



Cardiff University

**“ARCCA Computer
Room Fit Out Tender”**

Invitation to Tender (ITT)

Tender Ref: SPEC249/ARCCA/NBC0307

2 April 2007

**Tender for the fitting out of a world class
research computing data centre.**

CONFIDENTIAL DOCUMENT

Operational Requirements

Confidentiality

Cardiff University views this procurement as highly confidential. The Supplier must not divulge the nature of this procurement, or the content thereof, to any third party without the written permission of the University. All information supplied in connection with this invitation shall be regarded as strictly confidential.

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Definitions

Throughout this document:

The “University” means Cardiff University.

The “Supplier” means the firm or company who has been invited to respond to this ITT.

Glossary of terms used in this document

ARCCA	-	Advanced Research Computing @ Cardiff
BEMS	-	Building Energy Management System
CAD	-	Computer Aided Design
CCTV	-	Closed-circuit Television
CE Mark	-	An assurance that an item meets all essential requirements of all applicable EU directives
CT	-	Current Transformer
CUBRIC	-	Cardiff University Brain and Repair Imaging Centre
DB	-	Distribution Board
DDA	-	Disability Discrimination Act
EMC	-	ElectroMagnetic Compatibility
GEO	-	GEO 600 Gravitation Wave detection project. More information can be found at http://www.geo600.uni-hannover.de/
HEC	-	High End Computing
INSRV	-	Cardiff University Information Services Directorate
ITT	-	Invitation to Tender
kW	-	Kilowatt = 1000 Watts
LAN	-	Local Area Network
LIGO	-	Laser Interferometer Gravitational Wave Observatory. More information can be found at http://www.ligo.caltech.edu/
MCP	-	Manual Call Point
OR	-	Operational Requirements
PVC	-	Polyvinyl Chloride
QAA	-	Quality Assurance Agency for Higher Education
TCO	-	Total Cost of Ownership
uPVC	-	Unplasticized Polyvinyl Chloride
UK	-	United Kingdom of Great Britain and Northern Ireland
UPS	-	Uninterruptible Power Supply
USB	-	Universal Serial Bus
VIRGO	-	A collaboration at the European Gravitational Observatory for the realisation of an interferometric gravitational wave detector.
WEEE	-	Waste Electrical and Electronic Equipment Directive (EC directive 2002/96/EC)

1. Executive Summary

Cardiff University seeks to transform its research computing capabilities by developing a world class research computing facility with a functional, attractive and comfortable environment that will contribute towards attracting and retaining world class staff, while enabling Cardiff University researchers to maximise their research output.

This new Advanced Research Computing @ Cardiff (ARCCA) facility requires a computer room fitted out to the highest standard to house £3M of research computing equipment and associated staff. Cardiff University therefore seeks to engage with a leading supplier to fit out this data centre to a level suitable for a world-leading institution.

2. Background on Cardiff University

2.1. Introduction

Cardiff University is recognised in independent government assessments as one of Britain's leading teaching and research universities. This reputation is maintained through a combination of impressive modern facilities, a dynamic approach to teaching and research, and a proud history of achievement.

Cardiff University is a member of the Russell Group, which is an elite association of 19 research-intensive universities. This group promotes research excellence and accounts for the majority of research income in the United Kingdom's universities.

There are 28 academic schools, each of which carries out research, and at any one time there are more than 1,000 research contracts in operation. Research expertise and excellence in research-led teaching at Cardiff University covers a wide range of areas, including:

- Engineering and technology
- Humanities
- Medical and dental sciences
- Natural, physical, health, life and social sciences.

This wide range of disciplines helps prepare students for a large variety of professions.

The international reputation of Cardiff University attracts students from around the world, with 30,000 applications annually for 4,500 places. The student population is approximately 26,000, including 21,000 undergraduates; and around 5,000 students graduate each year.

Cardiff University is one of the largest employers in Cardiff – the capital city of Wales - with more than 5,000 staff in teaching, research, technical or administrative roles. The University is also heavily committed to adult education and is the largest provider in Wales with several hundred courses in venues across South East Wales.

The University is spread over two main campuses as a result of the merger in 2004 between Cardiff University and the University of Wales College of Medicine. The

Cathays Park Campus is located in Cardiff's civic centre and the Heath Park Campus is north of the city centre. Teaching is also carried out in other sites across Wales. In recent years, substantial investment has been made in the University's estate, including the expansion of the life sciences facilities and the current developments of a new brain research centre (CUBRIC) and a new Optometry & Vision Sciences building.

The University is a large purchaser of goods and services, making a major contribution to the prosperity of the region. Industry, commercial partners, government bodies and other organisations also benefit from its academic expertise and research facilities. Cardiff University plays a very important role in promoting health and welfare via well-managed links to the National Health Service (NHS).

More information about the university can be obtained at:

<http://www.cardiff.ac.uk/about/index.html>

2.2.Vision, Mission and Aims (2006/07 – 2010/11)

Cardiff University's vision is to be a World-Class University.

To be among the very best in the world is the most challenging goal the University can set. It has done so because it is only through working to achieve the very highest international standards in research, teaching and other activities that it can realise the full potential of the academic community that is Cardiff University. The University's vision reflects its service to society and this vision is pursued in the belief that all stakeholders in the University should expect no lesser ambition.

Cardiff University's mission is to pursue research, learning and teaching of international distinction and impact. There are three main aims:

1. Research

To pursue research that is recognised as internationally distinguished in its quality and impact.

2. Learning, Teaching and Assessment

To pursue learning and teaching together with professional training and development that are recognised as internationally distinguished in their quality and impact.

3. Innovation and Engagement

To make a significant and sustainable contribution to health, economy, education and culture through the application of the University's strengths for the needs and good of societies throughout the world.

All the University's activities are directed to achieving the highest international standards in research, learning and teaching in a rich and varied research-led environment where all staff and students can achieve their full potential to the benefit of the wider community and society as a whole.

Tangible evidence that the University has gained recognition as a major player in UK Higher Education and can continue to move forward with confidence includes:

- The University's excellent results in the 2001 Research Assessment Exercise (RAE).
- Membership of the Russell Group of the UK's research-led universities.
- Rigorous mechanisms for reviewing the quality of teaching provision, strongly endorsed by the QAA Continuation Audit Report in 2000.

- Rising demand for student places.
- Rapidly increasing sponsorship of research.

2.3. Cardiff University Information Services (INSRV)

As a Directorate of Cardiff University, INSRV's mission is to deliver world-class information services that give staff and students an edge in realising their potential in research, learning, teaching and benefiting the wider community. INSRV works at the heart of the University's intellectual life and corporate operations, where it provides superior information resources, collaboration tools, discovery facilities, help, training and support. It is a large directorate with around 500 highly skilled staff who ensure that library, IT and media resources remain available to a user base of over 40,000 people. INSRV's development and operations teams collectively hold a vast body of knowledge and cutting-edge technical skills.

Scale of operations delivered by INSRV in Cardiff University:

- IT, Library and Media resources are made available to a user base of over 40,000 people.
- There are over 5,000 concurrent users of the IT services.
- There are well over 1,000 public access PCs in 60 locations, with hundreds being available 24 hrs. Networked computers offering a wealth of software applications are available to every student.
- There are currently 18 separate library sites with nearly 30 service points distributed across campus. Users make 2.5 million visits to these service points each year. There are over 1 million books and bound volumes to borrow from and there is access to upwards of half a million on-line digital and electronic resources.
- Users also make more than 45,000 logged IT support requests per year (with 3 times as many "quick queries").
- There are 200-plus major systems and software applications.
- Over 2,000 km of network cable is used to link in excess of 18,000 Gigabytes of additional information, which is stored on several hundred servers.
- Annual email traffic is now around 60 million messages and in addition to this each year INSRV will typically capture, stop and deal with (before they ever become visible to users) 70 million spam emails, as well as several thousand unsolicited network probes and attempted virus infections.

More information about INSRV can be obtained at:

<http://www.cardiff.ac.uk/schoolsanddivisions/divisions/insrv/index.html>

2.4. Advanced Research Computing @ Cardiff (ARCCA)

ARCCA is a new division within Information Services whose remit is to entirely transform the University's approach to advanced research computing:

- to bring together the advanced research computing community at Cardiff;
- to introduce and encourage the use of new techniques and technologies;

- to maximise returns and manage risks;
- to encourage and enable new user communities and new applications;
- to build and sustain a position which takes the University to the forefront of leading research universities in the UK and internationally in this field.

