into the Operating and Maintenance Manuals.

The main features of the record drawings should be as follows.

Provide a record of the locations of all the systems and components installed including pumps, fans, valves, strainers, terminals, electrical switchgear, distribution and components. Use a scale not less than that of the installation drawings.

Have marked on the drawings the positions of access points for operating and maintenance purposes.

The drawings should not be dimensioned unless the inclusion of a dimension is considered necessary for location.

The drawings shall be produced using AutoCAD (.dwg) unless otherwise stated, on A0 to A4 paper as appropriate. Each drawing shall include the following information within the title block and clearly identified as a "Record Drawing".

- Name of Contract and Site Location.
- Description of Drawing.
- Name and Address of Contractor and Employer.
- Scale.
- Date

Drawings shall include:

- General arrangements of all services to a scale not less than 1:100 or 1:50 as appropriate.
- Schedule of all equipment, pipework, etc.
- Revised Mechanical & Electrical Distribution Schematic

3.12.2 BUILDER'S WORK AND WORKING DRAWINGS

Working installation drawings and builder's work drawings are to be prepared by the Contractor and submitted to the Employer for review. This requirement particularly applies to the final location of any holes required through the roof.

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The Employer insists on originally prepared working drawings, drawn by the Contractor. It will not be acceptable to use the Employer's drawings as working drawings.

Builder's work and working drawings shall take into account all latest drawings applicable to other disciplines, trades and services, and all modifications, which may have or will take place to the buildings or installations. These drawings shall be correctly related to the specified or selected plant and equipment. The level of detail required for the working drawings shall be in accordance with BSRIA Guide 'A Design Framework for Building Services' BG 6/2009.

The Contractor shall be responsible for providing all working drawings in adequate time to ensure that there is no delay in the contract programme.

The Contractor shall be responsible for any error discrepancy or omission in any drawings prepared by him or on his behalf.

All drawings shall be prepared from the latest issue of detailed layouts, which must be obtained by the Contractor. The contractor shall co-ordinate and detail all the service installations under his direction, relative to both building fabric and other services installations, so as to enable a fully integrated and co-ordinated installation to be provided.

Drawings and/or schedules are to be provided by the contractor for distribution, unless particularly specified otherwise.

The contractor shall also submit to the employer two copies of all drawings for manufactured items such as control panels, etc., before work on each item is commenced. The contractor shall submit these drawings two weeks before he requires manufacture to commence, to comply with the construction programme.

The contractor shall maintain a set of working drawings on site. These shall comprise a full set of approved installation drawings and be marked up on site, on a daily basis, with any alterations and additions or omissions, such that they will be a current record of the progress of work and form the basis of Record Drawings at the handover stage.

Alterations to working drawings shall be clearly identified, dated and countersigned by the Employer.

3.12.3 AS-INSTALLED DRAWINGS:

Provide drawings/records retained on site to record the progress of and any site modifications to the Works including any changes to software.

3.13 OPERATING AND MAINTENANCE MANUALS:

Prior to Practical Completion the Contractor shall issue two draft copies of the Operating and Maintenance Manuals to the Employer for approval.

An electronic copy on CD shall also be provided.

The manuals shall be size A4 with stiff sided, two or four ring PVC covers and shall indicate the following information:

Operating and Maintenance Manual for Mechanical and/or Electrical Services as applicable.

Project Name

Volume number

The manual shall be divided into the following main sections, each of which shall have a correctly sized pastel coloured divider. Operating and Maintenance manuals shall be provided by the contractor to the following format;

Structure of O&M Manuals

Title

Introduction
Introduction to the systems installed
General Information on the Operation of the Systems Installed
Index of Record Drawings
Contents by Volume
Schedule of Plant
Detailed System Operation
Health & Safety Documentation
Interfaces with other Equipment
General Maintenance Procedures
Recommended Spares Policy
General Fault Finding Guide
Manufacturers Literature
Title
Introduction
Contents of Manual
General information on the testing and commissioning of the installation
Testing and Commissioning Certificates
Guarantees and Warrantees

3.14 DATE OF COMPLETION

For the purpose of this Contract, the Date of Practical Completion of the Works, shall be the date when the final phase is complete and handed over, or at such other date of substantial completion agreed in writing. Prior to this date the Contractor shall demonstrate to the Employer that the installations are satisfactory and that the operational and documentation requirements of this Specification have been met.

3.15 BENEFICIAL USE OF THE INSTALLATION

Up to the Date of Practical Completion the Contractor shall, operate the whole or part of the installations for the benefit of the Employer, provided that this operation does not prejudice the Contractor's responsibilities and obligations under the Contract, and does not unreasonably interrupt or interfere with the progress of the work or commissioning and testing.

3.16 WATER AND ELECTRICITY

Unless otherwise stated, all water and electricity required for setting to work, commissioning, testing

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and operation of the installations shall be provided by the client.

