

**PARTICULAR SPECIFICATION PS.G11**

**Contract Computer Facilities**

**Particular Specification for Contract Computer Facilities**

- A. The Contract Computer Facilities provided by the Contractor under this Contract shall comprise both the necessary hardware items required to meet the stated quantities and performance requirements and the specified software items all as listed in the schedule of computer facilities attached as Appendices A to D to this Particular Specification together with all other items (whether explicitly described in the Tender Documents or not) necessary for the equipment to function and to be fully compatible amongst the items provided under this Contract and with any existing computer facilities of the Employer to which the equipment so provided are required to connect to. The mode of connection may be by way of plugging in of interface circuit cards provided by the Employer into the Contract Computer Facilities provided by the Contractor.
- B. The Contractor shall within seven days from the date of the Architect's instruction, submit for approval details of the hardware items to be provided. The details are to be listed in order of the specification requirements and indicated with compliance to contract terms, as shown on the Sample forms attached at Appendix E to this Particular Specification. The front cover page of the list must bear the Contractor company's letterhead, with end of list properly signed and dated by him.
- C. The proposed hardware items shall have been on the local market for at least six months and shall not infringe any copyright.
- D. The Contract Computer Facilities shall be Year 2000 compliant meaning that neither their performance nor functionality will be affected by dates prior to, during and after Year 2000.
- E. Without affecting the generality of paragraph D above, the Contract Computer Facilities shall satisfy the following requirements with respect to Year 2000 compliance:
- (a) No value of current date will cause any interruption in operation;
  - (b) Date-based functionality shall behave consistently for dates prior to, during and after Year 2000;
  - (c) In all interfaces and data storage, the century in any date shall be specified either explicitly or by unambiguous algorithms or inferring rules;
  - (d) Year 2000 shall be recognised as a leap year.
- F. The Contractor shall within fourteen days of the Architect's written approval of the hardware items, deliver to Architectural Services Department Supplies Officer, who will act as the Architect's Representative within the meaning of Clause 2 of the General Conditions of Contract ("GCC") for the purpose of this Clause, all of the specified items in one batch for functional test by him. At the time of the delivery of the equipment, produce for the Architect's inspection the originals of all relevant warranties, invoices and any other documents required by the Architect. All software items shall be delivered intact in their shipping cartons with all seals unbroken. Permanent labels may be added by the Architect onto individual hardware items after satisfactory testing. The tested Contract Computer Facilities shall then be delivered to the responsible officer(s) as instructed by the Architect.
- G. The Contractor shall arrange for the equipment to be established and tested to complete working order within 24 hours of delivery of the equipment.

- H. Where directed by the Architect, the Contractor shall arrange to have the Contract Computer Facilities delivered, installed and tested on Site, in which case, all the requirements of Clause F above shall operate as if the equipment were delivered to the Architectural Services Department Supplies Officer. A person will be designated by the Architect to act as the Architect's Representative within the meaning of Clause 2 of GCC for the purpose of this clause.
- I. The Contractor shall license and maintain Contract Computer Facilities from the day of delivery until the expiry of the Maintenance Period, or where there is more than one such Period, until the expiry of the latest Period and in case of facilities designated for use by the Quantity Surveyor, until the expiry of the Period of Final Measurement.
- J. The Contractor shall provide all maintenance necessary to restore the Contract Computer Facilities to proper working order within 24 hours of any breakdown. Should any part of the facilities fail to operate for a period exceeding 24 hours, the Contractor shall supply temporary replacement of equivalent function and configuration until such time the original contract equipment resumes its full function. Where necessary, the Contractor shall allow for the transfer of harddisk data to the replacement and back to the original harddisk.
- K. Software included in the Contract Computer Facilities shall be compatible with the equipment supplied by the Contractor, and be licensed in the name of the Government of the HKSAR.
- L. The Architect may, before the Date for Completion of the Contract as stipulated in Clause 49 of the GCC or within any extended time determined in accordance with Clause 50 of the GCC, order that the Contract Computer Facilities to become the property of the Employer. On assignment of ownership to the Employer, the Contractor shall at the same time assign to the Employer all existing warranty agreements on the equipment.

