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London  
W6 9HN

Job No: 301922  
Doc No: MT13495FP

**BY EMAIL ONLY**

09 May 2012

Dear Bruce

## Re: Grenfell Tower Project – Fire Safety Engineering Services

Thank you for your email dated 03 May 2012 requesting a fee proposal for consultancy services on the above project.

We are very happy to submit the following proposal and hope that it meets your requirements.

### *Company Profile*

Our company has been working in the field of fire safety since 1965 and has established an extensive worldwide reputation for excellence in fire safety. We offer fire safety expertise in a wide range of areas, including fire engineering, smoke modelling, evacuation analyses, fire testing, fire certification and on-site inspection.

Our worldwide coverage includes offices and testing facilities in the UK (London, Manchester, Warrington), Germany (Frankfurt), the Middle East (Dubai, Abu Dhabi, Oman), Australia (Melbourne, Sydney, Brisbane), Canada (Mississauga), Hong Kong and Singapore.

One of our primary goals has always been to ensure that we provide an extremely high standard of service to our clients. As a result, we regularly win awards for our work on a variety of projects. Recent awards include:

- 2011 – Fire Excellence Award for the fire engineering design of Crossrail Whitechapel Station;
- 2007 – Fire Engineering Award for Small and Medium Premises for the design of Heathrow Airport Air Traffic Control Tower;
- 2006 – Fire Engineering Award for Small to Medium Premises for the design of Spitalfields Market; and
- 2004 – Fire Engineering Award for All Premises for the design of Queen Marys New School for Dentistry and Medicine.

More details of our company is available on our web site on [www.warringtonfire.net](http://www.warringtonfire.net)

## ***Proposed Scope of Work***

The planned fire safety work would be undertaken using the relevant design codes and will facilitate the progression of the design from RIBA Stage C to RIBA Stage F.

The aim of the fire safety work would be to ensure a high standard of fire and life safety for the occupants of the building whilst highlighting any areas of the building's design that may represent an approvals risk. Additionally, we will recommend ways to resolve these issues, to ensure that the fire and life safety objectives are achieved in the most cost-effective way possible and make sure that the fire strategy does not compromise the architectural concept for the design.

The scope of work for the project would include:

### RIBA Stage C

Work during this stage would facilitate early design development. This work will provide a "level of confidence" with regards to the fire safety design and fire safety approvals risks. The work would focus on issues that would either have an effect on a future application under The Building Regulations 2010 or would have a significant cost impact. More detailed issues would not be covered at this stage of the work.

A preliminary fire strategy report would be produced which summarised the main fire safety issues for the project.

The scope of work for this stage of the project would include:

- Attend relevant design team meetings and to provide the appropriate fire safety guidance to other members of the design team to assist the proposed development (this proposal includes for attendance at up to two meetings in London);
- Discussions, if considered appropriate, with the statutory authorities to establish their principal thoughts on the direction of the strategy (this proposal includes for attendance at one meeting in London);
- Creation of an outline fire safety strategy document for the building to assist early design development;
- Provision of an updated revision of the outline fire safety strategy report to reflect any agreed changes to the strategy following early design development or consultation with the approvals authorities.

### RIBA Stage D/E

Work undertaken during RIBA Stage C would be further developed during the approvals stage of the project, where the work would ultimately involve the creation of a detailed fire strategy for the proposed development which will be written in line with the requirements of The Building Regulations 2010.

The fire safety design would be documented in a fire strategy report. This document would ultimately be submitted to the building control authority in order to achieve regulatory approval.

The fire safety strategy would be developed to comply with the relevant statutory requirements, which would primarily be The Building Regulations 2010, the Regulatory Reform (Fire Safety) Order 2005 and the London Building Acts (Amendment) Act 1939 and would also utilise relevant standards and fire safety guidance documents.

The fire safety strategy for the building will consider the following items:

- Means of escape;
- Assessment of the fire safety systems requirements;
- Recommendations regarding any smoke ventilation requirements;
- Determination of any external fire spread issues that there may be and the impact this may have on the architectural design;
- Recommendations of compartmentation and structural fire protection standards; and

- Assessment of the access and facilities for the fire service

The scope of work for this stage of the project would include:

- Attend relevant design team meetings and to provide the appropriate fire safety guidance to other members of the design team to assist the proposed development (this proposal includes for attendance at up to four meetings in London);
- Further development of the preliminary fire strategy report for the building to assist in Building Regulations compliance;
- Discussions, as and when appropriate, with the statutory authorities to seek their approval of the fire safety strategy (this proposal includes for attendance at up to two meetings in London);
- Provide an update revision of the fire safety strategy report to reflect any agreed changes to the strategy following consultation with the approvals authorities.

### RIBA Stage F)

During this stage of work, we would assist the design team and appointed contractor for the development in addressing the fire safety issues that appeared during the tender review phase. This work is likely to result in further adjustments to the fire safety strategies approved during RIBA Stages D/E.

This work would ensure that the fire safety strategy for the development followed the requirements of The Building Regulations 2010. Any agreed revisions to the fire safety strategy would be fully documented and submitted to the building control authority in order to achieve regulatory approval.

The scope of work for this stage of the project would include:

- Attend relevant fire safety meetings with the design team and appointed contractor to clarify the fire safety strategies used throughout the development (this proposal includes for attendance at up to two meetings in London);
- Troubleshooting strategic fire safety issues that are identified by the contractors;
- Discuss the contractors issues and the proposed solutions, as and when appropriate, with the regulatory approvers (this proposal includes for attendance at up to one meeting in London);
- Provide an updated revision of the fire safety strategy documentation to reflect any agreed changes to the strategy following any related design development and consultation with the approvals body.

Completion of this scope of services will occur once all the above-mentioned goals are accomplished.

It should be noted that the paramount objective of the Building Regulations is the life safety of persons within and around the building during a fire and any fire fighters attending a fire incident. Property protection is not specifically covered by Building Regulations however it is recognised that some life safety measures will provide a degree of property protection. If required by the client, the client's insurers or other interested parties, the fire safety strategy could be developed to consider issues beyond life safety (although that is outside the scope of this proposal).

### ***Possible Fire Engineering Services***

As indicated in the attached appendices, Exova Warringtonfire has extensive expertise in a wide range of fire engineering techniques. Some of these analyses are highly complex and time-intensive and so we would not necessarily suggest the use of those analyses unless there was a definable benefit for the project.

Based on our initial review of the design, it is not anticipated that detailed fire engineering analyses would be required to gain approval of the authorities. Therefore, the use of advanced fire engineering techniques is not proposed.