A central part of ARCCA's remit will be to develop and deliver new techniques and skills for existing advanced research computing users; but also, very importantly, to encourage new and interdisciplinary research using these techniques.

3. The HEC Vision for Cardiff University

3.1. The HEC Vision

To transform the contribution of advanced computing to the University's research agenda and, over time, to build and sustain a position which takes the University to the forefront of leading research universities in the UK and internationally in this field. A key enabler of this vision will be a new University-level high end computing facility.

3.2. Background to the Requirement

The new facility is intended to substantially improve the research computer systems infrastructure within the University. Example uses of the facility are:

- Astrophysics - numerical simulations of star and planet formation, in-house codes run on 4-, 8- and 16-core shared-memory machines.
- Biosciences - DNA assembly and phylogenetic analysis using in-house code on Cardiff's Condor system, which will require access to the procured storage solution.
- Chemistry - periodic DFT modelling of catalyst surfaces with VASP and SIESTA codes - 16 - 128 core through shared memory and/or closely coupled cluster.
- Chemistry - molecular modelling using Molpro on 16 and 32 core closely-coupled cluster and/or shared memory.
- Dentistry - biomechanics and mechanobiology - modelling of biological tissues and structures, using Finite Element Methods / Computational Fluid Dynamics, with in-house Fortran and C codes, and commercial applications: ABAQUS, LS-DYNA, MARC, MATHEMATICA and Fluent - to run on 8, 16, 32 cores.
- Earth Sciences - TERRA a fluid mechanics modelling code for Earth mantle convection - MPI code - running on tightly coupled clusters - with good scalability i.e. to very large processor numbers, also has high RAM and I/O requirements.
- Engineering - Coupled flow and deformation modelling, in-house finite element code to run on 8, 16 and possibly 32 core shared memory machines.
- Engineering - (Water Management) - Computational Hydro-environmental Dynamics, in-house code to run on 8, 16 and 32 core shared memory machines. CFD models used extensively by industry for flood inundation prediction and environmental impact assessment studies.
- Epidemiology

- Mathematics - computational fluid dynamics on shared memory machines.
- Medicine, including Pathology - systems biology/cancer research.
- Optometry - using distributed software and in-house software usually based on simulated annealing to study the relationship between order and disorder in biological macromolecules.
- Pharmacy
- Physics - galaxy formation and evolution - in-house code running on 8 and 16 core closely-coupled systems.
- Physics - real-time analysis of streaming data on loosely-coupled cluster nodes (experiments running continuously 24hr x 365 days for several years), from a network of Gravitational Wave Detectors within a high-profile scientific collaboration (LIGO/GEO/VIRGO).

It is expected that the increasingly coordinated and shared nature of high-end computing (HEC)-based research at Cardiff will also catalyse more interdisciplinary research opportunities in the above areas.

The academic schools that house these research groups almost all achieved the highest possible grades (5 or 5* i.e. research of international excellence) in the last UK Universities' Research Assessment Exercise (RAE). Overall, Cardiff University achieved 7th out of 106 universities in the UK RAE. It is expected that this investment will continue to enhance the University's reputation and prestige as a world-class research partner.

The University has identified the need to construct a new data centre to support its HEC Vision, and has now agreed a suitable location. This is expected to become available in Q3 2007.

4. Current Setup at Cardiff University

4.1. HEC Computer Room

The HEC Computer Room will be presented as cleared and redecorated with ceiling lighting and power supplied to the room. The room will be 150m² in size and will be situated on the Ground Floor of the Redwood Building (Please refer to Appendix A: Room Plans).

4.2. HEC Computer Room Requirements

The 150 m² space will have options for a false floor and/or high level cable trays accessing cooled racks, if required.

The facility will have a high standard of security features, including CCTV and key card access. It will also be equipped with smoke detection, and potentially water detection and automatic shutdown facilities.

Power supply to the Data Centre will have a separate bus-bar and meter for both equipment and cooling so that the power consumption of the individual parts of the facility can be closely monitored. No decision has been made regarding room-based cooling versus rack-based cooling, and Suppliers are invited to comment on this in their proposals.

The facility will also have sufficient office space nearby for more than 12 people.

5. Procurement Procedure

5.1. General points

The purpose of this tender is to appoint a preferred supplier to fit out the ARCCA Computer Room and associated workshop and meeting room for Cardiff University.

This procurement is being conducted according to Cardiff University tender procedures.

All formal communication with suppliers over the course of this procurement will be handled by Cardiff University.

5.2. Tender timescale

Suppliers should be aware of the following target timetable and must be available when requested:

Action	Date
Invitation to tender	Monday 2 nd April 2007
Tender Return Date	Friday 20 th April 2007
Evaluation / bid clarification / reference site visits / contract discussion / liaison with computer equipment supplier *	Monday 23 rd April – Friday 11 th May 2007
Anticipated preferred supplier nomination	Tuesday 15 th May 2007
Work commences (at the earliest)	Monday 2 nd July 2007
Work completed (at the latest)	3 rd September 2007

* Suppliers should note that during this period, one week **must** be set aside to liaise with the University’s preferred ARCCA computer equipment supplier.

Cardiff University reserves the right to vary this timetable if the need arises.

Initial ITT responses will be expected to remain valid until 31/12/07.

An electronic copy of this ITT will be available to Suppliers. Building plans, diagrams and other university documentation will be available to all Suppliers on request, if considered appropriate by the University.

5.3. Procedure for Bid Submission

Copies of the ITT response including all costs must be delivered to the address below, sealed and clearly marked “ARCCA Computer Room Fit Out Tender”.

The electronic copy should be in Word 2000 or Word 2003 format for the main ITT document and Excel 2000 or Excel 2003 format for the Cost Tables. Electronic copies can be submitted on CDROM or USB stick. Any non-standard fonts used in electronic submissions must be embedded in the document.

To comply with the University's regulations for competitive tenders, your Tender must be returned in an envelope marked in the top left hand corner "Tender ref: SPEC249/ARCCA/NBC0307, ARCCA Computer Room Fit Out Tender, Closing Date: Noon Friday 20th April 2007". A label template is provided at the end of the document. Regarding the identity of the sender, with the exception of a requirement by Royal Mail Special Delivery and/or certain couriers, for an originator's return address on any outer packaging, no external reference indicating the source of the documents will be permitted. Please note that the use of a postal franking machine which indicates the identity of the sender will invalidate the tender. Delivery of the ITT responses by FAX is **not** acceptable.

If it is necessary to make an amendment subsequent to this tender, this must be sent out in a sealed envelope marked: 'Tender ref: SPEC249/ARCCA/NBC0307' to the address shown above, to arrive by the closing date for receipt of tenders.

Tenders shall be completed in permanent ink and the use of correction fluid is not permitted. All signatures must be original and not a photocopy.

ITT responses submitted after the deadline will **not** be considered.

We reserve the right at our sole discretion to issue a formal general letter or e-mail to all tenderers drawing their attention to a relevant matter arising as a result of a request for clarification from any supplier.

ITT response return address:

All copies of the ITT response documents, on paper and electronically, must be received on or before **12 noon BST on April 20th 2007** to:

Director of Finance Cardiff University Finance Department 8th Floor 30-36 Newport Road PO Box 497 Cardiff CF10 3XR

5.4. Instructions for response to requirements

PLEASE READ INSTRUCTIONS BEFORE ATTEMPTING TO WRITE RESPONSE

Suppliers are invited to respond to this Invitation to Tender (ITT) from Cardiff University for "the fitting out of a High End Computing Data Centre", known as the "ARCCA Computer Room Fit Out Tender". This tender process and subsequent contract will be managed by Cardiff University Information Services.

This ITT is in two main parts:

Sections 1 to 5 provide background information for the Supplier. These sections should be retained by the Supplier and do not require any response.

Section 6 contains the Operational Requirements to which Suppliers are asked to respond. This section will require pricing using the cost tables

contained in Section 7. The responses will be evaluated and will form part of the contract. This section **must** be completed by the Supplier and returned to Cardiff University.

Suppliers are reminded that the University will only enter into contractual arrangements with one individual supplier or the lead supplier of a consortium (i.e. internal business relationships are the sole responsibility of the Supplier).