## **Standard Computer System Hardware**

### **1. Microcomputer**

Each microcomputer shall meet the following specifications:

a. CPU and Mother Board

- (i) CPU of performance equal or better than Intel Core 2 Duo Processor (2.66GHz, 6MB L2 cache);
- (ii) minimum 4G 800MHz DDR 2 SDRam (2 x 2G) with 3 memory slots;
- (iii) minimum 800MHz Front Side Bus;
- (iv) integrated graphics adapter able to support resolution up to 1680x1050 and up to 16.7 million true colours;
- (v) minimum 64MB RAM Display Memory which can share with on board memory;
- (vi) two unused PCI / PCI-E slots and one unused 5.25" drive bay;
- (vii) integrated sound card; and
- (viii) compatible with CentOS 4.3, Window XP Professional and Windows 7 Professional.

b. Disk Controller/Disk Drives

- (i) hard disk and floppy disk drive interface controller suitable for minimum 2 hard disks, and 1 floppy disk drives. File system of the hard disk shall be NTFS format;
- (ii) one 500GB SATA 3.0Gb/s 7200rpm hard disk or better; the hard disk should be partitioned, "C:" drive should be 200GB in size and the remaining space should be assigned to "D:" drive and
- (iii) one DVD Writer (Double Layer) bundled with software for producing DVDs and CDs.

c. Keyboard

- (i) typewriter-like enhanced 101-keyboard IBM compatible; good rebounding and pleasant tactile and click feel, detachable; and
- (ii) not less than 12 programmable function keys with upper and lower case, provided with screen dump key, Chinese input character labels.

d. Communication Ports

- (i) minimum six USB 2.0 ports in rear and two USB 2.0 ports in front, one parallel port and one RS-232C enhanced serial port or compatible asynchronous port.

e. Mouse

- (i) USB 2-button optical scroll mouse.

f. Chinese Input Device

- (i) The device shall be of USB type for input of Chinese characters. It shall be of size not larger than 152mm x 102mm (6"x 4") and it shall support Chinese Windows XP Professional and Windows 7 Professional and the Chinese software applications.

**1. Microcomputer (Cont'd)**

g. Power Management

- (i) Comply with Energy Star Certification.

h. 22" Widescreen LCD Monitor

- (i) The monitor shall be flat screen type of viewable area at least 22 inches diagonally measured with tilt/swivel base;
- (ii) Pixel pitch shall be 0.294mm or less;
- (iii) Scanning frequency shall be at least 30kHz horizontal and 56Hz vertical;
- (iv) It shall support native 1680 x 1050 resolution @60Hz;
- (v) Colour level shall be at least 16.2 million;
- (vi) Contrast ratio shall be at least 800:1;
- (vii) Brightness shall be at least 300 cd/m<sup>2</sup>;
- (viii) Viewing angle shall be at least 70°/70° left/right and 50°/50° top/bottom;
- (ix) It shall be guaranteed zero dead spot (both bright and blind);
- (x) It shall be an energy efficient model and comply with US EPA Energy Star with power management features;
- (xi) It shall be built-in with two stereo speakers or add-on external speakers;
- (xii) It shall be provided with individual controls for horizontal/vertical display position and size, brightness/contrast, pivot (rotation), swivel and tilt;
- (xiii) Power consumption shall be less than or equal to 60W (typical operation) and 3W (sleep mode);
- (xiv) The height shall be adjustable and comply with TCO'03;
- (xv) Response time shall be less than or equal to 5ms; and
- (xvi) Power supply shall support 100-240VAC, 50/60Hz.

i. Network Interface

- (i) 10/100/1000 Mbps Ethernet adapter with RJ-45 connector and patch cable.

j. Power Supply Unit

- (i) The power supply unit for the computer shall comply with Underwriters' Laboratory (UL) standards on electrical safety, or other similar standards and approved.

**2. Documentation**

2.1 Sufficient documentation must be supplied for each piece of equipment. The documentation should be self tutorial in nature and be readily understood by non-computer personnel.

2.2 The following manuals must be supplied with the system :-

- (i) Manuals on how to operate the equipment; and
- (ii) Manuals on how to use the facilities provided by the supplier.

## Standard Software for Microcomputer

### Software Requirement

#### 1. Operating System

- (i) MS Windows 7 Professional downgradable to XP professional with the latest service patches, at the time of delivery or
- (ii) Chinese MS Windows 7 Professional downgradable to XP professional with the latest service patches, at the time of delivery, as indicated in the table below.

#### 2. Application Software (latest version)

The requirements of application software are classified into following types of software lists as stipulated in the following Table 1. The latest version of the software at the time of delivery shall be supplied. The quantity of each type of the software lists shall be specified separately in the Preliminaries.