## **Fire Engineering Team**

The Fire Engineering divisions of Exova Warringtonfire currently employs over 50 experienced and qualified engineers worldwide, with backgrounds ranging from research, Building Control and the Fire Service. In addition, through Exova Warringtonfire group we have access to international experts in the behaviour of materials, fire testing and reaction to fire. This makes us unique amongst our peers.

The fire safety team would be based in our London office. Terry Ashton (Associate) (email address – [terry.ashton@exova.com](mailto:terry.ashton@exova.com) and telephone no: [REDACTED]) would lead the project with assistance from others within the company as necessary. CV's of the fire safety team can be provided upon request.

## **Fee Proposal**

The fixed lump sum fee, exclusive of VAT but inclusive of expenses for each stage of the fire safety work is detailed below:

RIBA Stage C	£3300
RIBA Stages D/E	£5300
<b>Total</b>	<b>£8600</b>

**Table 1: Breakdown of fee proposal**

It is proposed that charges for work carried out during RIBA Stage F will be charged at our standard hourly rates. A time-basis charge has been proposed during this stage due to the difficulty in determining the extent of work required during this stage. If preferred, a lump sum fixed fee could be provided if the scope of services was further defined.

Our fees would be invoiced monthly in respect of the amount of work carried out or based on an agreed invoicing schedule.

We have assumed that our work would only be carried out once and would be based on an agreed set of building layouts. Any subsequent changes/revisions to the building layouts that require additional time from ourselves would be treated as additional work and therefore charged accordingly. Any further work identified outside the above-mentioned scope would be considered additional work and would be subject to an additional fee proposal.

This fee is subject to our standard terms and conditions as detailed in Appendix A.

## **Additional Work**

Any work outside the scope of work detailed above would be either charged at our standard hourly rates (details of which can be provided on request) or would be undertaken based on a previously agreed fixed fee.

## **Terms and conditions**

This fee proposal is subject to our standard terms and conditions as detailed in Appendix A.

We can consider alternative terms and conditions or contractual arrangements (such as project-specific contracts and collateral warranties). There will be a 30 day period from the date of agreement of the fee proposal where we will consider alternatives. If no alternative is presented within that time frame then these terms and conditions of this fee proposal (in Appendix A) will stand for the duration of the project. During any consideration of an alternative contract and depending on the complexity and size of such documents, we would reserve the right to charge an additional £500 fee to cover the costs of the review of such documents. Acceptance of those terms and conditions would be subject to the liabilities and details being substantially similar to those contained in this document

It should be noted that our standard terms are for payment to be received in our bank account within 30 days of the date of our invoices. Extensions to the 30 day terms would only be considered in exceptional circumstances (such as on major projects where our client has an excellent credit rating). For any extension



to the payment terms we would expect to increase the fees shown within this proposal to cover the cost of the additional credit required.

It should be noted that the practice of 'pay when paid' (i.e. withholding payment to us until payment has been received from a third party) is not legal within the construction industry in the UK due to the Housing Grants Construction and Regeneration Act 1996. We would therefore not be able to accept that condition within any contract.

### **Changes to client or invoice details**

If, during the project, you inform us of changes to the client or invoicing information, we would be happy to make those changes. However, if there are changes to the client company (e.g. we are asked to invoice a different company) we would need to carry out a credit check on the new client company before carrying out further work.

### **Appointment**

If you wish to accept our offer we would be obliged if you would confirm this by completing and returning the enclosed fee acceptance form. Such correspondence should include complete information relating to the fee paying client and details of any specific information that you would like in our invoices.

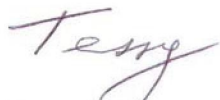
If our invoices need to be passed to a third party for approval (such as a project manager) prior to being paid by the client, we would need full contact details of the client as well as the third party.

This offer remains open for a period of 60 days from the date of this letter.

If any information within this proposal is not considered correct, please do not hesitate to contact us.


We trust the above is satisfactory and provides you with the information that you require at this stage however, should you require any further clarification then please do not hesitate to contact us.

Yours sincerely



**Terry Ashton**  
Associate  
Exova Warringtonfire

Encs

Reviewed by:	 Sean McEleney Graduate Engineer (for and on behalf of Exova Warringtonfire)	09/05/12
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## Appendix A – Standard Terms and Conditions