Cardiff University expects the ARCCA Computer Room Fit Out contract to include a 3 years maintenance contract with subsequent annual extensions at the discretion of both parties. It is anticipated that the contract will be awarded in May 2007 and that work will start in July 2007. The University reserves the right to reject all offers or to accept any part, or all, of any ITT response at its sole discretion.

Suppliers are asked to include the following in their ITT response:

1. Completed responses to Section 6 and Section 7 using the document templates provided (3 paper colour copies and 1 electronic copy).

The above will be used to evaluate the Supplier's response. The operational requirements for the solution to be offered by the Supplier are laid out in Section 6. Section 6 contains all the requirements associated with this tender and their implementation. This section will require pricing using the Cost Tables contained in Section 7.

When returning the response, Sections 1 – 5 should be retained as these sections are for information only and are intended to assist you in understanding the overall requirement. Where contradictions between Sections 1 - 5 and Sections 6 and 7 are found, Sections 6 and 7 will take precedence.

Requirement Definitions

Each requirement has a notation indicating its importance to Cardiff University. Suppliers will be assessed against their capability to deliver against these requirements. The following terms and definitions are used in this document:

MR *A Major Requirement*

These are considered to be very important requirements. When noting that a requirement is MR it is important to remember that if the overall solution does not meet this criterion then it may be deemed unacceptable. Suppliers should state how a requirement will be met, or show how it is not needed, considering the issues and the points raised. **A statement of the form 'this requirement will be met' will not be sufficient.**

It is strongly preferred that proposed solutions can be demonstrated to meet all the major requirements at the time of the ITT. Suppliers must provide satisfactory evidence of their ability to meet such commitments, and be prepared to enter into binding contractual arrangements.

HDR *A Highly Desirable Requirement*

These requirements reflect functionality and capability that the University considers of importance. The ability of a Supplier to meet these needs within the available budget will form a substantial part of the evaluation of an ITT.

Where a proposal does not satisfy a particular desirable requirement, the Supplier must state on what basis it has decided not to meet that requirement.

IR *An Information Requirement*

The nature of this procurement is such that it is vital that the Supplier provides full information on specific topics. These topics are identified as information requirements. Failure in an ITT response to provide full, relevant information in answer to information requirements may prevent the evaluation from being conducted properly, and hence lead to exclusion of the ITT response. Assessment of the quality of the ITT response will be based on the responses to these requirements, and will strongly influence the selection process.

PLEASE READ INSTRUCTIONS BEFORE ATTEMPTING TO WRITE RESPONSE

Instructions

- The Supplier must respond to all requirements in a Lot.
- All responses related to MR and HDR requirements must be associated with a brief explanation as to how the proposed solution meets that requirement and NOT a simple YES or NO answer.
- Responses should be placed in the box directly below the requirement to which it is responding.
- Answer text must be in blue. The blue text must be visible on both electronic and printed copies.
- A response to an individual requirement should not exceed 1 side of A4, except where it is otherwise stated.
- Where a response references other attached documentation, the University reserves the right to ignore it.
- All answers and any additional material appended should be succinct and relevant.
- The use of cross-referencing is unacceptable. If necessary the Supplier should repeat responses.
- The returned sections should remain in landscape.
- Questions and the successful Supplier's responses will form part of the Specification with which the Supplier will be required to comply.
- A bid which omits key information or fails to deal satisfactorily with any item or items may be considered non-compliant and may be rejected.

IMPORTANT: FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN YOUR BID BEING REJECTED!

5.5.Evaluation Criteria

- The evaluation criteria will be used to score the responses to Sections 6 and 7.
- The following factors and their relative weightings will be taken into consideration in evaluating the ITT response:

1. The most economically advantageous solution for Cardiff University (including the total cost of ownership of the solution) – 40% weighting
2. The most appropriate technical solution to meet the operational requirements – 30% weighting
3. Value of Maintenance and Support (e.g. local engineer) – 20% weighting
4. User Base (including Customer References) – 10% weighting

Evaluation Process

- An evaluation team will be formed by the University. This team will evaluate ITT responses and select one or more Suppliers with a view to reaching a contractual agreement subject to clarification of any outstanding matters.
- The evaluation team reserves the right to employ a multi-stage evaluation process with increasingly restricted shortlists drawn up at each stage.
- The evaluation team may offer Suppliers short-listed at any stage in the evaluation process the opportunity to attend the University in person to discuss their proposal. As part of the evaluation process, the University may contact or visit reference sites provided by the Supplier.
- Further details on support contracts will be discussed during the evaluation process.
- After the final decision on the results of this Invitation to Tender has been taken, all Suppliers will be informed in writing whether or not they have been successful.
- The University does not undertake to accept the lowest priced ITT response or part of it.
- The acknowledgement of receipt of any submitted ITT response shall not constitute any actual or implied agreement between the University and the Supplier.
- The University reserves the right to accept any part, or all, of any ITT response at its sole discretion.
- The University reserves the right to reject all offers.
- The successful Room Fit Out supplier will work efficiently and effectively with the successful ARCCA Computer Equipment Hardware supplier to achieve the optimum ARCCA room installation in accordance with the specification.
- Any contract that may be established between the selected Supplier and the University shall describe all agreed aspects of the arrangement based on:
 1. The Tender documentation;
 2. The Supplier's offer, including points of clarification from the subsequent evaluation;
 3. The Terms and Conditions included with this document, and any subsequent variations thereof by mutual written agreement

5.6.General Requirements

The University is committed to a policy of economical yet good quality design and specification, whilst improving energy efficiency and encompassing 'green' issues.

The requirements outlined in this ITT are intended as a broad guide to specific matters to bring design within this policy. There is room for manoeuvre to permit individuality of design but it is incumbent on the designer to justify any variation from the standard. The specification of any part of a project must take into account the capital cost as well as the effect on the construction process (e.g. prolonged delivery or difficult buildability), its maintenance implications (including longevity) and costs and effects on the end users (including flexibility of use).

One major consideration is future maintenance and the necessary facilities for maintenance must be provided as part of the main contract.

5.7.Delivery Requirements

The ARCCA computer equipment will be expected to be delivered by the end of September 2007 and installed, commissioned and tested in October, November and December 2007, ready for commencement of service at the end of December 2007. Therefore, the ARCCA computer room needs to be fully complete and fitted out by 3rd September 2007.

5.8.Support Contract Requirements

A full support and maintenance contract will be required to cover the operation of the equipment (e.g. cooled racks) supplied under this contract. It is expected that this should include a 3 years maintenance contract with subsequent annual extensions at the discretion of both parties. This support contract should be fully costed in your responses and should include details of engineer response times, engineer locations, etc.

5.9.Disability Discrimination Act 1995

Disability Discrimination Act

The Act imposes duties on employers, trade organisations, service providers and landlords not to discriminate against disabled persons. The duties take two main forms:

- not treating disabled persons less favourably than persons who are not disabled
- not breaching certain duties contained in the Disability Discrimination Act (DDA).

The general duty is basically the same for employers and service providers:

Employers

To take such steps as are reasonable in all the circumstances of the case to change arrangements or physical features of the premises if these put a disabled person at a substantial disadvantage in comparison with persons who are not disabled.

Service Providers

To take such steps as are reasonably necessary in all the circumstances to change practices, policies and procedures which make it impossible or unreasonably difficult for disabled persons to use the service.

The test of reasonableness is again basically the same in both cases:

- Whether the taking of any step would be effective in overcoming the difficulty for disabled persons
- The extent to which it is practicable for the service provider/employer to take the steps
- The financial and other costs of making the adjustment
- The extent of any disruption which taking the steps would cause
- The extent of the service providers/employers financial and other resources
- The amount of any resources already spent on making adjustments
- The availability of financial or other assistance

5.10.Part M, Building Regulations 2004

Part M Building Regulations

This embodies the effect that the DDA can have on buildings, in particular, in relation to any physical features which may be a hindrance to disabled persons. It does not relate to the administrative alterations which might overcome the problem.

Part M only applies where building works are to be carried out, the impetus to carry out alterations comes from the DDA.

Reference is made in the regulations to BS8300 but this is not treated as the equivalent of Part M as many of the requirements are more onerous. Part M will fully apply from 1st October 2004.