Table 1

	CAD PC Software		Non-CAD PC Software					
	Type CE	Type CC	Type 1 (AB)	Type 2 (BSB)	Type 3 (SEB)	Type 4 (QSB)	Type 5 (PSB)	Type 6 (Site)
MS Windows 7 Professional downgradable to XP professional	<b>R</b>	<i>x</i>	<b>R</b>		<b>R</b>		<i>x</i>	<i>x</i>
Trend Micro Anti-virus	<b>R</b>	<i>x</i>	<b>R</b>		<b>R</b>		<i>x</i>	<i>x</i>
AutoCAD 2008	<b>R</b>	<i>x</i>	<i>x</i>		<i>x</i>		<i>x</i>	<i>x</i>
MS Office (Standard)	<b>R</b>	<i>x</i>	<b>R</b>		<b>R</b>		<i>x</i>	<i>x</i>
Chinese MS Windows 7 Professional downgradable to XP professional	<i>x</i>	<b>R</b>	<i>x</i>	<b>R</b>	<i>x</i>	<b>R</b>	<b>R</b>	<b>R</b>
Penpower Chinese input and palette	<i>x</i>	<b>R</b>	<i>x</i>	<b>R</b>	<i>x</i>	<b>R</b>	<b>R</b>	<b>R</b>
Trend Micro Anti-virus for Chi Win	<i>x</i>	<b>R</b>	<i>x</i>	<b>R</b>	<i>x</i>	<b>R</b>	<b>R</b>	<b>N</b>
AutoCAD 2008 Chinese	<i>x</i>	<b>R</b>	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>
Chinese MS Office (Standard)	<i>x</i>	<b>R</b>	<i>x</i>	<b>R</b>	<i>x</i>	<b>R</b>	<b>R</b>	<b>R</b>
Windows 2003 Server Client Access License	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>

(**R** : required, *x* : not required)

(**N** : required for site PCs not connected to HQ via VPN gateway, but not required otherwise)

All software applications are required to be provided in CD-ROM. All software shall be full product and provided with installation CD kits.

#### 3. Documentation

- 3.1 Sufficient documentation must be supplied for each set of software. The documentation should be self tutorial in nature and be readily understood by non-computer personnel. It shall include manuals on how to use the software.

## **Standard Peripherals for Computer Systems**

### **1.0 A4 Laser Printer**

- (i) dry-type laser printer;
- (ii) monochrome;
- (iii) 1200x1200 dpi;
- (iv) minimum 32 MB of random access memory;
- (v) able to print in auto duplex up to 20 pages per minute;
- (vi) able to print in portrait and landscape orientation;
- (vii) able to print on paper up to A4 size;
- (viii) minimum 10,000 pages duty cycle/month;
- (ix) USB 2.0;
- (x) toner for replacement, quantity required at one toner per machine for every 4 months from the day of delivery until the date of expiry of the Maintenance Period or, where there is more than one such Period, until expiry of the latest Period and in case of equipment designated for use by the Quantity Surveyor, until the expiry of the Period of Final Measurement. In each case, calculated from the latest time for completion stated in the Contract;
- (xi) print server software driver supporting LINUX, Windows XP Professional, Windows 7 Professional; and
- (xii) with minimum one 250-sheet letter size paper input bin/tray and 50-sheet multi-purpose bypass tray.

### **2.0 (Not used)**

### **3.0 Documentation**

- 3.1 Sufficient documentation must be supplied for each piece of peripheral equipment. The documentation should be self tutorial in nature and be readily understood by non-computer personnel.
- 3.2 The following manuals must be supplied with the system:
- (i) Manual on how to operate the equipment; and
  - (ii) Manual on how to use the facilities and software provided by the supplier.

## **Non-Standard Equipment for Computer Systems**

### **1.0 Provision of Wide-area-network Connection between Construction Site and ArchSD Head Office**

#### **1.1 (Not used)**

#### **1.2 Wired LAN through broadband connection**

The following computer equipments shall be provided for setting up broadband Internet connection in site office for communication with ArchSD head office in Queensway Government Offices, for ArchSD site resident staff (and this item will not be applicable to Consultant employed site resident staff):

- (i) a Broadband Internet connection
- (ii) a PC for setting up Firewall, Proxy Server and VPN tunnel
- (iii) a switch
- (iv) a UPS of capacity better than 1100 VA, serial interface for monitoring cable
- (v) a closet for housing the Firewall PC and the switch,
- (vi) 1 nos. of Fast Ethernet adapters for Desktop PCs used by site staff

Items (ii) and (iii) shall be delivered to 39/FI Server Room in QGO of ArchSD. ArchSD Network Administrator shall then be responsible for installing, setting up and configuring the Firewall, the Proxy Server and VPN Tunnel. The software required for the installation of the Firewall, Proxy Server and VPN Tunnel shall be freeware, downloaded from Internet by ArchSD Network Administrator. There is no need for the contractor to provide the software for the above-mentioned purposes.

