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*Abbotsford Hospital & Cancer Centre*

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**Output Specifications**

**Section 6 – IT/TEL Services**

**November 29, 2004**

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**6 IT / TEL SERVICES**

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## 6.1 INTRODUCTION

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### 6.1 INTRODUCTION

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#### 6.1.1. Overriding Principles

1. Project Co shall provide all information technology equipment and telecommunication equipment required at the Facility as described in the Output Specifications and in the Equipment List. End-Use Devices shall be supplied by Health Co but Project Co may propose to provide them should it provide some benefit to Health Co.
2. The Fraser Health Authority (FHA) has an information management directional plan consisting of their 3 core deliverables. Provision and Management of the Technology (E-highway), Management and Delivery of Information (E-Documentation) and Management and Support for their core business (E-business). Project Co shall provide the network equipment, and the telecommunications equipment for this Facility to support this plan. The provision of this equipment is to be done in a cost effective manner, with technology that seamlessly integrates with the rest of the Fraser Health Authority's network and telecommunications equipment.
3. The full Electronic Health Record (EHR) is the ultimate goal of the Health Authorities when it comes to gathering, storing, and transmitting patient information. The intent of the EHR is to allow health care providers the ability to make more accurate faster decisions on courses of action for patients, provide efficiencies for staff and patients to reduce costs, and provide better privacy and security of the patient record by controlling where it is stored. Project Co is required to have an information technology professional as part of their team to design the network and telecom systems for the Facility. Project Co will assist Health Co in implementing the EHR by designing the Facility's networks to allow patient information to be acquired electronically and transmitted to clinical staff electronically.
4. The Fraser Health Authority's standard software application package for all health service is Meditech. The PHSA's BC Cancer Agency standard software package is CAIS. CAIS is the Cancer Agency Information System and is a set of clinical applications that support the delivery of cancer care. CAIS is used throughout all facilities by the BC Cancer Agency, was developed by the BC Cancer Agency and is an ever-evolving set of software applications that supports the staff and patients of the BC Cancer Agency. Project Co is not required to provide application software for the Health Authorities information management system. All application software will be provided by the Health Authorities stored in application servers also supplied by the Health Authorities that will be located for the most part offsite in server farms. The management of all Health Co employees or patient information is the responsibility of Health Co and the Health Authorities must assist Project Co in configuring the network. Project Co is responsible for the provision, installation, and configuration of the network equipment. Project Co shall be responsible for all IT/TEL equipment provided by Project Co. during the warranty period..
5. For the information of Project Co, the Health Authorities have several agreements with a variety of companies for provisioning computers, peripheral, network equipment, telecommunication equipment. One of the Health Authorities has a technology refresh program that replaces all computers and printers and services all computers and printers

## 6.1 INTRODUCTION

for the entire Authority. The other Health Authority provides servers for their Linear accelerators and CT simulators at significantly reduced costs compared with the vendors of these machines. Some or all of these agreements may be available to Project Co.

6. It is the intent of the Health Authority that all Project Co supplied IT/TEL equipment in the Facility remains current. All Project Co supplied IT/TEL equipment will be subject to a refresh program by Health Co consisting of 10 years for telcom equipment and 5 years for network equipment.

### 6.1.2. Quality Requirements

1. Project Co shall comply with all Applicable Standards including, but not limited to, the BC Building Code and those standards in Appendix 5A Technical Reference Standards. Refer to Output Specifications Section 5 – Design and Technical: Subsection 5.2.6.2. Other Codes and Standards for information regarding Appendix 5A Technical Reference Standards.
2. Project Co shall meet IEEE 802.3 Standards for Ethernet networking.
3. All Project Co supplied computers shall be Microsoft compatible, with the latest operating system, complete with the latest Intel Pentium processors.
4. All telephone equipment shall meet all applicable BICSI, IEEE, and EIA/TIA standards.
5. IP Protocol shall be used for both telephone and data equipment.

### 6.1.3. Performance Requirements

1. Project Co shall provide, install, and warranty all network equipment, telephone PABX, telephone headsets to serve Health Co as defined in the Output Specifications and the Equipment List. The network equipment and telephone equipment shall be the latest version of the specified equipment at the time of installation,
2. Project Co shall provide all of their own information technology and Telecommunication technology to suit Project Co's requirements. If Project Co wants to operate their computers, printers, fax machines, peripherals, and telephones, on Health Co's network and telephone PABX, their computers, printers, fax machine, peripherals, and telephones must be fully compatible with Health Co's network and telephone PABX.
3. The network equipment provided by Project Co for Health Co must support all applications run by Health Co including but not limited to Meditech and CAIS Health Co wants one common network and telephone infrastructure.
4. Project Co may not place any of their own computers on the network before checking with the Health Authorities. Project Co is responsible to pay for any additional software licences required for their own computers.
5. Project Co shall provide a manufacturer's warranty on all Project Co supplied IT/Tel equipment, such to commence at Substantial Completion..
6. Items critical for patient life safety shall have built-in redundancy and spare components onsite for immediate replacement during the warranty period.