EXOVA (UK) LIMITED STANDARD CONDITIONS OF CONTRACT ("the Conditions")			
1	INTERPRETATION		
	In the Conditions the following expressions shall (unless the context requires) have the following meanings:	3	deemed to be incorporated in the Contract and all of the same are hereby expressly excluded from the Contract.
	"Client" means the person, firm or company to whom a Quotation is addressed or for whom any Services are carried out;	3.1	PRICE
	"Confidential Information" means all information which a party may have or acquire before or after the date of the Contract which relates to a party's business, products, developments, trade secrets, know-how or other matters connected with the Services and information concerning a party's relationships with actual or potential clients, customers or suppliers and all other information designated as confidential or which ought reasonably to be considered confidential;	3.1	The Price is based on information available to the Company at the date of the Quotation. If during the period of the Contract there shall be any variation in the cost of materials, labour or otherwise to the Company, the Price may, in the absolute discretion of the Company, be adjusted to take account of such variation.
	"Company" means Exova (UK) Limited or named operating unit thereof;	3.2	In addition to the amount specified in the Quotation the following shall be payable if appropriate:
	"Contract" means the contract for the supply of Services comprising the Quotation and these Conditions;	3.2.1	any applicable value added tax;
	"Intellectual Property Rights" means rights of whatever nature (including patents, inventions, know-how, trade secrets, registered designs, copyrights, database rights, trade marks, service marks, logos, domain names, business names, trade names and design rights) and all registrations or applications to register any of the aforesaid items, together with any renewals, revivals and extensions of any of the aforesaid items;	3.2.2	package, insurance, freight, travel costs, bank charges, sample destruction costs, storage charges and disbursements incurred on behalf of the client, whether on the company's premises or elsewhere, and to include storage charges on the company's premises, if any sample or materials supplied by the client are not removed within seven days of the date of notification to the client that they are ready for collection;
	"Losses" means all losses, liabilities, claims, costs, expenses, damages, actions, awards, penalties and/or fines, obligations and also includes all losses, liabilities, costs and expenses (including legal fees on a full indemnity basis) in relation to or resulting from any demands, claims or proceedings;	3.2.3	insurance incurred by the company, in its absolute discretion, in respect of any property belonging to the client in the possession of the company;
	"Price" means the price stated in the Quotation, or otherwise agreed with the Client together with all other sums due pursuant to the Conditions;	3.2.4	with prior notice, the cost of all sub-contractors employed by the company unless included in the quotation;
	"Quotation" means the Company's quotation (whether written or oral) which shall be subject to the Conditions save to the extent of any inconsistencies which will be resolved in favour of the terms of the Quotation;	3.2.5	any additional costs incurred by the company in accordance with the conditions; and
	"Report" means any test certificate, technical report, non-destructive test or inspection record, drawing, spreadsheet, recommendation, advice or the like issued by the Company in respect of a Service;	3.2.6	any special standards or specifications required for the performance of the service.
	"Sample" means any material, item, product or compound supplied by the Client to form the basis of a Test;	4	PAYMENT
	"Service" or "Services" means the service(s) (including, but not limited to, Tests) specified in the Quotation; and	4.1	The Price shall be paid to the Company in full, in cleared funds, without any deduction, set-off or counterclaim within thirty days of the date of the Company's invoice. Time of payment is of the essence to the Contract. In default of payment within the thirty days, the Company may: suspend any further Services being carried out for the Client; withhold the provision of Reports; alter or withdraw credit terms; and amend terms, prices or service levels. The amount outstanding from time to time shall bear interest (both before and after any judgment) at the rate of 4% per annum above the Royal Bank of Scotland plc base rate from time to time from the due date for payment until payment in full is made.
	"Test" means any testing, analysis, assay, inspection, sampling and sample preparation or the like specified in a Quotation.	4.2	All payments due to the Company shall be payable within the specified time irrespective of whether or not the Client has recovered payment from a third party and, for the avoidance of doubt, but without prejudice to the generality of the foregoing, this includes payments of fees due to the Company acting as experts or as expert witnesses when instructed by solicitors acting for a party to a dispute.
2	QUOTATION	4.3	If, in the Company's view, the Client's credit-worthiness deteriorates before completion of the Service, the Company may require payment in full or in part of the Price prior to completion, or the provision of security for payment by the Client in such form as is acceptable to the Company.
2.1	The Quotation constitutes an offer by the Company to provide the Services subject to the Conditions (save to the extent of any inconsistencies between the Quotation and the Conditions which will be resolved in favour of the terms of the Quotation) and is open for acceptance for thirty days only from the date of the Quotation unless previously withdrawn by the Company. Acceptance is based on the receipt of an instruction in writing or receipt of the Sample by the Company.	4.4	The Company has a general lien on all the Client's property in the Company's possession in satisfaction of any amount owed by the Client to the Company under the Contract, and may deal with it as it sees fit.
2.3	Except in accordance with the Conditions no variation of the Contract will be accepted unless agreed in writing by the Company.	5	EXECUTION OF SERVICES
2.4	The Quotation and the Conditions, shall prevail over any terms or conditions contained or referred to in any correspondence, order, documentation submitted by the Client or elsewhere. Further, no condition, statement or representation contained in any advertisement or brochure or in any trade or promotional circular or other literature, nor the terms or conditions of any trade association or other body, or which would or might but for this sub-paragraph be implied or incorporated by custom or trade, usage, negotiations, course of dealing or otherwise shall be	5.1	The Services shall be carried out singly unless prior written instructions from the Client are received for replicates or unless the Company considers replicates are necessary or desirable. The Company reserves the right to charge for replicates even if the original result is confirmed.
		5.2	The Client shall supply as much information as possible about each Sample and/or Service requirement in order to assist in achieving an efficient service. Where information relating to the Sample and/or the Service requirements is incorrect and the Company is involved in additional work, the Company reserves the right to charge for such additional work.
		5.3	Unless specific prior instructions in writing are received by the Company, the Services shall be carried out on the Sample in the state in which the Sample is received. The Company reserves the right to charge for any work required to be carried out to the Sample prior to the performance of any Service.
		5.4	Methods of carrying out the Service and providing the Report shall be at the sole discretion of the Company unless prior instruction in writing is received from the Client specifying a particular procedure which is accepted in writing by the Company. Charges for such special procedures will be agreed between the Company and the Client prior to carrying out the Service.
		5.5	A general description of the method used in the performance of the Service shall be given verbally on request. Where written descriptions of detailed procedures are requested, whether as part of the Report or issued separately, the Company reserves the right to make an additional charge. If the method referenced in the Report represents the end product of development work carried out at the Company's expense, the method shall only be revealed at the discretion of the Company.
		5.6	Company may, at its sole discretion, undertake to give priority in carrying out a particular Service. A surcharge may be imposed by the Company for the carrying out of priority work. Details of these arrangements will be issued by the Company on request.
		5.7	In relation to radiography reports and film delivered or interpreted as part of the performance of the Services, the Client shall notify the Company, within fourteen (14) days from date of issue of such radiography reports and film, of any Client or third party dispute concerning either the radiographic quality or interpretation of results. If the Client does not so notify the Company within this fourteen (14) day period, the Client will be deemed to have accepted the radiography reports and film, together with any interpretation of these, provided by the Company.
		6	SERVICES SUBJECT OF LEGAL PROCEEDINGS
		6.1	If any aspect or element of the Services (including any Sample) is, or is likely to be, the subject of or relevant to legal proceedings, this fact must be notified to the Company in writing before the Services are carried out. If that fact is not disclosed to the Company at that stage, the Company may not, in its absolute discretion, be prepared to provide expert testimony.
		7	DISCLAIMER/LIABILITY
		7.1	The following provisions of this Condition 0 set out the entire liability of the Company, its employees, agents and sub-contractors to the Client howsoever arising.
		7.2	The Company does not exclude or limit its liability (if any) to the Client:
		7.2.1	for breach of the Company's obligations arising under section 12 Sale of Goods Act 1979 or section 2 of the Supply of Goods and Services Act 1982;
		7.2.2	for personal injury or death resulting from the Company's negligence;
		7.2.3	under section 2(3) of the Consumer Protection Act 1987;
		7.2.4	for any matter which it would be illegal for the Company to exclude or to attempt to exclude or limit its liability; or
		7.2.5	for fraud or fraudulent misrepresentation.
		7.3	Except as provided in Condition 0 the Company shall not be liable to the Client whether in contract, tort (including negligence), breach of statutory duty or otherwise for any loss of profit, loss of business, loss of market, loss of contract, damage to goodwill, loss of anticipated savings, loss of revenue, loss or damage incurred as a result of third party claims or any indirect or consequential loss howsoever caused.
		7.4	Subject to Condition 0 and Condition 0, the Company's total aggregate liability under the Contract in any calendar year (whether in contract, tort (including negligence), breach of statutory duty or otherwise) arising out of or in connection with the performance or contemplated performance of the Contract or any delay in performance or failure to perform by the Company or otherwise howsoever arising