The Contractor shall also provide transportation to relocate the items on site after the configuration. After the installation of the broadband Internet connection, the ArchSD Network Administrator shall be responsible to configure the network on site.

Configuration of Desktop and Notebook PCs used by site staff, except network configuration, shall be carried out by the Contractor. All hard disks on the PCs shall be formatted as NTFS.

The above computer equipments shall comply with the requirement specified in the following sections.

##### **1.2.1 Broadband Internet Connection**

The Contractor shall provide installation and subscription of a broadband Internet connection, with at least one static IP (without NAT) in site office for communication with ArchSD Head Office, which shall be compatible with existing VPN systems being used for connection from construction sites to ArchSD. The IP shall be assigned, as an Internet address, to the Firewall and VPN Server, which shall be connected through Internet to servers in a DM Zone of QGO Headquarters network. The broadband connection shall allow establishment of VPN tunneling between VPN Servers in site office and QGO Headquarters.

The speed of the broadband Internet connection shall be faster than 3 Mb/second for download and 1 Mb/second for upload. The subscription of the connection shall allow for unlimited usage of more than one microcomputer through routing device. The subscription shall be maintained until the end of the contract completion.

### **1.2.2 Microcomputer for Setting up Firewall and Proxy Server**

The microcomputer for setting up Firewall, Proxy Server and VPN tunnel shall comply with the following specification:

- (i) with Pentium 4 CPU running at 2.8 GHz, 400 MHz FSB or better
- (ii) minimum 512MB memory
- (iii) mother board shall support ATA IDE hard disk or Emulate IDE for SATA hard disk
- (iv) 1 number of ATA IDE or SATA hard disk not less than 80 GB, with at least 2 MB buffer, not slower than 7,200 rpm
- (v) Graphic adapter
- (vi) a LCD Monitor of size not less than 430mm (17") shall be provided
- (vii) CD Drive, 1.44 MB floppy drives, mouse
- (viii) mini-keyboard
- (ix) 2 numbers of Fast Ethernet Controllers, which shall be of different brands
- (x) all necessary cable and accessories to set up the microcomputer
- (xi) shall be able to run CentOS 4.3
- (xii) all drivers shall be provided
- (xiii) shall be installed with CentOS 4.3 before delivery
- (xiv) at least 1 no. of serial port

### **1.2.3 Switch**

The switch shall comply with the following specification:

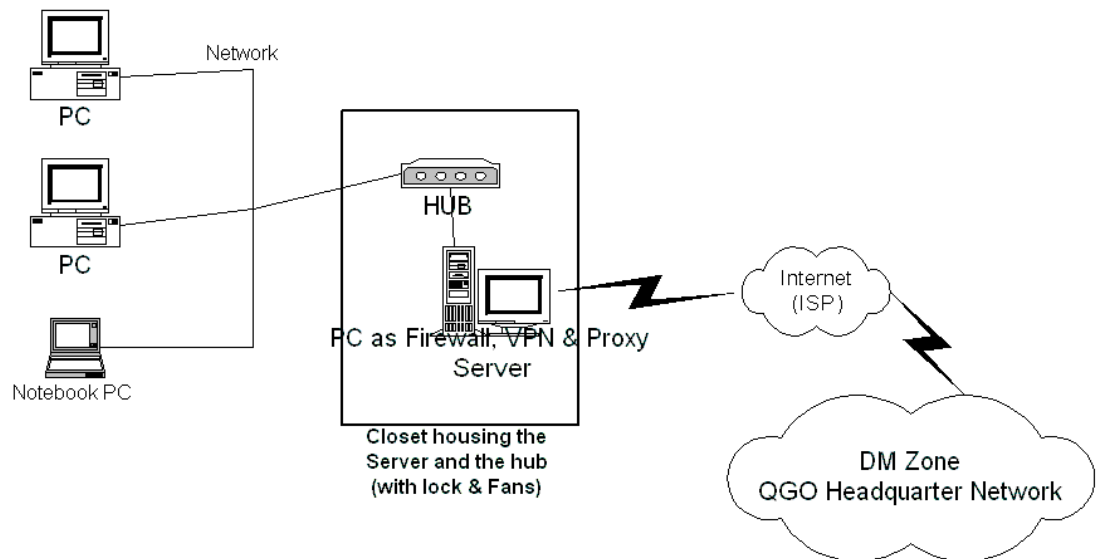
- (i) shall support 10/100 Mb Fast Ethernet or higher
- (ii) provide at least 12 nos. of Ethernet ports
- (iii) rack mounted type and
- (iv) all necessary drivers and management tools shall be provided.