The Regulations introduce the principle of Access Statements which should be deposited at the same time as the plans. The access statement should identify the philosophy and approach to inclusive design adopted, the key issues of the particular scheme and the sources of advice and guidance used. Access Statements are also needed for the planning application where applicable and the same document should suffice for both purposes. This document is also useful to identify parts of buildings where it would be reasonable to restrict access or unreasonable to expect certain groups of people to require access. It could also identify where it would be impractical to make any entrance suitable for use by particular groups of people.

The Regulations apply to:

- newly erected buildings and buildings whose external walls only remain after demolition.
- an extension whether independently approached and entered from the boundary or entered through the existing building.
- any access route through the extension through the building including any sanitary accommodation on that route.
- any independent access route and entrance to the extension if there is no other entrance to the extension.

Section 1- Access to Buildings

Where possible, a level approach to buildings should be provided, this should be at least 1.5m wide and not steeper than 1:20 with a maximum cross fall gradient of 1:40 and passing places at least 1.8m wide and 2m long and no more than 50m apart. Where possible separate pedestrian routes should be provided and where

uncontrolled crossing points across a vehicular route occur, this is identified by a buff coloured blister surface.

Car parking arrangements are more detailed in Part M and BS 8300. The route to the principal accessible entrance has to be clearly identified and well lit.

Where site constraints necessitate an approach of 1:20 or steeper a ramped access should be provided with gradients and landings in accordance with table 1. Ramps must have a handrail on both sides and a kerb on any open side. Clearly sign-posted steps must be provided in addition to a ramp. A corduroy hazard warning 400 deep is to be provided at the top and bottom of each flight of steps and each nosing is to be identified by a permanently contrasting material 55mm wide on both tread and riser. Single steps are no longer acceptable.

Section 2 – Access into Buildings

Where it is not possible for the principal or main staff entrance or entrances to be accessible, an alternative accessible entrance should be provided.

Entrances will comply with Part M if:

- they are clearly sign-posted from the edge of the site.
- they are clearly identified among the other elements of the building.
- any structural supports at the entrance do not present a hazard for visually impaired people.
- there is a level landing at least 1500 x 1500 clear of any door swings immediately in front of the entrance.
- the threshold is level.
- any door entry systems are accessible to deaf and hard of hearing people and people who cannot speak.
- weather protection is provided at manual non-powered entrance doors.
- internal door surfaces do not impede the movement of wheelchairs.
- the surface of any matwell is level with the floor.
- an alternative accessible entrance has an accessible internal access route to the spaces served by the principal or main staff entrances.
- the doors in the entrance, where self closing can be opened by a person exerting no more than 20N force at the leading edge.
- the door width is in accordance with Table 2
- door leaves have vision panels towards the leading edge of visibility between 500mm and 1500mm above the floor.
- where the door is manually operated non-powered there must be an unobstructed space of at least 300mm on the pull side of the door, the door furniture can be operated with one hand using a closed fist and the door furniture can be operated with one hand and is not cold to the touch.
- A revolving door is not considered accessible.
- Glass entrance doors and screens must have manifestations on the glass at 850 to 1000mm and 1400 to 1600mm above the floor contrasting visually with the background seen through the glass in all lighting conditions, the manifestation takes the form of a logo or sign at least 150mm high or a decorative feature at least 50mm high.
- Glazed entrance doors which form part of a glazed screen are clearly differentiated from it by the provision of a high contrast strip at the top and both sides.

- Glass entrance doors which are capable of being held open are protected by guarding to prevent the leading edge constituting a hazard.

Horizontal and Vertical Circulation

The first point of contact with the facilities of the building is the entrance hall and this should be accessible and as welcoming as possible. It should be possible for information about the building to be easily obtained from a reception point or notices and signs.

Any reception point should be accessible, away from any noisy environment, easily identified and provided with a hearing enhancement system.

Internal doors are potential barriers and should be avoided wherever possible. The use of self closing devices should be minimised and where used should necessitate a maximum opening force not exceeding 20N. The presence of doors, whether open or closed, should be apparent to visually impaired people through the careful choice of colour and material for the door and its surroundings. The effective clear width of each door leaf should be in accordance with Table 2. The general design of internal doors should copy that for the entrance doors.

Corridors must have a minimum width of 1200mm and where less than 1800mm have passing places of 1800 width at reasonable intervals.

Internal Lobbies are clearly described in M/3.15.

Wheelchair platform or stair lifts should only be provided as a last resort and the case for using these or for a lift not reaching each floor of a building should be argued in the Access Statement. Requirements for lift cars are more particularly described in Part M/3.25 and following.

Internal stairs will satisfy the Regulations if they comply with the requirements for stepped access except of the need for hazard warning at the top and bottom of each flight.

A flight between landings normally contains no more than 12 risers or 16 in exceptional circumstances.

The rise of each step is between 150 and 170mm.

The going of each step is at least 250mm. The area beneath a stair which is less than 2.1m above floor level is protected.

Facilities in Buildings Other than Dwellings

The aim is for all people to have access to, and the use of, all the facilities provided within a building. They should also be able to participate in the proceedings at lecture/conference facilities and at entertainment or leisure and social venues, not only as spectators, but also as participants and/or staff.

Where permanent or removable seating is provided as part of the design allowance should be made for disabled persons to have a choice of seating with a clear view of

the activity. They should have the choice of whether to sit next to a conventionally seated person or another wheelchair user.

In refreshment facilities bars and counters, or sections of them, should be at a level suitable for wheelchair users. All floor areas should be accessible.

A proportion of the sleeping accommodation in student accommodation should be designed for independent use by wheelchair users. The remainder should include facilities that make them suitable for people who do not use a wheelchair, but may have mobility, sensory, dexterity or learning difficulties. In student accommodation, it is beneficial to have a wheelchair accessible toilet available for use by disabled visitors.

Regulation 4.25 and following considers the ease of operation, visibility, height and freedom from obstruction of switches outlets and controls. Guidance warns against using red and green colours to indicate “on” and “off”. Controls need to contrast visually with their background and their function needs to be clear.

The appropriate choice of floor, wall and ceiling surface materials and finishes can help visually impaired people appreciate the boundaries of rooms or spaces, identify access routes and receive information. For example, glare and reflections from shiny surfaces, and large repeating patterns, should be avoided in spaces where visual acuity is critical as they will hamper communication for people with impaired vision, and those who lip read or use sign language. This would apply to locations such as reception areas with enquiry desks and speakers, rostrums in lecture halls. Detailed guidance is provided in BS 8300.

Sanitary Accommodation

In principle sanitary accommodation should be available to everybody, including sanitary accommodation designed for wheelchair users, ambulant disabled people, people of either sex with babies and small children or people encumbered by luggage.

Doors to WC's to be operable by people with limited dexterity and to have an emergency release mechanism. Open doors should not obstruct escape routes.

Emergency alarms should have audible and visual indicators as well as a reset control. Heat emitters to be screened or have their surfaces kept at low temperature. Surfaces of sanitary fittings and grab bars should contrast visually with their backgrounds.

Where there is space for only one toilet it should be a wheelchair accessible unisex type, but larger to accommodate an extra standing height wash basin.

An enlarged cubicle in separate sex washroom is beneficial with children and/or luggage. At least one WC for ambulant disabled people should be provided in separate sex toilets. One enlarged WC cubicle must be provided in separate sex toilets with 4 or more cubicles for people who need more space.

A horizontal travel distance of not more than 40m is the largest allowed for a disabled person to travel to a toilet excluding any vertical travel in a lift.

This is a general statement of the regulations and reference must be made to the full documents themselves.

5.11.Payment Information

- Acceptance and Payment will be conditional on satisfactory completion of tests to ensure the solution meets the requirements and is in accordance with the contract.
- Proving and defining acceptance tests will be carried out in conjunction with relevant Cardiff University staff.
- The University reserves the right to retain an element of payment conditional upon successful acceptance of the total solution.
- The University retains the right to negotiate a financial surety by way of a guarantee or bond from the Supplier, at the Supplier's expense, against any payment in advance of the satisfactory completion of final acceptance tests
- The awarded ARCCA Computer Room Fit Out contract will include a maintenance contract which will be valid for an initial period of 3 years with subsequent annual extensions subject to the written agreement of both parties.
- The Supplier will be responsible for supply, delivery and acceptance of equipment on site, and subsequent installation, configuration, commissioning and the conduct of agreed acceptance tests with appropriate oversight by Cardiff staff.
- In the event of an acceptance test consistently failing for which a satisfactory solution cannot be found within a reasonable defined period, the University, at its sole discretion, may cancel all or any part of the order, return all or any specific equipment and receive a full refund, without setoff, of monies paid to the Supplier up to that point.