	shall be limited to the greater of (i) 125% of the value of the Price paid or payable in that calendar year; or (ii) five thousand pounds Sterling.		Quotation and Service and the Company shall be entitled in good faith to rely upon such purchase order or reference provided to carry out the Service.	9.3	Where Samples are, in the sole opinion of the Company, too bulky or too unstable to allow storage time of more than one month, it will be at the absolute discretion of the Company as to the length of time such samples are kept before being destroyed.
7.5	Subject to the other provisions of the Conditions any claim by the Client against the Company shall be made in writing and notified to the Company within 365 days of completion of the Services under the Contract by the Company to the Client.	8.2	The Client may reproduce or replicate any Report in the form provided by the Company but shall not, without the written consent of the Company, reproduce or replicate any Report which has been modified from the form provided by the Company.	9.4	Samples shall be returned to the Client only if prior instructions in writing in that regard are received by the Company and the Client shall be charged for all costs associated therewith (including carriage).
7.6	All Services are undertaken in good faith, to a reasonable standard of care and on a confidential basis. Reports are issued on the basis of information known to the Company at the time that the Services are carried out. Although the Company will use all reasonable endeavours to ensure accuracy, the Services depend, inter alia, on the effective co-operation of the Client, its staff and on the information submitted to the Company. Save as required by law, no representation or warranty, whether express or implied or otherwise as to the accuracy of a Report is given by the Company. In consequence, all Reports are prepared on the basis that:	8.3	The Client shall be bound to inform the Company in writing prior to the Company carrying out any Service on a Sample that is of a dangerous or unstable nature and provide instruction on the safe handling of the Sample. For example, a dangerous or unstable Sample will include but is not limited to radioactive materials, biologically active or hazardous substances, reducing or oxidising agents, volatile organic compounds, materials considered to be toxic, harmful, corrosive, irritant, explosive, flammable, carcinogenic or reproductive hazards or materials that are dangerous to the environment. The Client shall indemnify the Company from and against all Losses suffered by the Company, including, without prejudice to the generality of the foregoing, all damage to the Company's property and all claims in respect of injury to or deaths of any of the Company's employees, subcontractors or agents or of any third party, directly or indirectly arising from or in connection with the failure of the Client to inform the Company of the dangerous or unstable nature of a Sample and/or to provide adequate instruction on the safe handling of the Sample. Where the Client informs the Company that a Sample is of a dangerous or unstable nature, the Company may, in its absolute discretion, elect not to carry out the Service and to terminate the Contract whereupon the provisions of Condition 0 will apply, save that the Company shall have no liability for its termination of the Contract.	10	OWNERSHIP, COPYRIGHT AND PATENTS IN RELATION TO SERVICES
7.6.1	there is no responsibility to any person or body other than the Client;			10.1	All Intellectual Property Rights (including copyright in records, scientific documentary, primary data or electronic means of handling data) produced during any Service shall belong to and remain the property of the Company unless otherwise expressly agreed as part of the Contract.
7.6.2	they are not carried out for any particular purpose and no statement is to be deemed, in any circumstances to be or give rise to a representation, undertaking, warranty or contractual condition unless specifically stated;			10.2	Ownership and copyright in the Report shall remain with the Company. Upon the Client discharging all its obligations under the Contract, including payment of the Price, the Client will obtain an irrevocable, royalty-free, non-exclusive licence to use the Report (including the right to sub-licence), subject to the terms of Conditions 0, 0 and 0.
7.6.3	they are determined solely by the professional analysis undertaken by the Company's staff on each individual Contract and any forecasts by the Company of the results is an estimate only;			10.3	The Client hereby warrants that it will not use the Report or any other reports, results, or information supplied by the Company for the purposes of the Report or other reports, results or information is permitted under the Contract only with the prior written consent of the Company who shall have the right to increase the Price where it consents to such advertisement and/or publication.
7.6.4	the Company is entitled to be paid the Price irrespective of the results or conclusions reached in the Report;			10.4	The Client hereby undertakes to abide by any regulations imposed by Certification Authorities, Standard Owners, Accreditation Bodies or the Department of Trade and Industry of Her Majesty's Government relating to marks, emblems or logos attached to the Reports or any other documents issued under the Service.
7.6.4	the results of the Services shall address the items and information submitted only and are not to be regarded as representative of any larger population from which the Sample was taken; and	8.4	The Client agrees to indemnify, keep indemnified and hold harmless the Company from and against all Losses which the Company may suffer or incur arising out of or as a result of any breach or negligent performance or failure in performance by the Client of the terms of the Contract or breach of any law or any claim threatened or made against the Company by any third party arising out of the Services or out of any delay in performing or failure to perform the Services. Notwithstanding any other provision of these Conditions, the Client's liability under this indemnity shall be unlimited.	10.5	The Client shall indemnify the Company against all damages, penalties, costs and expenses to which the Company may become liable as a result of a claim that the use of any data, equipment or other materials supplied by the Client for the performance of the Services involves the infringement of any Intellectual Property Rights of any third party.
7.6.5	the results are final and approved by the Company. The Company shall be under no liability where the Client has acted on preliminary, unapproved results or advice.			11	DATA PROTECTION
7.7	All time limits, if any, for the provision of the Services are estimates and no undertaking is given to carry out the Services or to despatch any Report within any period of time. Time of performance of the Services shall not be of the essence to the Contract.	8.5	Where Services are provided at the premises of the Client, the Client will be responsible for providing a safe system of work for the Company and its employees while providing the Service and the Client shall be responsible for all costs necessarily required in discharging this obligation and shall indemnify the Company, its employees, sub-contractors and agents in respect of all Losses suffered as a result of any breach by the Client hereof.	11.1	In exercising its rights and performing its obligations under the Contract the Client, to the extent necessary, shall at all times comply with the Data Protection Act 1998. To the extent that any personal data (as defined in the Data Protection Act 1998) is processed by the Client, the Client shall at all times take all appropriate technical and organisational measures against unauthorised or unlawful processing of such personal data and against accidental loss or destruction of, or damage to, such personal data.
7.8	The Company shall not be liable to the Client or be deemed to be in breach of the Contract by reason of any delay in performing, or any failure to perform, any of the Company's obligations in relation to the Services, if the delay or failure was due to any cause beyond the Company's reasonable control. Without prejudice to the generality of the foregoing, causes beyond the Company's reasonable control shall include an Act of God, explosion, adverse weather conditions, flood, earthquake, tempest, fire, accident, war or threat of war, acts or threats of terrorism, sabotage, insurrection, riot, civil disturbance, requisition, acts, restrictions, regulations, bye-laws, prohibitions or measures of any kind on the part of the governmental, parliamentary or local authority, import or export regulations or embargoes, strikes, lock-outs or other industrial actions or trade disputes (whether involving employees of the Company or of a third party), difficulties in obtaining raw materials, labour, fuel, parts or machinery, power failure or breakdown in machinery.	8.6	In addition to any specific Client obligations set out in the Quotation, where Services are provided at the premises of the Client, the Client shall:	11.2	If the Company receives a subject access request from a data subject who is identified in the personal data then the Client shall provide the Company with all such assistance as the Company may reasonably require to enable the Company to timeously comply with the subject access request.
7.9	Except where the Services are provided to a person who deals as a consumer (within the meaning of the Unfair Contract Terms Act 1977), all warranties, conditions or other terms express or implied, statutory, customary or otherwise are excluded to the fullest extent permitted by law.	8.6.1	provide the Company with necessary access to any Client premises;	12	SUB-CONTRACTING AND ASSIGNMENT
7.10	Where the Services are provided under a consumer transaction (as defined by the Consumer Transactions (Restrictions on Statements) Order 1976 as amended) the statutory rights of the Client are not affected by the Conditions.	8.6.2	ensure that any premises provided by the Client for the provision of any part of the Service is suitable for that purpose;	12.1	Unless otherwise restricted by the terms of the Contract and/or obligations under any accreditation or governing approval, the Company shall be entitled, in its absolute discretion, to sub-contract the whole of or any part of the Service.
7.11	The Client acknowledges that the above provisions of this Condition 0 are reasonable and reflected in the price which would be higher without those provisions and the Client will accept such risk and/or insure accordingly.	8.6.3	provide all usual auxiliary and operating materials (including gas, water, electricity, lighting etc) relevant to any Client supplied premises; and	12.2	The Company may assign, delegate, licence or hold on trust, all or any part of its rights or obligations under the Contract.
8	OBLIGATIONS OF CLIENT	8.6.4	provide the Company with any permits required for the performance of the Service.	12.3	The Contract is personal to the Client which may not assign, delegate, licence, hold on trust or sub-contract all or any of its rights or obligations under the Contract without the Company's prior written consent.
8.1	The Client shall provide with each Sample and/or Service a unique purchase order or unique reference or unique authorisation with sufficient detail to allow the Company to identify each Sample (if applicable) and relate it to a specific	9	Additional costs or Losses arising from the Company due to the Client's failure to comply with the obligations in this Condition 0 shall be borne by the Client.	13	TERMINATION
		9.1	RISK AND PROPERTY IN RELATION TO TESTS Unless stated in the Quotation, Samples are and remain at all times (including, without limitation, whilst at the Company's works and during transportation to and from the Company's works) at the entire risk of the Client who shall be responsible for effecting and maintaining its own insurance cover in relation thereto, it being hereby acknowledged by the Client that the charges of the Company do not include insurance.	13.1	The Client shall not terminate the Contract without the written consent of the Company which may be subject to such terms, as in the Company's absolute discretion, recompense the Company for all loss it may suffer as a result of termination.
		9.2	Unless expressly stated to the contrary in the Contract, Samples of a stable nature shall be retained for three months from the date of their receipt and then destroyed.	13.2	The Company may terminate the Contract and any other contract with the Client forthwith, without prejudice to any other right or remedy available to the Company