### **1.2.4 Fast Ethernet Adapter**

The adapter shall be able to support 10/100 Mb/second TCP/IP Transmission. The Contractor shall be responsible for the laying and installation of Ethernet cable for the connection from Desktop PC to the switch. The file system of the PC shall be in the format of NTFS.

### 1.2.5 Closet

A closet shall be provided by the Contractor, for housing the PC running as Firewall, Proxy Server and VPN tunnel. The size of the closet shall be large enough to accommodate the PC with the LCD monitor, the UPS and the switch with at least 50 mm tolerance on each side. There shall be at least three electric cooling fans at the back of the closet. The closet shall be at least 750 mm in height. At least 3 electric sockets shall be provided in the closet. The door of the closet shall be lockable.



#### **Logical Network Diagram in Site Office - LAN**

Note: While the Firewall, VPN & Proxy Server shall be set up by ArchSD Departmental Network Administrators, the installation of network cables and LAN shall be carried out by the Contractor.

### 1.3 Not used.

## **2.0 Provision of Broadband Internet Connection for Construction Site**

- 2.1 Establish and maintain a broadband Internet connection in site office.
- 2.2 The work shall include provision and installation of all necessary accessories, software and equipment and shall pay all installation, monthly rental and usage charges, which shall allow for unlimited usage of more than one microcomputer.
- 2.3 The speed of the broadband Internet connection shall be faster than 3 Mb/second for download and 1MB/second for upload.
- 2.4 The Contractor shall also provide and install firewall software on the specified number of microcomputers to protect from intrusions from the Internet.

## **3.0 Uninterruptible Power Supply**

- (i) input voltage: 190 Vac to 260 Vac;
- (ii) output: 220 Vac  $\pm$  5 % RMS, maximum output - not less than 400 VA or 240W;
- (iii) transfer time: 4ms typical 7ms maximum;
- (iv) backup time: greater than 6 min. at full load condition;
- (v) system auto restart: system shuts down when battery is under voltage. It restarts system automatically when AC lines restores;
- (vi) battery types: maintenance free sealed;
- (vii) protection:
  - (a) surge: 50 Joules, 4500 Amp, 5 pico seconds clamping response;
  - (b) noise: full time EMI.RFI filter;
  - (c) output (inverter): electronic overcurrent protection with latched;
  - (d) shut down: low battery shut down;
- (viii) audible noise: less than 55 dB;
- (ix) serial interface RS232 for monitoring cable;
- (x) Driver : driver to run on CentOS 4.3 shall be provided.

**4.0 (Not used)**

**5.0 (Not used)**

**6.0 Monochrome & colour flatbed scanner**

- (i) an optical resolution of not less than 1200 dpi (dots per inch);
- (ii) the scanning area should not be less than 215 x 355mm;
- (iii) it should be 100% compatible with IBM compatible machines, all associated hardwares and driver softwares should be included;
- (iv) to be compatible with not less than two optical character recognition softwares and to have the option of an automatic document feeder;
- (v) for colour and grey scale documents, the scanner should be able to recognize 24-bit colour (16.8 million colours) and 8-bit (256 grey scales) respectively;
- (vi) the scanning speed should be of an acceptable standard approved by the Architect;
- (vii) the scanner should be compatible with not less than two image manipulation software which allows the following functions:
  - (a) control levels on brightness and contrast;
  - (b) scaling ranging from 3 to 200%; and
  - (c) option for Gamma correction.

**7.0 (Not used)**

**8.0 (Not used)**

**9.0 (Not used)**

**10.0 (Not used)**

**11.0 Return of Computer equipment when project closure**

All data stored in computers should be erased before returning to Contractor. The hard disk should be erased by writing '0' and '1' with at least 2 rounds or physically damaged the hard disk by degausser.