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## 6.2 NETWORK EQUIPMENT

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### 6.2 NETWORK EQUIPMENT

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#### 6.2.1. Overriding Principles

1. The network equipment shall be provided to service communications, storage and retrieval of data, and information management in this Facility for Health Co. and the Health Authorities.
2. The patient health record will be fully electronic in nature and all information related to patients shall be digital or have the ability to be converted to digital and reside on the network.
3. There are three main network types in the Facility.
  - 3.1 The administrative networks consist of all staff information, patient information, and financial information. The administrative servers are supplied by the Health Authorities and are located offsite. The network equipment shall provide wide area network connections to these server farms to secure access to all levels of required information.
  - 3.2 The building networks consisting of building systems such as the building management system, building communication system, fire alarm system, alarm management systems, security systems, and other building related systems. These system will be provided by Project Co and shall operate on the networks to allow integration to other networks to create efficiencies in operation.
  - 3.3 The clinical networks consist of all medical systems providing the necessary clinical information to support care, treatment, diagnosis, and monitoring of patients. These medical systems shall be provided by Project Co and shall operate on the networks to allow integration of clinical networks, administrative networks, and building networks to create efficient, secure, safe and reliable operation for patients and staff.
4. The network equipment shall be open architecture, consistent with the established equipment standard of the Health Authorities and shall allow all industry standard protocols, software and communication types to reside on it. The main Applications for the Facility are Meditech and the Cancer Agency Information System (CAIS). All applications, software modules and related software used to create, support or operate with these two systems shall be supported by the network equipment.
5. The convergence of the three media types (voice / video / data) shall be supported by the network equipment and all equipment (including but not limited to the main telephone system, video conferencing, CCTV, dictation, fax, transcriptions, and all information systems) shall be supported and run over this network.

## 6.2 NETWORK EQUIPMENT

### 6.2.2. Quality Requirements

1. Project Co shall comply with all Applicable Standards including, but not limited to, the BC Building Code and those standards in Appendix 5A Technical Reference Standards. Refer to Output Specifications Section 5 – Design and Technical: Subsection 5.2.6.2. Other Codes and Standards for information regarding Appendix 5A Technical Reference Standards.
2. Provision and installation of network equipment shall be in accordance with all applicable IEEE and EIA / TIA standards including the 802.1 and 802.3 standards.
3. Configuration and installation shall comply in all respects with all standard information system protocols and will form an open system architecture.
4. Network equipment shall at minimum match the quality of the existing network equipment most commonly used by the agencies: products equal to ~~DELETION~~ for core and ~~DELETION~~ for edge. Both core and edge are redundant. The equipment used must be configurable by Health Authorities staff.
5. Project Co shall carry on their team a certified network engineer trained on the equipment chosen. This individual shall be responsible for the design and layout of the networks, and identify all connections in each of the administrative, building, and clinical networks. The Health Authorities will have a designated person available to assist Project Co in the configuration of the network.
6. Project Co shall utilize the Health Authorities' contracted source for the wide area network connections and equipment provision. The current source is Telus and the wide area network service shall be at minimum the service provided to the existing MSA Hospital at the time of completion of this Facility. If Project Co's certified network engineer believes that the current WAN provisions at the time of the move from the existing MSA hospital to the new Facility are inadequate to service the new Facility, they shall advise Health Co and suggest what may be a more appropriate service.

### 6.2.3. Performance Requirements

1. Project Co shall provide IT professionals to design and install the complete information systems network, and assist Health Co in the configuration of the complete network at the Facility. The FHA has two main server farms located off site (Surrey Memorial Hospital and Royal Columbian Hospital) where the core applications, communication services and storage facilities exist. It is the intent that these server farms will provide all core information services to this Facility. The BCCA's main server farm is located in the Vancouver Cancer Centre and it will provide core applications for the Cancer component of this Facility. Currently the main application technologies run at both Health Authorities are different. Meditech at FHA and CAIS at the PHSA. These two agencies will be developing gateway software to allow these applications to co-exist and integrate at this site and across all sites for seamless operation in this Facility. Project Co's network equipment is to support these standard applications and all other applications operating in these agencies, and properly deliver these applications to all End-Use Devices in this Facility.
2. There are three main network types in this Facility. The administrative network (or the Core Health Authorities network) consists of but is not limited to patient information