- and without the Company incurring any liability to the Client, in the following circumstances:
- 13.2.1 if the Client commits a breach of any terms of the Contract or any other contract with the Company which is incapable of remedy or, if capable of remedy, has not been remedied by the Client in accordance with a written notice from the Company requiring remedy within the period specified in the said notice;
- 13.2.2 if the Client fails to make payment of the Price within the specified time;
- 13.2.3 the Client makes any voluntary arrangement with its creditors or becomes subject to an administration order or (being an individual or firm) becomes bankrupt or (being a company) goes into liquidation (otherwise than for the purposes of amalgamation or reconstruction) or ceases or suspends payment of any of its debts or is unable to pay its debts as they fall due within the meaning of section 123 of the Insolvency Act 1986;
- 13.2.4 an encumbrancer takes possession, or a receiver or administrator is appointed, over any of the property or assets of the Client;
- 13.2.5 the Client ceases, or threatens to cease, to carry on business;
- 13.2.6 the Company reasonably apprehends that any of the events mentioned at Conditions 0, 0 or 0 above is about to occur in relation to the Client and notifies the Client accordingly; and
- 13.2.7 as provided in Condition 0.
- 13.3 Notwithstanding that the Company terminates the Contract, this shall be without prejudice to the accrued rights and remedies of the parties prior to termination of the Contract and any rights or remedies under the Conditions, which shall remain in force, including the right to suspend all further Services to be made under any other contract with the Client (and in such event the Client shall not be released from any of its obligations to the Company under any other contract) and the right for the Company to receive full compensation for its loss under the Contract or any other contract with the Client.
- 13.4 On termination of the Contract pursuant to Condition 0, any indebtedness of the Client to the Company shall become immediately due and payable.
- 14 CONFIDENTIALITY
- 14.1 Each party (the "Recipient") shall keep all Confidential Information of the other party (the "Disclosing Party") in the strictest confidence. Save for the purposes of fulfilling its obligations under the Contract, the Recipient shall not, without the prior written consent of the Disclosing Party, disclose, divulge or grant access to the Confidential Information which it has received and shall not permit any of its employees, agents or officers to disclose, divulge or grant access to such Confidential Information.
- 14.2 Notwithstanding Condition 0, a Recipient may disclose Confidential Information which it has received if:
- 14.2.1 it is required to do so by any governmental, local government or regulatory authority or by law (but then only to the extent it is strictly required to do so);
- 14.2.2 it is strictly necessary for the purpose only of obtaining professional advice in relation to the Contract;
- 14.2.3 it was already known to the Recipient prior to the time of disclosure by the Disclosing Party (where the Recipient can prove the same with documentary evidence); or
- 14.2.4 it is information which subsequently becomes public knowledge other than by breach of the Contract by the Recipient.
- 14.3 In the event of an information request being made to a Recipient pursuant to any Freedom of Information legislation or the Environmental Information Regulations 2004 in respect of any Confidential Information then the Recipient shall notify the Disclosing Party and shall not disclose any information until an analysis has been made as to whether the information requested is capable of benefiting from an exemption from disclosure.
- 14.4 The obligations of the parties under this Condition 14 shall continue to apply without limit of time.
- 15 ANTI-CORRUPTION
- 15.1 The Client undertakes to comply with all applicable laws, statutes, regulations and codes relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010 ("Anti-Corruption Laws") and that it shall not do, nor omit to do, any act that will lead to the Company being in breach of any of the Anti-Corruption Laws. The Client shall comply with the Company's Anti-corruption policies as may be notified to the Client and updated from time to time ("Relevant Policies").
- 15.2 The Client shall promptly report to the Company any request or demand for any undue financial or other advantage of any kind received by the Client in connection with the performance of the Contract.
- 16 GENERAL
- 16.1 Each right or remedy of the Company under any Contract is without prejudice to any other right or remedy of the Company under this or any other Contract.
- 16.2 Nothing in the Conditions shall create or be deemed to create a partnership between the parties.
- 16.3 The Conditions and the Quotation contain all the provisions which the parties have agreed in relation to the subject matter of the Contract and supersede any prior written or oral agreements, representations, proposal documentation or understandings between the parties. The Client agrees that it has not been induced to enter into the Conditions or the Contract by a statement or promise which they do not contain save that the Conditions shall not exclude any liability which the Company would otherwise have to the Client in respect of any statements made fraudulently by the Company.
- 16.4 In the event of one or more of the provisions of the Conditions being held by a competent authority to be invalid, illegal, or unenforceable, in whole or in part, the validity, legality or enforceability of the remaining provisions of the Conditions and the remainder of the provision in question shall not be affected thereby.
- 16.5 All notices to be served by one party on the other must be in writing and shall be deemed duly delivered or served at the time of service if delivered personally and forty eight hours after posting if posted by first class or airmail pre-paid post in each case to the registered address, if applicable, or if not applicable the last known address of the other party.
- 16.6 No failure or delay by the Company to exercise any right, power or remedy will operate as a waiver of it nor will any partial exercise preclude any further exercise of the same or of some other right, power or remedy.
- 16.7 For the purpose of the Contracts (Rights of Third Parties) Act 1999, the Quotation and the Conditions do not and are not intended to give any rights or any right to enforce any of its provisions to any person who is not a party to it.
- 16.8 The Contract shall be governed by and construed in accordance with the laws of England and Wales and the Client submits to the exclusive jurisdiction of the English Courts.