5.12.Requests for Further Information

Any queries relating to this ITT or requests for further information should be sent to ARCCAtender@cardiff.ac.uk. Issues which are points of tender clarification will be collated and communicated to all suppliers via email, where applicable.

6. Requirements for the Offered Solution

PLEASE READ SECTION 5.4 ‘INSTRUCTIONS FOR RESPONSE TO REQUIREMENTS’ BEFORE ATTEMPTING TO WRITE RESPONSE

6.1. Outline of Requirements

The University requires a world class research computing facility with a functional, attractive and comfortable environment that will contribute towards attracting and retaining world class staff and impressing visitors. It should be safe, dry and secure and in all ways be suitable for housing £3M of research computing equipment.

The 150 m² space will have options for a false floor and/or high level cable trays, if required. Options to be costed separately in tender response.

The facility will have a high standard of security features, including CCTV and key card access. It will also be equipped with smoke detection, and potentially water detection and automatic shutdown facilities.

Power supply to the Data Centre will have a separate bus-bar and meter for both equipment and cooling so that the power consumption of the individual parts of the facility can be closely monitored. No decision has been made regarding room-based cooling versus rack-based cooling, and Suppliers are invited to comment on this in their proposals.

The facility will also have sufficient office space nearby for more than 12 people.

6.2. General Requirements

Ref	Requirements	MR/ HDR/ IR
6.2.01	<ul style="list-style-type: none"> No option to supply equipment and services “equal and approved” or “offered” shall be included. 	MR

6.2.02	<ul style="list-style-type: none"> All products to be energy efficient, complying with the Government Energy Technology list, available from www.eca.gov.uk. 	MR
6.2.03	<ul style="list-style-type: none"> All equipment must be considered for full life cycle costs for energy payback periods. 	MR
6.2.04	<ul style="list-style-type: none"> Full carbon assessments shall be carried out to ensure carbon emissions do not exceed those specified by building regulations and CIBSE codes. 	MR
6.2.05	<ul style="list-style-type: none"> Full compliance with Building regulations parts L1B, L2B and European energy legislation directives for building performance indicators within entrance lobby areas must be provided. 	MR
6.2.06	<ul style="list-style-type: none"> All live phase cable sheathing to be brown coloured and neutral phase cable sheathing to be blue coloured, all labelled L1, L2, L3 & N respectively in accordance with harmonised standards for cable identification. Armoured cables will have the new harmonised colours of Brown Grey Black Blue for L1, L2, L3 & N respectively. Use of grey and black conductor insulation single core cables will not be permitted. All fuseboards will be labelled with warning notices for differing colours between pre and post harmonised installations. 	MR

6.2.07	<ul style="list-style-type: none"> All energy usage for water, heat, steam, compressed air, electricity and gas in excess of 10kW must be accounted for with metering in accordance with building regulations and European Directives. Meters to all have digital read-outs, RS485 cable outputs and no-volt pulsed outputs for each and every meter. 	MR
6.2.08	<ul style="list-style-type: none"> The Contract shall include for the supply and delivery on site, and all the work for the erection, wiring, installation and testing of all the equipment specified therein for the full and complete installation including the full commissioning, final testing and handing over of the finished installation for immediate use. All materials supplied shall be new and unused. 	MR
6.2.09	<ul style="list-style-type: none"> Mechanical works necessary to complete this contract shall be carried out by the supplier. 	MR
6.2.10	<ul style="list-style-type: none"> It will be assumed that all items of equipment will be installed and put into position by the supplier. No provision will be made by the University for special access into the equipment room. 	MR
6.2.11	<ul style="list-style-type: none"> It will be the supplier's responsibility to ascertain correct details, dimensions, schedules of points and equipment to fully complete this contract. 	MR
6.2.12	<ul style="list-style-type: none"> Please provide details of your company's track record of successful working with a HPC hardware supplier in the fitting out of a data centre in association with equipment from, for example, HP / IBM / Sun etc. The details should include contact information for references to be obtained. 	IR

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6.3.Room Requirements

Location – Ground Floor of Redwood Building

Size – 150m²

The room will be presented as a cleared, redecorated room with ceiling lighting and power to the room.

Ref	Requirements	MR/ HDR/ IR
6.3.01	<ul style="list-style-type: none"> Suppliers should list below if they have any special requirements for the room. 	MR
6.3.02	<ul style="list-style-type: none"> Please provide costed options for flooring / carpeting suitable for a world class data centre. 	MR

6.4.Power Management and Continuity

Ref	Requirements	MR/ HDR/ IR
6.4.01	<ul style="list-style-type: none"> UPS – Suppliers should provide options for UPS on cooling only (200kw over 10 racks). 	MR

6.4.02	<ul style="list-style-type: none"> Suppliers should provide electricity meters to separately monitor the power consumption of a large cluster, small cluster, shared memory, storage, cooling and associated equipment; with online electronic access to real time power data. Several mobile temperature sensors. Realtime and historical access to BEMS (Building Energy Management Systems) to ensure optimal cooling arrangements. Costed meter option by power feeds. 	MR
6.4.03	<ul style="list-style-type: none"> Please advise/estimate on power delivery method – traditional or bus-bar/transformer methods? Do we need to power all of a large cluster from a single phase mains? What are options for staged power up and down? Also advise on maximum feasible power consumption in one 19” rack. 	HDR
	Power and Compartmentation	
6.4.04	<ul style="list-style-type: none"> All accessories and trunking to be of the Honeywell MK range. 	MR
6.4.05	<ul style="list-style-type: none"> Honeywell MK twin earth terminal socket outlets with double pole outboard switches are to be used as standard regardless of high integrity earthing requirements or not. 	MR
6.4.06	<ul style="list-style-type: none"> LAN Room socket outlets shall be of the Honeywell MK combined surge arrested and filtered types complete with hot-withdrawable replacement cartridges. All LAN room socket outlets will be wired onto high integrity earthing ring mains only with no spurs or radial circuits permitted. 	MR

6.4.07	<ul style="list-style-type: none"> All ring main circuits will be wired as high integrity earth installations regardless of circumstance to ensure that section 607 of BS7671 is complied with. 	MR
6.4.08	<ul style="list-style-type: none"> 13A socket outlets will all be installed on complete. No spurs or radial circuits will be permitted. 	MR
6.4.09	<ul style="list-style-type: none"> Circuit cables to be ferruled (not sticky markers) and labelled with phase circuit numbers within distribution boards. 	MR
6.4.10	<ul style="list-style-type: none"> All armoured cables larger than 35mm² 2 core or 16mm² 4 core, will be fully clipped with cleats, nuts and bolts. Armoured cables smaller than the above sizes will be permitted to be clipped with LSF PVC coated metal banding on horizontal runs and where no cable is suspended from trays/baskets. Cable cleats will be used throughout for all other instances. All- round LSF plastic coated metal banding will be permitted on the smaller cables under 6mm² providing that a written statement is given to cover the capacity of the banding to withstand the mechanical movement caused by cable fault stress levels. Tie-wraps of other types will NOT be permitted. 	MR
6.4.11	<ul style="list-style-type: none"> Distribution boards to be provided with a dual earthing bar for duplicate earthing connections in accordance with BS7671 Regulation 607. 	MR
6.4.12	<ul style="list-style-type: none"> Distribution Boards (DB) to be fully M9 rated, with additional future capacity of 25% built into all designs. DB's to have facility for lockable covers but should be always be housed within plant room spaces only and not within public/student areas. 	MR