## SAMPLE FORMS

**\* This is a sample of the form to be issued to the Contractor as guidelines and to be modified by him according to contract terms. The Contractor will be required to submit the document to the relevant Branch authority for approval of the proposed computer equipment, with the front page prepared on paper with his company's letterhead, and end of list properly signed and dated by him.**

Contract No:  
SS T320

Contract Title:  
**Construction of Local Open Space at Chung Yee Street, Kowloon City District**

*We submit the following to indicate compliance.*

Item	Specifications	Requirement	Comply	Not Comply	Remarks
<b>1</b>	<b>Pentium PC - _____ sets</b>				
<b>1.1</b>	<b>CPU:                    Brand Name _____                                   Model _____</b>				
	.1	CPU of performance equal or better than Intel Core 2 Duo Processor (2.66GHz, 6MB L2 cache)			
	.2	minimum 4GB 800MHz DDR2 SDRam (2x2G) with 3 memory slots			
	.3	minimum 800MHz Front Side Bus			
	.4	integrated graphics adapter able to support resolution up to 1440x900 and up to 16.7 million colours			
	.5	minimum 64MB RAM Display Memory which can share with on board memory			
	.6	-one unused PCI/PCI-E slots and one unused 5.25" drive bay			
	.7	integrated sound card			
	.8	compatible with LINUX, Windows XP Professional and Windows 7 professional			
<b>1.2</b>	<b>Disk Controller/Disk Drives</b>				
	.1	hard disk /floppy disk drive controller suitable for 2 hard disks, and 1 floppy disk drives; file system of the hard disk shall be NTFS format			
	.2	one 500GB SATA 3.0Gb/s 7200rpm hard disk or better; the hard disk should be partitioned, "C:\\" drive should be 200GB in size and the remaining space should be assigned to "D:\\" drive			
	.3	one DVD Writer (Double Layer) bundled with software required for producing DVD and CD-ROM			
<b>1.3</b>	<b>Keyboard :            Brand Name _____                                   Model _____</b>				
	.1	typewriter-like enhanced 101-keyboard			
	.2	IBM compatible			



Item	Specifications	Requirement	Comply	Not Comply	Remarks
	.15	height adjustable and comply with TCO'03			
	.16	response time less than or equal to 5ms			
	.17	Power supply supports 100-240VAC, 50/60Hz			
<b>1.8</b>	<b>Network Interface</b>				
	.1	10/100 Mbps Ethernet adapter with RJ-45 connector and patch cable			
<b>1.9</b>	<b>Chinese Input Device (for PCs with Chinese OS only)</b> <b>Brand Name</b> _____ <b>Model</b> _____				
	.1	USB type for input of Chinese characters, size not larger than 152mm x 102mm (6"x4"), support Chinese Windows XP Professional and Windows 7 professional, and the Chinese software applications			
<b>1.10</b>	<b>Power Supply Unit</b>				
	.1	comply with Underwriters' Laboratory (UL) standards on electrical safety, or other similar standards and approved			

<b>2.</b>	<b>Monochrome &amp; colour flatbed scanner :</b> <b>Brand Name</b> _____ <b>Model</b> _____				
	.1	an optical resolution of not less than 1200 dpi (dots per inch)			
	.2	the scanning area should not be less than 215 x 355mm			
	.3	it should be 100% compatible with IBM compatible machines, all associated hardware and driver software should be included			
	.4	to be compatible with not less than two optical character recognition software and to have the option of an automatic document feeder			
	.5	for colour and grey scale documents, the scanner should be able to recognize 24-bit colour (16.8 million colours) and 8-bit (256 grey scales) respectively			
	.6	the scanning speed should be of an acceptable standard approved by the *Architect/Engineer/Quantity Surveyor			
	.7	the scanner should be compatible with not less than two image manipulation software which allows the following functions: (i) control levels on brightness and contrast (ii) scaling ranging from 3 to 200% (iii) option for Gamma correction			

Item	Specifications	Requirement	Comply	Not Comply	Remarks
<b>3.</b>	<b>Software</b>				
	.1	MS Windows 7 professional Downgradable to XP professional <i>English/Chinese*</i> , ___ sets full product			
	.2	AutoCAD 2008, ___ sets full product			
	.3	MS Project for Windows, ___sets full product			
	.4	MS Office (standard version), ___sets full product			
	.5	Trend Micro Anti-Virus, ___sets full product (* not required for PCs connected to HQ via VPN)			
	.6	Windows 2003 Server Client Access License, ___nos.			