3.17 CLEARING UP ON COMPLETION

On completion of the Works, the Contractor is to clear away all temporary plant, surplus materials and debris and make good or reimburse the Employer for any damage caused to the building fabric roadways, pathways, landscaping or services during the execution of the Works.

3.18 DEFECTS LIABILITY

The Defects Liability Period for the purposes of this Contract shall be a period of twelve months from the Date of Practical Completion, or the clearance of faults and defects unless otherwise stated in the Contract Conditions.

During the Defects Liability Period the Contractor shall at his own cost remedy and make good, as soon as reasonably possible, any faults or defects arising in the plant or Works which in the opinion of the Employer, is due to faulty materials and/or Workmanship and shall indemnify the Employer against any damage or injury to the Building, contents and/or occupants arising as a result of such faults or defects. The Contractor shall not be liable under this clause for defects arising as a result of fair wear and tear or improper operation by the Employer after the Date of Practical Completion. Access to the Works shall be by prior appointment with the Employer.

If the Contractor fails to remedy such faults or defects that may arise within a reasonable time, the Employer may proceed to do so at the risk and expense of the Contractor and without prejudice to such other rights as the Employer may have under this Contract.

3.19 FIRE HAZARD

The Contractor shall take all reasonable fire precautions in respect of his works.

Where it is necessary for the Contractor to use any naked flame or welding equipment in the carrying out of his work, adequate protection shall be given to all other materials and personnel. Suitable fire extinguishers and any other necessary fire or safety equipment shall be readily available at the position where such work is proceeding. The Contractor shall ensure compliance with the permit to work system operating at the site.

3.20 SPARES

In cases where the Contract includes the provision of spares for the use of the Employer, the Contractor shall hand over all such spares to the Employer properly packed and labelled and accompanied by a detailed schedule. The Employer shall sign a copy of such a schedule which shall constitute a receipt for the spares and which shall be produced to the Employer.

3.21 PHOTOGRAPHS

No photographs of the Site or of the Works or any part thereof shall be taken except with the permission in writing of the Client and no such photographs shall be published or otherwise circulated without permission.

3.22 BUILDERSWORK IN CONNECTION WITH M&E INSTALLATION

All holes 50mm diameter and below shall be drilled and made good by the mechanical & electrical services contractor. Holes above this size shall be marked on site by the mechanical & electrical services contractor and drilled/formed by the building contractor.

3.23 ASBESTOS

Should the Contractor, during the execution of their work, identify any form of Asbestos and/or hazardous materials not previously identified and being dealt with under the contract, the Employer shall be notified immediately and the Contractor operatives withdrawn from the area awaiting further instructions.

The Contractor and their operative shall be aware of his obligations under the Health and Safety at Work Act and COSHH (Control of Substances Hazardous to Health) Regulations.

4. Description of the Works

CEH has a responsibility under Health and Safety legislation to provide and maintain plant and systems of work, which are safe, and without risk to health (Health & Safety at Work etc Act 1974). Hence there is a duty to ensure that fume cupboards used at CEH Lancaster effectively protect staff and students from exposure to substances that may be hazardous to their health.

The British Standards BS EN 14175-2:2003 and BS7989:2001 specify the safety and performance requirements for general purpose fume cupboards and further outline the technical specifications required for design, manufacture, installation and containment testing of fume cupboards.

General Requirements:

All fume cupboards must remain connected to dedicated fume extract systems via a fully seam welded uPVC/Polypropylene/Stainless steel ducting system, or other types as appropriate to suit use of system.

As there is exposure to ultra-violet degradation ductwork, fan housing and motor assembly must be treated to avoid degradation from sunlight and weather.

- All ductwork to have protection against mechanical damage
- Any positions where ductwork traverses roof must have purpose made “bridge” walkways to prevent personnel stepping on ductwork.
- Ductwork is to be dedicated for fume cupboards and should not incorporate general extract.
- No fire dampers will be fitted in fume cupboard extract ducts. 1 hour rated intumescent fire protection wrap and collars will be used where ducts pass any through fire barrier/ fire zoned areas.
- Flexible ductwork connection to fan must be chemically resistant to the same specification as the ductwork.
- All ductwork installed in accordance with B&ES guidance DW/154 and CIBSE Heating, ventilating, air conditioning and refrigeration - Guide B
- Lightning arrestor tape to be fitted to each outlet terminal to terminate within 150mm of top of outlet.
- Outlets to terminate a minimum of 2.4 metres above finished roof level.
- Removal cap air test points to be provided within the ductwork on the suction and discharge side of fan, each within 1 metre of the fan.
- Terminal outlet to be fitted with concentric cone reducing piece on top of the terminal to ensure a minimum face velocity of 10m/s is maintained.
- Specialist cupboards that require different ductwork materials and design must be separately approved by the client (e.g. radio-isotope and very high risk containment)
- Each fume cupboard number will be labelled on both the fume cupboard itself and on the motor isolator on the roof.
- New Labels must be permanently fixed and not self adhesive.
- All mains and control cables will be fully labelled both on outer sheathing and on individual cores to detail location, panel, way No and cable marker number.
- All new penetrations through roof and internal fabric will be made good after installation of ductwork work.