6.4.13	<ul style="list-style-type: none"> DB's to be metalclad only and manufactured by one of the following:- MK, MEMSHIELD, SquareD, Hagar, Merlin Gerin (Schneider) , or Crabtree, all complete with integral isolators. 	MR
6.4.14	<ul style="list-style-type: none"> All distribution boards to be complete with framed circuit chart and schematic drawing (not within polythene envelope on back of cover). 	MR
6.4.15	<ul style="list-style-type: none"> All distribution boards and control panels with an input generator greater than 63A single phase or 32A three phase must be complete with Novar Trend networked multifunction metering (Ref. Novar Trend EM/MP02 + NBOX/ENC2/230 complete with all associated CT's). The metering shall be connected back and networked into the local Building Energy Management system. 	MR
6.4.16	<ul style="list-style-type: none"> All distribution panels will be constructed with a form rating of a minimum of Form 4 type5 with all outgoing ways in excess of 32A single phase metered with Honeywell Trend metering. (Ref. Novar Trend EM/MP02 + NBOX/ENC2/230 complete with all associated CT's.) The exception to this will be metering to power factor correction and harmonic smoothing supplies which will NOT require metering to be installed. 	MR
6.4.17	<ul style="list-style-type: none"> All distribution panels to be fitted with integral FURSE lightning protection with “hot-swappable” replacement cartridges. 	MR

6.4.18	<ul style="list-style-type: none"> Galvanised/flocoat conduit will be used in plant rooms and areas of high mechanical impact. All metal conduit will incorporate hospital/distance saddles only. Spacer-bar saddles will not be permitted. Draw-in/inspection bends on any type of conduit will not be permitted. All other conduit will be SHI Honeywell MK uPVC type. 	MR
6.4.19	<ul style="list-style-type: none"> All mini trunking, uPVC dado trunking, uPVC skirting trunking, uPVC multicompartment trunking and ladder racking to be manufactured by Honeywell MK only. 	MR
6.4.20	<ul style="list-style-type: none"> All uPVC conduit and accessories to be of the super high impact range only and manufactured by Honeywell MK. uPVC conduit will NOT be permitted to be suspended or hung from brackets above suspended ceilings or in other voids. 	MR
6.4.21	<ul style="list-style-type: none"> All new communications cabling used must be compatible with the existing systems and shall be run on existing traywork or in white uPVC Honeywell MK SHI conduit above false ceilings and concealed where possible. Where multiple runs in corridors without traywork are found then new traywork shall be installed or all cables individually clipped to the corridor side walls above the suspended ceiling line. Tie-wrapping will not be permitted. 	MR
6.4.22	<ul style="list-style-type: none"> The supplier shall allow for the removal and refitting of ceiling tiles as necessary, including replacement if breakages occur. 	HDR
6.4.23	<ul style="list-style-type: none"> Existing cable management arrangements above suspended ceilings may be utilized with the exception of computer traywork on the proviso that cables are clipped and nylon tie-wrapping is not used. 	HDR

6.4.24	<ul style="list-style-type: none"> Where surface drops to accessories are required in occupied areas, then the white Honeywell MK YT2 plastic mini trunking method of cable management will be employed. 	HDR
6.4.25	<ul style="list-style-type: none"> All trunkings, trays/conduits and accessories will be fixed by means of brass screws and plastic rawlplugs. Sticky back self-adhesive trunking will not be used. 	HDR
6.4.26	<ul style="list-style-type: none"> All plant rooms shall have 20/25mm galvanised/flocoat conduit installed as part of this contract where installation of any new or additional screened cables are required to items of control equipment. Existing empty conduits/trunking may be re-used. 	MR
6.4.27	<ul style="list-style-type: none"> At each new control point a 20/25mm galvanised through conduit box with lid and gasket will be fitted complete with a 1.0 metre length (max) of adaptaflex/kopex flexible conduit glanded into the conduit box and clipped across to the control item i.e. duct sensor, pipework sensor, differential pressure switch etc. 	MR
6.4.28	<ul style="list-style-type: none"> Each new control valve will have a 6 core screened 1.0mm² PVC/SCRN/PVC or Pirelli LX cable installed to enable Trend control. Valves shall be of the “lift-and-lay” type only with positive feedback potentiometers. Rotary shoe types of valve body will NOT be permitted. 	MR
6.4.29	<ul style="list-style-type: none"> Phase-cut modules are to be avoided with the use of 0 – 10 volt and raise lower modules in lieu. 	HDR

6.4.30	<ul style="list-style-type: none"> Differential pressure switch pockets where required MUST be included for both supply and installation within this contract. 	MR
6.4.31	<ul style="list-style-type: none"> All outstation interconnections and LAN interconnections will be carried out using 4 core 1.5mm² PVC insulated PVC sheathed steel braiding screened with overall covering of clear PVC insulation type SY copper cored cable. 	MR
6.4.32	<ul style="list-style-type: none"> All new sensors shall be wired in 2 core 0.75mm² PVC/SCRN/PVC or Pirelli LX 2 core 0.75mm² cable. 	MR
	General Cabling	
6.4.33	<ul style="list-style-type: none"> All cable management tray, basket, trunking, conduit, etc. shall be installed to Cat6 rating including slow radius bends, sets and changes of direction as necessary, e.g. power, data, water. 	MR
6.4.34	<ul style="list-style-type: none"> Access to the LAN room is restricted and the supplier shall be required to give at least 3 days notice prior to entry. 	MR

6.5. Air-conditioning

300KW load (Exact load still to be clarified – this will be communicated to suppliers within 10 days of tender issue date.)

Optional room cooling

10 air or water cooled racks (racks and cooling to be integral)

Ref	Requirements	MR/ HDR/ IR
6.5.01	<ul style="list-style-type: none"> The Supplier must have experience of implementing rack based cooling solutions. 	MR
6.5.02	<ul style="list-style-type: none"> Quote for sufficient cooling with redundant unit(s), with 4 years' cooling maintenance. 	MR
6.5.03	<ul style="list-style-type: none"> Estimate for water cooling or other cooling technologies. Advise on positioning of cooling units e.g. at ceiling level. 	HDR
6.5.04	<ul style="list-style-type: none"> If rack cooling is used, the rack cooling must be integrated to the rack. 	MR
6.5.05	<ul style="list-style-type: none"> Any supplied rack environmental monitoring system should integrate with the University's current Building Energy Management System (BEMS). 	MR

6.6. Water Detection

Ref	Requirements	MR/ HDR/ IR
6.6.01	<ul style="list-style-type: none"> If water based rack cooling is used, the supplier should suggest ways in which water leakage can be monitored – for example, water detection system integrated into each rack. 	IR

6.7. Fire Suppression System

Ref	Requirements	MR/ HDR/ IR
6.7.01	<ul style="list-style-type: none"> Top of the range smoke detection and gas suppression required. Automatic shutdown of power if temperature goes up (due to cooling failure or fire). Part of phased power on/off of kit. Estimate / comment on whether this is best done at the server rather than room power management system. 	MR
6.7.02	<ul style="list-style-type: none"> Comment / estimate on the following feature: on any indication of possible fire, cut the external ventilation to the room to avoid feeding fire with fresh air. Also comment / quote for automatic fire retardant gas system. 	IR
	Fire Alarm System	

6.7.03	<ul style="list-style-type: none"> The University fire alarm system will be extended where existing, retaining existing wiring systems and not mixing different types of wiring. 	MR
6.7.04	<ul style="list-style-type: none"> New fire alarm systems will adhere to the following protocol:- <ul style="list-style-type: none"> a) Non addressable to be used wherever possible and will be of the Citadel precept range complete with sounders, MCP's and detectors. b) Addressable systems to be 2 wire loop controlled devices only with no spurs and tees permitted. All devices to be fully analogue addressable with integral short circuit and open circuit isolation individually for each and every device. All interfaces will be fully loop compatible. All devices shall be fully analogue addressable including sirens, sounders, MCP's, strobes, voice annunciation devices, etc., and shall use the same loop wiring. 	MR
6.7.05	<ul style="list-style-type: none"> All fire alarm systems will be designed to the latest British Standards/European Nomenclatures to classification L2/P1/M1 as a minimum standard. Relaxation of this standard will NOT be permitted to ensure minimum cover requirements regardless of classification of risk assessment of the building. 	MR
6.7.06	<ul style="list-style-type: none"> A back-up disk of all programmes is to be included for client issue together with hard wire link for lap-top PC connection. 	MR
6.7.07	<ul style="list-style-type: none"> On all new installations fire alarm wiring will be in 2 core 1.5mm² MICV/LSF cable (red) with earth tag screw-on cold pot seals only. No other type of cable of core numbers will be permitted. 	MR

6.7.08	<ul style="list-style-type: none"> All new fire alarm panels to be fitted with surge arresting devices. Any existing panels that are to be utilised will also have a surge arresting device installed. 	MR