<b>4.</b>	<b>Standard A4 Laser printer : ___ set</b> <b>Brand Name</b> _____ <b>Model</b> _____				
	.1	Monochrome			
	.2	1200x1200 dpi			
	.3	minimum 32 MB of random access memory			
	.4	able to print in auto duplex up to 20 pages per minute			
	.5	able to print in portrait and landscape orientation			
	.6	able to print on paper up to A4 size			
	.7	minimum one 250-sheet letter size paper input bin/tray and 50-sheet multi-purpose Bypass tray			
	.8	USB 2.0			
	.9	print server software driver supporting LINUX, Windows XP Professional and Windows 7 professional shall be provided			
	.10	toner : _____ units			

Item	Specifications	Requirement	Comply	Not Comply	Remarks
5.	<b>Provision of Wide-area-network Connection between Construction Site and ArchSD Head Office</b>				
5.1	<b>Wireless LAN through broadband connection</b>				
	.1	set up and maintain a broadband Internet connection with at least one static IP in site office for communication with ArchSD Head Office, which shall be compatible with existing VPN systems being used for connection from construction sites to ArchSD.			
	.2	a PC for setting up Firewall, Proxy Server, VPN Tunnel <b>Brand Name</b> _____ <b>Model</b> _____			
		(i) with Pentium 4 CPU running at 2.8 GHz, 400 MHz FSB or better,			
		(ii) minimum 512MB memory			
		(iii) mother board shall support ATA IDE hard disk or Emulate IDE for SATA hard disk			
		(iv) 1 number of ATA or SATA IDE hard disk not less than 80 GB, with at least 2 MB buffer, not slower than 7,200 rpm			
		(v) Graphic adapter			
		(vi) a LCD Monitor of size not less than 430mm (17")			
		(vii) CD Drive, 1.44 MB floppy drives, mouse			
		(viii) mini-keyboard			
		(ix) 2 numbers of Fast Ethernet Controllers, each shall be of different brand			
		(x) all necessary cable and accessories to set up the microcomputer			
		(xi) shall be able to run CentOS 4.3			
		(xii) all drivers shall be provided			
		(xiii) shall be installed with CentOS 4.3 before delivery			
		(xiv) at least 1 no. of serial port			
	.3	a Wireless LAN modem <b>Brand Name</b> _____ <b>Model</b> _____			
		(i) IEEE 802.11b/g compliant; Wi-Fi certified			
		(ii) speed shall be up to 54 Mbps			
		(iii) encryption : WPA2 – Personal / PSK scalable; supports VPN			
		(iv) shall provide at least 12 Nos. of Wireless LAN connection			
		(v) shall provide at least 4 nos. of Ethernet ports			
		(vi) all necessary drivers and management tools shall be provided.			

Item	Specifications	Requirement	Comply	Not Comply	Remarks
	.4	an UPS of capacity better than 1100 VA, serial interface for monitoring cable <b>Brand Name</b> _____ <b>Model</b> _____			
	.5	a closet for housing the Firewall PC and Wireless LAN modem			
		(i) the size shall be large enough to accommodate the PC with the LCD monitor and the UPS with at least 50 mm tolerance on each side			
		(ii) 750 mm in height			
		(iii) at least three electric cooling fans at the back of the closet			
		(iv) at least 3 electric sockets in the closet			
		(v) the door of the closet shall be lockable			
	.6	Wireless LAN adapters for Desktop PCs used by site staff: _____ units <b>Brand Name</b> _____ <b>Model</b> _____			
		(i) shall comply with standards IEEE 802.11b/g and Wi-Fi Certified			
		(ii) PCI Local Bus 2.2 compliant			
		(iii) shall support TCP/IP and DHCP			
		(iv) shall support operation systems of Windows XP Professional and Windows 7 professional			
		(v) shall support WPA2 – Personal / PSK Encryption			
		(vi) all drivers shall be provided			
	.7	Wireless LAN adapters for Notebook PCs used by site staff: _____ units <b>Brand Name</b> _____ <b>Model</b> _____			
		(i) shall comply with standards IEEE 802.11b/g and Wi-Fi Certified			
		(ii) PCMCIA compatible			
		(iii) shall support TCP/IP and DHCP			
		(iv) shall support operation systems of Windows XP Professional and Windows 7 professional			
		(v) shall support WPA2 – Personal / PSK Encryption			
		(vi) all drivers shall be provided			
	.8	the speed of the broadband Internet connection shall be at least 3 Mb/second for download and 512Kb/second for upload			
	.9	the work shall include provision, installation and subscription of a broadband Internet connection and all necessary software and equipment			