## Appendix B – Capability Profile for Smoke Ventilation

There are a number of analysis methods available for determining the smoke ventilation requirement for a building. The main options are shown below.

**ZONE MODELS** - Zone models are based on experimental data and give simple relationships between the amounts of smoke generated in certain smoke flow scenarios. Within their field of application zone models give very accurate results of smoke flow rates. However, as they are based on experimental data, they can only be used for situations where the layout is similar to that used in the experiments.

**FIELD MODELS** - Field models are commonly referred to as computational fluid dynamics (CFD). These models break the space to be analysed into a large number of blocks and uses the fundamental equations of fluid and energy dynamics to model smoke flow within a space. As such they are not limited to any particular physical layout and so are more flexible than zone models. However, they can be computationally intensive.

Exova Warringtonfire has extensive experience of the use of both zone and field models for smoke flow within buildings. We have a number of in-house computer programs that assist in both types of analysis.

For cases where zone models are inappropriate, Exova Warringtonfire use a CFD model (FDS) developed by the National Institute of Science and Technology (NIST) in the USA. This is a highly flexible model that can be used to analyse a wide range of different smoke flow issues. A typical output from the model is shown below.

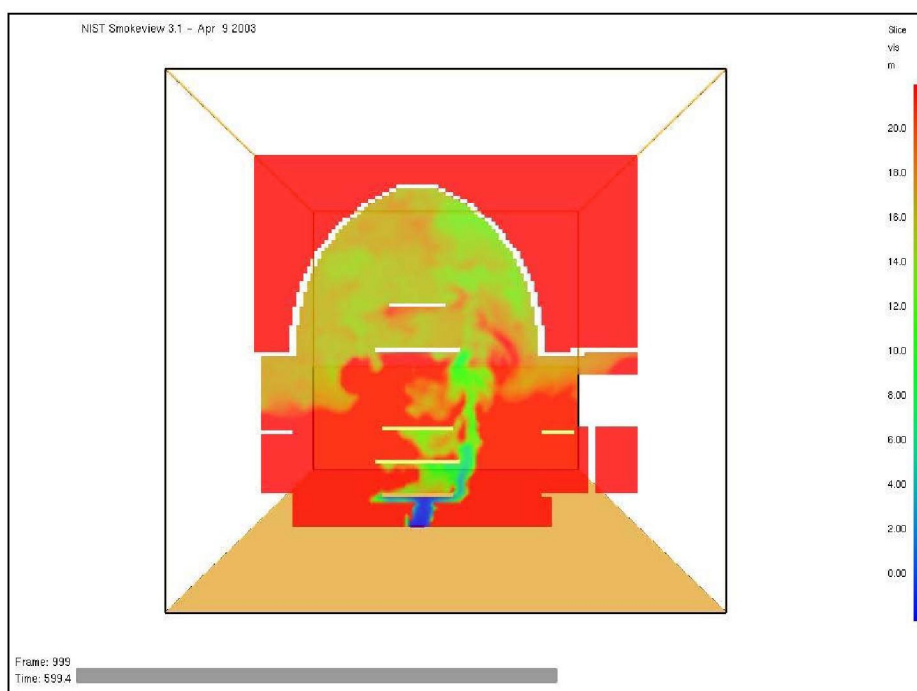


Figure 1: Typical Output from FDS Smoke Flow Model

## Appendix C – Capability Profile for Structural Fire Protection

Exova Warringtonfire can carry out analyses of the structural fire protection requirement using a wide variety of methods. The most appropriate method would be selected depending on the particular situation.

**EQUIVALENT FIRE RESISTANCE CALCULATIONS** - There are methods available to use the compartment size, fire load and ventilation sizes to determine the potential severity of a fire in terms of a period within the standard fire test.

**PREDICTION OF FIRE CONDITIONS AND CALCULATION OF HEAT TRANSFER TO STRUCTURE** - Exova Warringtonfire have calculation methods to predict the potential fire conditions that may occur in a fire within a particular space. From this, it is then possible to calculate the maximum temperature reached by the structure.

**FINITE ELEMENT MODELLING** - Exova Warringtonfire use a finite element model (SAFIR) to analyse heat transfer through insulating materials such as concrete or fire protection boarding. A typical output from the model is shown below.

**FULL FRAME STRUCTURAL FIRE ENGINEERING** – In typical buildings the structural engineers carry out detailed, computer based analyses of the response of the structural frame to loads at ambient temperature. The response of the structure to a fire is then dealt with by providing insulation to the structure based on generic tables such as contained in Approved Document B. No analysis of the response of the fire to the elevated temperatures is carried out. Whilst this is the conventional approach, it leads to illogical fire protection requirements, such as the need to provide the same level of fire protection to all structural elements, irrespective of their actual location. So a column in the middle of a low risk space such as an atrium would have the same level of fire protection as a column in the middle of a store room.