6.8. Project Management

Ref	Requirements	MR/ HDR/ IR
6.8.01	<ul style="list-style-type: none"> The successful supplier will, within 2 weeks of signing a contract, be required to develop, agree and sign off with the University a Project Plan to cover all phases of the project. This must include delivery, installation, commissioning and acceptance tests. 	MR
6.8.02	<ul style="list-style-type: none"> A detailed rack schematic of the proposed rack layout shall be issued to the University for written approval two weeks prior to start of contract on site. The schematic should include location of air conditioning, power, etc. Once written approval from the University has been given, installation work may commence. 	MR
6.8.03	<ul style="list-style-type: none"> All drawings should be submitted in AutoCAD release 2006 and Trend SET format on paper and diskette. 	HDR
6.8.04	<ul style="list-style-type: none"> Diskette drawings of ACE+ files will also be in DXF format for AutoCAD release 2006. 	HDR

6.8.05	<ul style="list-style-type: none"> Software strategies will also be submitted for written approval by the University before commencement of installation work. 	HDR

6.9.Delivery Requirements

Ref	Requirements	MR/ HDR/ IR
6.9.01	<ul style="list-style-type: none"> The supplier must describe here how they will satisfy the conditions laid out in section 5.7 – Delivery Requirements. 	MR
6.9.02	<ul style="list-style-type: none"> All commissioning and final connections shall be carried out as and when individual outstation wiring is completed and witnessed by University personnel. Each process of connections, commissioning and energising shall be a continuous process with no one panel being left half commissioned when leaving site. 	MR
6.9.03	<ul style="list-style-type: none"> Network connections shall only be made with prior written agreement from the University. All commissioning data shall be submitted in the operational and maintenance manuals as specified. 	MR

6.10.Support and Maintenance

Ref	Requirements	MR/ HDR/ IR
6.10.01	<ul style="list-style-type: none"> Suppliers shall provide a single responsible person (Account Manager), with responsibility for delivering defined service levels, to deal with all contractual matters that either party may raise. 	MR
6.10.02	<ul style="list-style-type: none"> Where necessary, to ensure speedy resolution of a particular issue and adherence to the support contract, this single point of contact should nominate a certified or otherwise suitably qualified third party support technical expert with whom the University can liaise directly. The supplier's own single point of contact will however retain full responsibility for delivering the defined service levels. 	MR
6.10.03	<ul style="list-style-type: none"> The supplier's single point of contact must have the authority to authorise equipment replacement. 	MR
6.10.04	<ul style="list-style-type: none"> The supplier must provide a full description of the escalation routes in place to facilitate this support contract. 	IR
6.10.05	<ul style="list-style-type: none"> The supplier must provide on-site spares and/or a support contract for University staff to achieve immediate replacement to cope with whatever failure rate is being experienced under the contract. 	HDR

6.10.06	<ul style="list-style-type: none"> Please provide details of service engineer response times. 	IR
6.10.07	<ul style="list-style-type: none"> Please provide details of your service engineer locations. 	IR

6.11.Documentation

Ref	Requirements	MR/ HDR/ IR
6.11.01	<ul style="list-style-type: none"> One copy of existing building layouts will be provided free by the University within 10 working days from receipt of a written request from the supplier. 	MR
	Operation and Maintenance manuals shall be supplied and specialist requirements shall consist of the following as a minimum for each manual:	
6.11.02	<ul style="list-style-type: none"> Full Panel Drawings on CAD + with CDROM or USB stick copy 	HDR
6.11.03	<ul style="list-style-type: none"> Full Strategy Drawings on SET + with CDROM or USB stick copy. 	HDR

6.11.04	<ul style="list-style-type: none"> • Full location drawings showing sensor positions and routes of interconnecting cable routes on AutoCAD release 2006 drawings throughout – CDROM or USB stick to be used. AutoCAD release 2006 .dwg format. 	HDR
6.11.05	<ul style="list-style-type: none"> • 945 & 962 CAD drawings on above media. 	HDR
6.11.06	<ul style="list-style-type: none"> • Full set of IQ.DAT and IQF Files on above media. 	HDR
6.11.07	<ul style="list-style-type: none"> • Electrical Installation Completion and Test Certificates (NICEIC/ECA 16th Edition Forms) for panel works, all fully completed. 	HDR
6.11.08	<ul style="list-style-type: none"> • Fuse circuit charts. 	HDR
6.11.09	<ul style="list-style-type: none"> • LAN drawings showing detailed connections on CAD with CDROM or USB stick copy. 	HDR
6.11.10	<ul style="list-style-type: none"> • As installed drawings showing all cable routes and sensor positions on A1 paper together with AutoCAD 2006 layered version, the layer being labelled as “ARCCA Computer Room”. 	HDR

6.11.11	<ul style="list-style-type: none"> Suppliers and manufacturers information, addresses, telephone, fax and email details. Suppliers and manufacturers maintenance instructions. 	HDR
6.11.12	<ul style="list-style-type: none"> All in individual clear plastic A4 envelopes bound in A4 ring binder with printed spine and cover depicting “ARCCA Computer Room”. 	HDR

6.12.WEEE (Waste Electrical and Electronic Equipment) Directive

Ref	Requirements	MR/ HDR/ IR
6.12.01	<ul style="list-style-type: none"> Suppliers should specify what procedures they have in place for the collection, handling, treatment and re-use of WEEE. Responses should detail whether they have registered with the National Clearing House or with a compliance scheme. 	IR
6.12.02	<ul style="list-style-type: none"> Suppliers should state what information they propose to provide with regard to their products to assist with the reuse, recycling and recovery of types of new equipment in accordance with the Supplier’s obligations under WEEE and how will this information be provided. 	IR
6.12.03	<ul style="list-style-type: none"> If Suppliers are not a member of a compliance scheme, they should specify how they select their authorised treatment facility. 	IR

6.12.04	<ul style="list-style-type: none"> Suppliers should detail their approach to product design to facilitate reuse, recycling and recovery of WEEE, its components and materials, and provide relevant examples. 	IR

6.13. Health & Safety Considerations

Suppliers are reminded of their obligation under the Health & Safety at Work Act 1974 and subsequent legislation. Particular attention is drawn to the requirements of the Act relating to equipment design and manufacture and to the installation, operation and maintenance of equipment.

Ref	Requirements	MR/ HDR/ IR
6.13.01	<ul style="list-style-type: none"> Suppliers must report here any particular requirements or special instructions relating to the proposed equipment and its consumable supplies necessary to ensure that they will be safe and without risks to health. 	MR
6.13.02	<ul style="list-style-type: none"> All new equipment to be delivered to the University must be tested for electrical safety in accordance with University regulations. Suppliers must confirm that standard electrical safety tests will not damage the equipment nor breach the conditions of the warranty or service agreements. Further details of the University's electrical safety testing requirements will be provided upon request. 	MR
6.13.03	<ul style="list-style-type: none"> Suppliers must state here that the equipment will comply with the European EMC Directive and will be marked with the CE Mark. 	MR

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6.14. Customer References

Suppliers must provide details of three other clients with major contracts of a similar scope and value from which we may obtain a reference. References should demonstrate experience of implementing similar solutions preferably in other UK research-led universities. The University may contact or visit reference sites during the course of the procurement.