Item	Specifications	Requirement	Comply	Not Comply	Remarks
5.2	<b>Wired LAN through broadband connection</b>				
	.1	set up and maintain a broadband Internet connection with at least one static IP in site office for communication with ArchSD Head Office, which shall be compatible with existing VPN systems being used for connection from construction sites to ArchSD.			
	.2	a PC for setting up Firewall, Proxy Server, VPN Tunnel <b>Brand Name</b> _____ <b>Model</b> _____			
		(i) with Pentium 4 CPU running at 2.8 GHz, 400 MHz FSB or better,			
		(ii) minimum 512MB memory			
		(iii) mother board shall support ATA IDE hard disk or Emulate IDE for SATA hard disk			
		(iv) 1 number of ATA or SATA IDE hard disk not less than 80 GB, with at least 2 MB buffer, not slower than 7,200 rpm			
		(v) Graphic adapter			
		(vi) A LCD Monitor of size not less than 430mm (17")			
		(vii) CD Drive, 1.44 MB floppy drives, mouse			
		(viii) mini-keyboard			
		(ix) 2 numbers of Fast Ethernet Controllers, each shall be of different brand			
		(x) all necessary cable and accessories to set up the microcomputer			
		(xi) shall be able to run CentOS 4.3			
		(xii) all drivers shall be provided			
		(xiii) shall be installed with CentOS 4.3 before delivery			
		(xiv) at least 1 no. of serial port			
	.3	a switch <b>Brand Name</b> _____ <b>Model</b> _____			
		(i) shall support 10/100 Mb Fast Ethernet or higher			
		(ii) provide at least 12 nos. of Ethernet ports			
		(iii) rack mounted type			
		(iv) all necessary drivers and management tools shall be provided			
	.4	an UPS of capacity better than 1100 VA, serial interface for monitoring cable <b>Brand Name</b> _____ <b>Model</b> _____			
	.5	a closet for housing the Firewall PC and the switch			

Item	Specifications	Requirement	Comply	Not Comply	Remarks
		(i) the size shall be large enough to accommodate the PC with the LCD monitor, the UPS and the switch with at least 50 mm tolerance on each side			
		(ii) 750 mm in height			
		(iii) at least three electric cooling fans at the back of the closet			
		(iv) at least 3 electric sockets in the closet			
		(v) the door of the closet shall be lockable			
	.6	Fast Ethernet adapters, which shall be able to support 10/100 Mb/second TCP/IP Transmission, for Desktop PCs used by site staff: _____ units <b>Brand Name</b> _____ <b>Model</b> _____			
	.7	the speed of the broadband Internet connection shall be at least 3 Mb/second for download and 512Kb/second for upload			
	.8	the work shall include provision, installation and subscription of a broadband Internet connection and all necessary software and equipment			
5.3	<b>Dial-up connection between Site Office and ArchSD Head Office</b> <b>Modem</b> : ___ sets <b>Brand Name</b> _____ <b>Model</b> _____				
	.1	the communication link shall be capable of transmitting data at a rate of not less than 57,600 bit per second, conforming to ITU V.90 standards and with automatic fallback to lower baud rate			
	.2	the work shall include provision and installation of all necessary software and equipment, including modem, at the Site Office, leasing appropriate communication lines and paying all installation, monthly rental and usage charges			
<b>6.</b>	<b>Provision of Broadband Internet Connection for Construction Site</b>				
	.1	Establish and maintain a broadband Internet connection in site office.			

Item	Specifications	Requirement	Comply	Not Comply	Remarks
7.	<b>Uninterruptible Power Supply : ___ sets</b> <b>Brand Name</b> _____ <b>Model</b> _____				
	.1	Input voltage: 190 Vac to 260 Vac			
	.2	output: 220 Vac $\pm$ 5 % RMS, maximum output - not less than 400 VA or 240W			
	.3	transfer time: 4ms typical 7ms maximum			
	.4	backup time :greater than 6 min. at full load condition			
	.5	system auto restart :system shuts down when battery is under voltage. It restarts system automatically when AC lines restores			
	.6	battery types : maintenance free sealed			
	.7	protection : (i) surge :50 Joules, 4500 Amp, 5 pico seconds clamping response; (ii) noise : full time EMI/RFI filter; (iii) output (inverter): electronic overcurrent protection with latched; (iv) shut down : low battery shut down;			
	.8	audible noise : less than 55 dB			
	.9	Driver : driver to run on CentOS 4.3 shall be provided			

8.	<b>Documentation</b>				
		_____ full sets of documentation shall be provided free of charge by the Contractor for each set of the microcomputers supplied in this contract.			
Etc.,	etc.,				

Additional Notes:

We shall be grateful for your approval.

XXXXXXXXXXXXX  
for YYYYYYY