Exova Warringtonfire have separate computer software, and expert understanding of the response of structures to fires, so that we can carry out detailed analyses of the response of the structure to the elevated temperatures achieved in fires. As one simple example, it would be likely to identify that less fire protection is required in areas of low fire risk (such as in an atrium or in a reception area) compared to structure in other areas such as store rooms.

The benefits are often not only in terms of direct cost saving due to reduced fire protection thickness (or in some cases elimination of fire protection requirement), but also there can be a secondary cost saving due to the increased potential to use thin film intumescent, which can modify the construction method (e.g. allow cellular beams to permit services to pass through rather than under the beam).

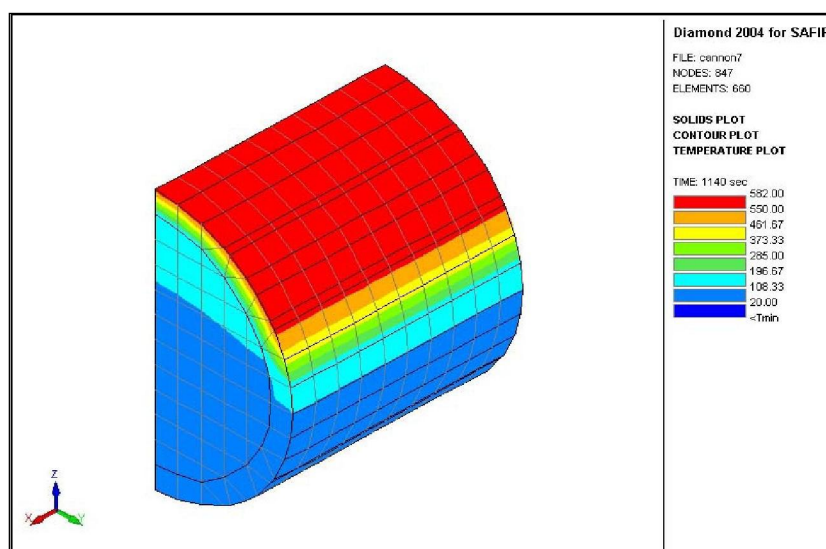


Figure 2: Typical output of SAFIR finite heat analysis computer package



## Appendix D – Capability Profile for Evacuation Analyses

Most guidance documents on fire safety recommend standard simple methods for calculating exit capacity (such as standard stair capacity tables). These methods are simple to use, but do not give a real indication of the evacuation.

More complex analyses allow a more accurate picture of the evacuation to be determined. Combining this with smoke flow model, the exits can then be sized to ensure that the occupants have sufficient time to evacuate before conditions become untenable. This can be used either to reduce the sizes of the exits that may be required (as appropriate) or to give more confidence that the exit capacity is sufficient.

There are a number of ways to carry out means of escape analyses for buildings, ranging from relatively simple methods to detailed, computer-based simulations. The main options are discussed below.

**CALCULATION OF EVACUATION TIMES** - Exova Warringtonfire can carry out fire engineering analyses of the actual time taken to evacuate a building. The time required once the people start to move (known as the 'movement time') is only one component of this analysis because other factors such as the alarm time and the pre-movement time can significantly affect the overall evacuation time. This type of analysis may therefore contain a number of elements such as a calculation of the activation time of the smoke detection system.

**COMPUTER SIMULATIONS** – Exova Warringtonfire use a computer based evacuation analysis program called EXODUS to model evacuations from a wide range of building designs. One of the benefits of the model is that it provides a more visual demonstration of the predicted evacuation. A typical output from EXODUS is shown below.

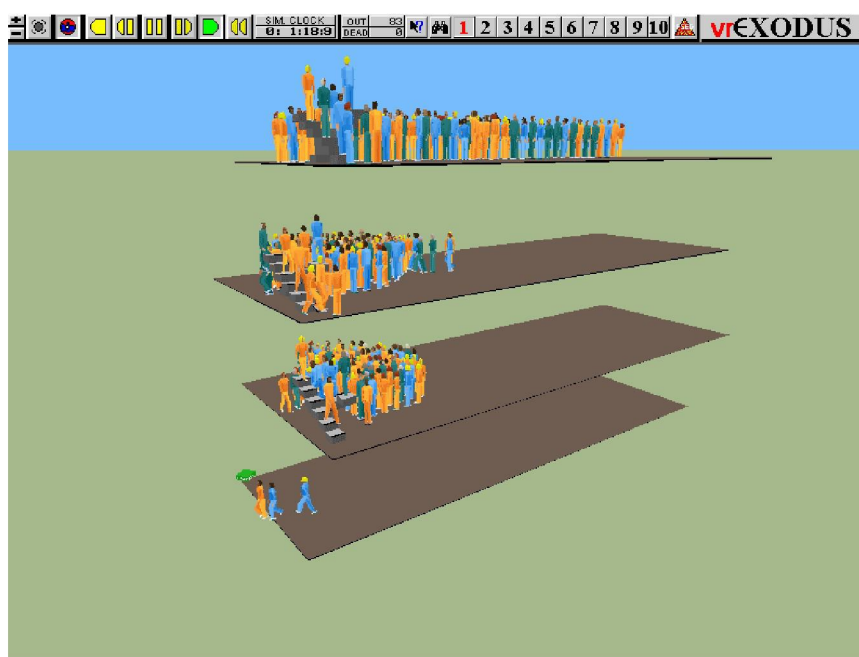


Figure 3: Typical output from EXODUS evacuation model

**Appendix E – Capability Profile for Analysis of Radiation**

It is often necessary to prevent fire spread between certain areas. This can have implications on the amount of unprotected façade that can be permitted for buildings (to prevent fire spread to an adjacent building) or in other areas such as preventing fire spread between kiosks in shopping centres.

The calculation of radiative heat transfer between two surfaces is computationally intensive because it relies on the three dimensional geometrical relationship between the two surfaces. Standard methods of analysis of this (such as the 'Enclosing Rectangles' method) therefore simplify the calculation into a tabular method. Within their range of application these methods therefore give good results, but they are inflexible, and when there is an unusual situation or complicated façade, the results will tend to be over-conservative.

Exova Warringtonfire has therefore developed an in-house computer program (WFR Rad) that we can use to calculate radiation between a large number of surfaces. These therefore allow analysis of a wide range of geometrical configurations without requiring the over-conservative approach achieved by other methods.

In certain situations this can give a significant advantage over other, more traditional methods, permitting larger amounts of unprotected façade than would otherwise be achieved.