Ref	Reference Details
6.14.01	REFERENCE 1
	<ul style="list-style-type: none"> • Name of Organisation:
	<ul style="list-style-type: none"> • Address:
	<ul style="list-style-type: none"> • Contact Name / Title:
	<ul style="list-style-type: none"> • Contact Telephone Number:
	<ul style="list-style-type: none"> • Contact email Address:

	<ul style="list-style-type: none"> • Total Value of Contract and Duration:
	<ul style="list-style-type: none"> • Project Description:
	<ul style="list-style-type: none"> • Overview of Products / Services Provided:
6.14.02	REFERENCE 2
	<ul style="list-style-type: none"> • Name of Organisation:
	<ul style="list-style-type: none"> • Address:
	<ul style="list-style-type: none"> • Contact Name / Title:
	<ul style="list-style-type: none"> • Contact Telephone Number:

	<ul style="list-style-type: none"> Contact email Address:
	<ul style="list-style-type: none"> Total Value of Contract and Duration:
	<ul style="list-style-type: none"> Project Description:
	<ul style="list-style-type: none"> Overview of Products / Services Provided:
6.14.03	REFERENCE 3
	<ul style="list-style-type: none"> Name of Organisation:
	<ul style="list-style-type: none"> Address:
	<ul style="list-style-type: none"> Contact Name / Title:
	<ul style="list-style-type: none"> Contact Telephone Number:

	<ul style="list-style-type: none">• Contact email Address:
	<ul style="list-style-type: none">• Total Value of Contract and Duration:
	<ul style="list-style-type: none">• Project Description:
	<ul style="list-style-type: none">• Overview of Products / Services Provided:

7. Cost Tables

The templates for the Cost Tables can be found in the accompanying Excel file “ARCCA Room FitOut Tender response spreadsheet.xls”

Appendix A: Room Plans

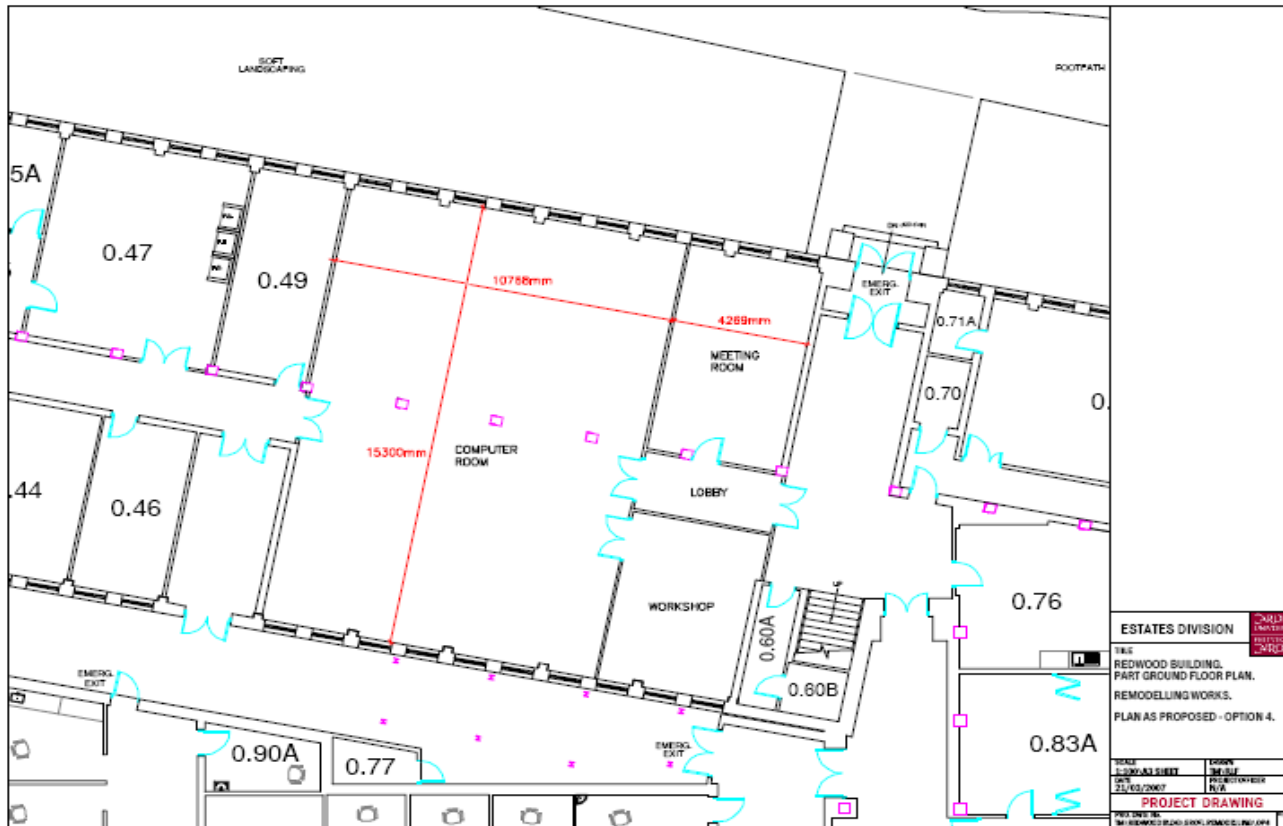


Figure 1: ARCCA Equipment Room Plan

A more detailed plan of the ARCCA equipment room can be viewed in the accompanying PDF file: “ARCCA Equipment Room Plan.pdf”.

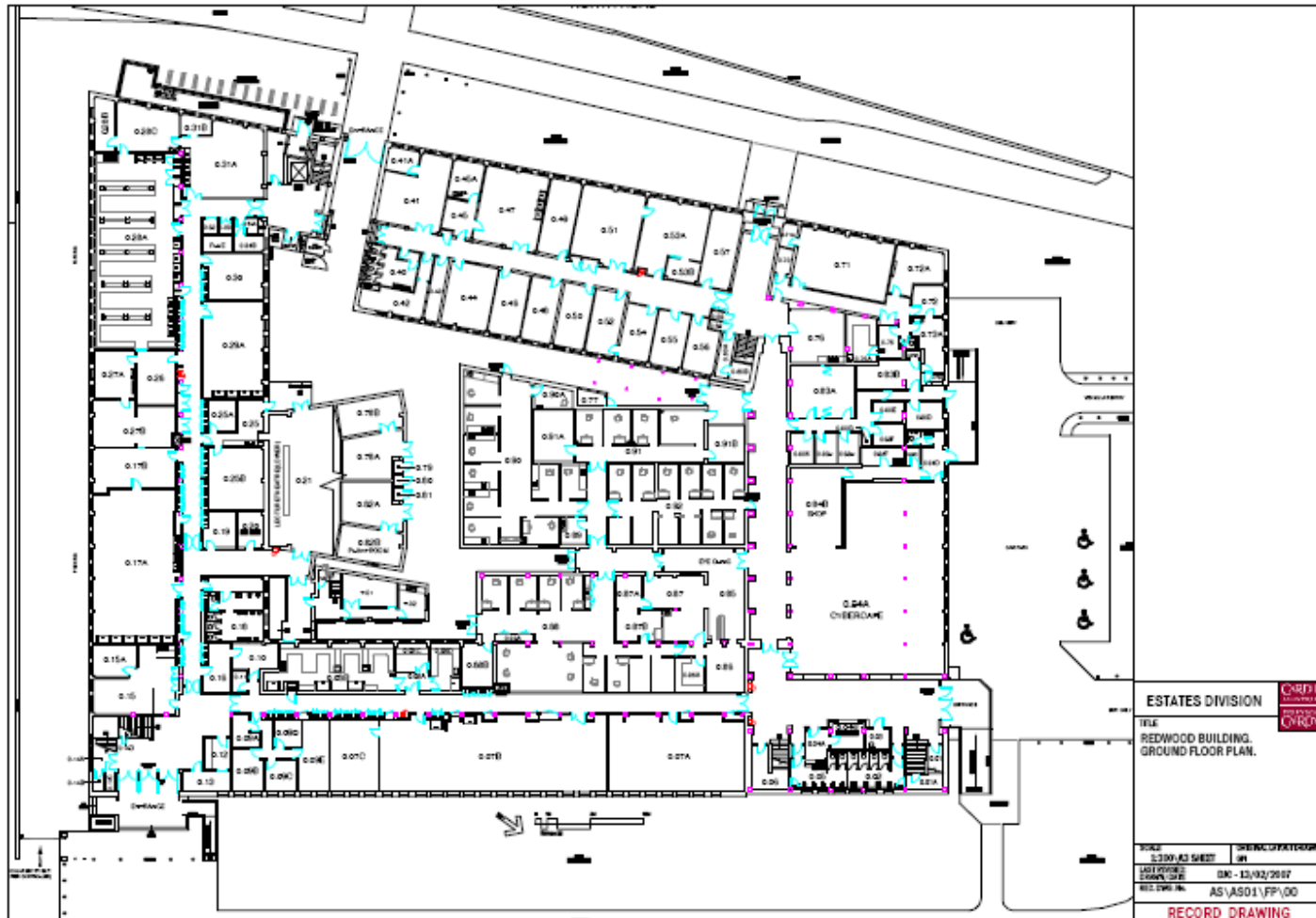


Figure 2: Redwood Building Ground Floor Plan

A more detailed plan of the entire ground floor of the Redwood Building is also attached for information in the accompanying PDF file: “Redwood Building Ground Floor Plan.pdf”.