- The system will be fully commissioned in accordance with the manufacturer's recommendation and guidelines and witnessed by CEH.
- Fans and ductwork to be serviced in accordance with SFG20.

5. Scope

For the avoidance of doubt the ductwork Services Contractor shall include for the following:-

- All plant, tools, equipment, lifting and hoisting tackle, ladders, scaffolds, trestles and craneage that may be required to carry out the works.
- Taking site dimensions and preparing all drawings and diagrams (including pipe schedules, wiring schedules, equipment schedules, controls and wiring routes) necessary to meet all the requirement of the specification and programme.
- Co-ordination; preparation of working drawings and diagrams; manufacture, supply, delivery to site, installation, cleaning, testing, commissioning, demonstrating, certification and hand- over of a complete working installation in accordance with the drawings and specifications supplied.
- Supply and installation including off loading, storing, handling, moving into position, erecting, and assembly of all equipment and materials.
- Protecting and maintaining "as new" all plant and equipment to be installed by the Contractor.
- Preparation, priming, painting and protecting and making good as called for in the specification to surfaces, walls ceilings etc.
- Holding down bolts, brackets, hangers and steel-work, together with any other form of fixing required and necessary to ensure a complete and acceptable system.
- A competent level of on-site supervision during the construction period.
- Drilling all BWIC holes.
- Removing rubbish generated by the Contractor to central designated segregated disposal points(s), including removal from site.
- Attendance at sub-contract meetings as deemed necessary by the Employer.
- "As Fitted" Record Drawings and Diagrams in both paper and electronic format.
- Labelling of all equipment and pipework runs, controls electrical cabling etc.
- Provision of method statements and risk assessment both for safety control.
- All system components and equipment required for a complete operational system.
- BMS software engineering, any software licenses, including all access codes and access to the system for in-house maintenance and system alterations.
- On site demonstration and instruction of the installation. Operation, setting, resetting, use of control system.
- Operating and Maintenance manual information for equipment supplied and installed, together with a full and detailed description of the system operation and maintenance requirements.
- Re-forming panels to Stack housings on completion of works.
- Positioning of new ductwork

- Mains electrical wiring including final connections to all fans and controls.
- Earthing/bonding Lightning protection
- Full testing of flowrates and face velocities at fumecupboard face.
- As an environmental organisation it is important that the ducts are to be replaced with environmentally friendly products.

6. Schedule

The plant and ductwork is made up of the following units. The titles relate to the labelling on the site.

PROPOSED/SUGGESTED STACK CONFIGURATION 4 (Far East end of Roof)

FC07

To follow similar route as existing 400mm dia duct to be replaced.

FC01

To follow similar route as existing 400mm dia duct to be replaced.

FC12

To follow similar route as existing 400mm dia duct to be replaced.

FC08

Existing 400mm dia duct to be replaced and re-routed from Stack 3 to Stack 4

PROPOSED/SUGGESTED STACK CONFIGURATION 3

FC02

To follow similar route as existing 400mm dia duct to be replaced.

FC14

Existing 400mm dia duct to be replaced and re-routed from Stack 2 to Stack 3

FC03

Existing 400mm dia duct to be replaced and re-routed from Stack 2 to Stack 3

MSC02 & 04

To follow similar route as existing 200mm dia ducts to be replaced.

The PROPOSED/SUGGESTED STACK CONFIGURATION 2

FC10

To follow similar route as existing 400mm dia duct to be replaced.

FC04

To follow similar route as existing 400mm dia duct to be replaced.

FC05

Existing 400mm dia duct to be replaced and re-routed from Stack 1 to Stack 2

FC11

Existing 400mm dia duct to be replaced and re-routed from Stack 1 to Stack 2

The PROPOSED/SUGGESTED STACK CONFIGURATION 1 (West Side of roof)

FC06

To follow similar route as existing 400mm dia duct to be replaced.

MSC3

To follow similar route as existing 400mm dia duct to be replaced.

Spare

There is now space for future installation in stack 1

Spare

There is now space for future installation in stack 1

The **PROPOSED/SUGGESTED NEW STACKS ADJACENT TO FANS**

MSC1

Provide new designed 400mm dia stack adjacent to fan

FC13

Provide new designed 400mm dia stack adjacent to fan

SUMMARY OF DUCTWORK SERVICES TENDER

ITEM	
Demolitions/Strip-out	£
Holes/chases/covers/supports for services	£
Supply and install Ductwork	£
General LV Power	£
Earthing and bonding	£
Controls	£
UV nsulation	£
Site demonstration and Instruction	£
Preliminaries	£
Operating and Maintenance Manuals	£
As Fitted Drawings	£
Testing & Commissioning	£
OHP	£
Contingency	£ 5000.00
Sub Total	£
TOTAL	£

Tender figure to be carried forward to NEC3 prices schedule