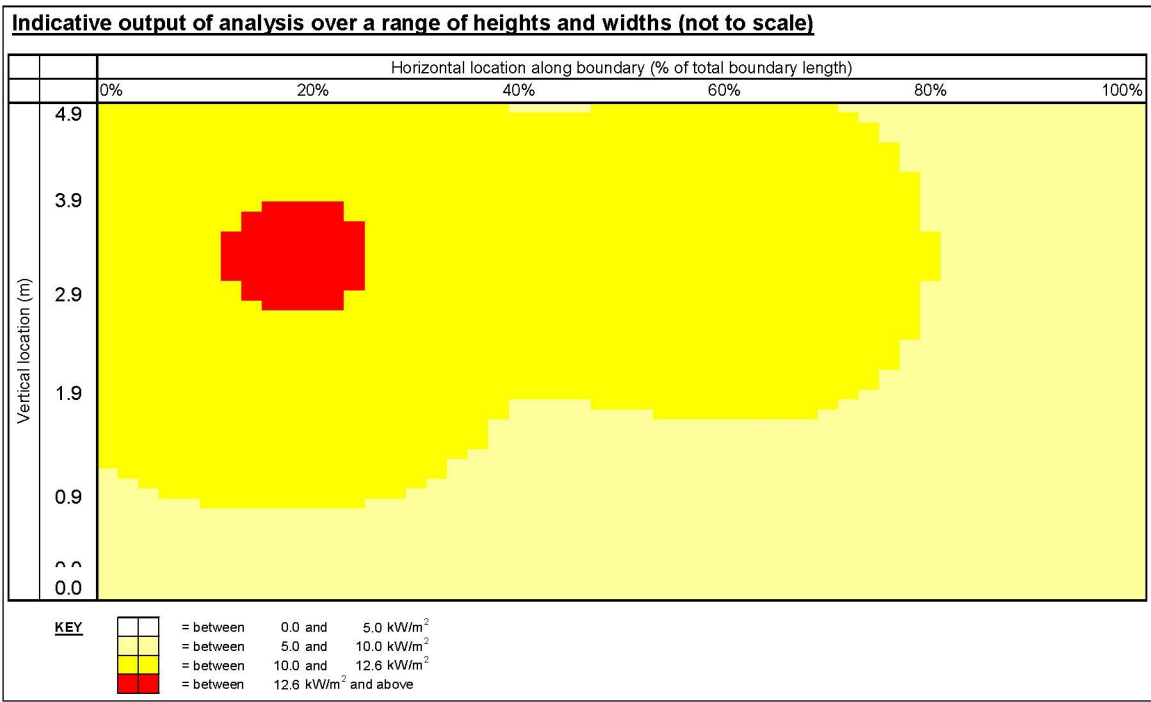


Figure 4: Typical output from WFR Rad computer model

## Fee acceptance form

Exova Warringtonfire would like to thank you for accepting our fee proposal and look forward to a highly successful partnership.

In accordance with good practice, please could you complete the form below, giving us formal acceptance of our fee proposal and the details that you would like us to include in our invoices. We also include a template invoice to let you see the details that we would normally expect to include. If there is any specific information or any modifications that you would like to the details in this template, please let us know.

Please complete all the relevant parts of this form, sign it and then fax it back to [REDACTED]

Please note that we reserve the right to carry out a credit check on any new clients. Approval of this form will be taken to be acceptance that there is no objection to this credit check.

Thank you for your assistance.

<b>Division:</b> 87 – Exova Warringtonfire (London)		<b>Contact:</b> Margaret Treanor	
<b>email:</b> margaret.treanor@exova.com		<b>Tel:</b> [REDACTED]	<b>Fax:</b> [REDACTED]
<b>Fee proposal details:</b>	<b>Job name:</b> Grenfell Tower	<b>Value<sup>*/**</sup>:</b> £3300.00 RIBA Stage C	
		£5300.00 RIBA Stages D/E	
		£8600.00 TOTAL	
	<b>Our document ref no:</b> MT13495	* Where only some fees accepted, delete as appropriate ** Fees are inclusive of expenses N.B. Where applicable, charges for expenses will be invoiced separately to time charges.	
	<b>Our job no:</b> 301922		
	<b>Date:</b> 09/05/12		
<b>Project Manager:</b> Terry Ashton			
<b>Terms of business are as detailed in the Fee Proposal.</b>			
<b>Quotation accepted on behalf of (i.e. details of Company who will be paying invoices):</b>		<b>Should VAT be charged on invoice?</b> YES / NO	
<b>Company name:</b>		<b>Company Registration No:</b>	
<b>VAT Registration No:</b>		<b>Client Purchase Order No:</b>	
<b>Address:</b>			
<b>Postcode:</b>	<b>Tel No:</b>	<b>Fax No:</b>	
<b>Contact Name:</b>		<b>Email Address:</b>	
<b>Delivery/cc address for invoices if different to above:</b>			
<b>Company name:</b>			
<b>Address:</b>			
<b>Postcode:</b>	<b>Tel No:</b>	<b>Fax No:</b>	
<b>Contact Name:</b>		<b>Email Address:</b>	
<b>Method of Payment*</b> (BACS, Cheque, Credit Card):		<b>Invoices required by:</b>	
* Please quote invoice number on all payment transactions		Post only / Electronic only / Post & Electronic	
<b>I hereby accept the fees of the above described project.</b>			
<b>For and on behalf of:</b>			
<b>Authorised by:</b> (print name)		(Signature)	
<b>Position:</b>		<b>Date:</b>	





Invoice To:

Deliver/CC To:

Sample Client Ltd  
Sample House  
Warrington  
Cheshire  
WA1 2DS  
United Kingdom

## Invoice

Invoice no. 10199062  
Invoice date 22/07/10  
Our Ref/Job No. 9/00900196.003  
Job Description Sample Project  
Account Number 9/C1234  
Customer Order Ref 1234565

Description

Quantity Unit Price Line Value

Invoice for consultancy services provided on the above project  
in the period 00/00/00 to 00/00/00.

£3000.00	Fixed lump sum fee	
£ 000.20	Cumulative total to date	
£ 0.00	Invoiced to date	
£ 0.20	Amount due	
£2999.80	Fee remaining	0.20

OUR VAT No: GB553 5266 38

Terms: Payment within 30 days of date of invoice  
Payment in full, cleared funds required by 21/08/2010  
Remit To: Please make cheques payable to:  
Exova (UK) Ltd  
Send To: Exova (UK) Ltd, Westerton House,  
1A Westerton Road, Broxburn EH52 5AU  
BACS Payment: Barclays Bank Plc  
Sort Code: 20-33-70 Account No: 43889262

Sub-total	0.20
VAT total	0.04
Total GBP	0.24
Please pay in: UK Sterling	