## 6.2 NETWORK EQUIPMENT

networks, financial information networks, and human resource information networks. The clinical networks consisting of but not limited to Medical Imaging / PACS, PYXIS pharmacy network, patient monitoring / vital signs network / radiation therapy networks, and electronic charting. The third network is the building systems network consisting of but not limited to building management systems, security systems, internal / external communications systems, and alarm management systems. All End-Use Devices are to be connected to the building's network equipment and run over the core building network providing Project Co access to all information in the building. Several of these systems and applications will benefit from integration such as the digital OR system with the telemedicine network to allow broadcasting out of the OR's or importing remote expert opinion into the OR's. Integration of applications either is already provided by Health Authorities or it is specified to be provided in the Output Specifications. Project Co is encouraged to propose other integration measures (specifically those related to the Clinical and Building networks) that will benefit Health Co in promoting its vision of a universal EHR and to promote efficiencies in Clinical and / or Building operations.

3. The new Facility shall have a complete structured cabling and complete wireless network infrastructure that will allow the use of all forms of wired or wireless communication devices. The network equipment provided by Project Co shall support this infrastructure and the Health Co supplied End-Use Devices, and shall deliver information where it is needed. The likely configuration of these structured solutions will consist of a main incoming telephone / video / data service room where Health Co's wide area network of telephone / video service providers will install their equipment. This room will be the access outside of the Facility to the Health Authority core network and server farms and the rest of the world.
4. There is a main information server room located in this Facility where local servers supplied by Health Co and the main core internal backbone network equipment are to be provided and installed by Project Co. The network architecture is to be designed by Project Co's IT professional with assistance from Health Co. The core layer 2 / 3 / 4 switches, the communications rooms layer 2/3 switches and the applications hubs layer 2 switches are all to be shown on the network plan identifying all connecting End-Use Devices. Each separate network for each application / area including all VLANS are to be identified.
5. The core network shall consist of, at minimum, two high performance (minimum 40,000 Mpps) layer 2/3/4 switches that are modular in design allowing any standard protocol slottable communication cards to be installed to service whatever WAN / LAN service is provided by Health Co service providers and 10/100/1000 Base T and all 802.3, 802.1 (2.5Gbit or 4Gbit) protocols for internal LANs. The core switch shall be modular, redundant in design (such that failure of one module power supply does not shut down the network), shall be high density, VLAN compatible, voice / video / data integration via TDM support, with both units interconnected to provide fully redundant paths to all communication rooms. The core network switches shall be fully configurable to allow assignment of priorities to mission critical applications and provide advanced network security services such as encryption, all standard routing protocols, multiservice functionality, hot swappable modularity and advanced network management software tools. The switch shall be easy to configure and shall support all protocols used by the Health Authorities and Project Co at the time of installation. The core switches shall accommodate all network traffic required to operate the Facility with no lag time or delay on any application including live video streaming, telehealth and all other network applications. Core switches shall be similar to ~~DELETION~~.

## 6.2 NETWORK EQUIPMENT

- Project Co will provide a network capable of handling all Health Co's applications, Project Co is responsible for integrating FM applications.
  - Firewalls, security, intrusion detection systems, etc. will be provided by Health Co.
6. It is anticipated that several communication rooms will be located throughout the new Facility to service core areas. Each communication room will require fully redundant stackable or modular high density layer 2/3 switches to service the local area networks. Each communication room shall be connected via separate pathways to each core network switch for full redundancy on a communication room level. Most End-Use Devices will be connected to a stackable or modular hub supporting, 10 / 100 / 1000 Base T Ethernet 802.3 protocols run on Cat 6 twisted pair, which will connect to these redundant layer 2/3 switches. Other anticipated protocols are wireless 802.11 connected via wireless access point transceivers covering all 802.11 protocol, and IP telephone protocols.
  7. The total port count for all End-Use Devices (data only) are as listed in the Equipment Schedule. Provide all network ports for all devices listed in the Equipment Schedule and all Project Co's devices at the appropriate bandwidths required, plus provide minimum 15% spare ports per communication room and minimum 25% spare ports overall. Provide and install all network components including assisting in network communications software configuration and testing.
  8. All network components, core, communication room switches / hubs shall be of the same manufacturer and series such as **DELETION**. Provide all required modular cards in each switch to support all protocols needed in each area.
  9. Train any designated Health Authorities IT specialists on configuration / set-up and testing of equipment provided.
  10. The current applications on BC Cancer workstations are as follows:

Standard Configuration:

- Microsoft Office Professional
- Microsoft Outlook
- CAIS (may be a subset depending on location)
  - patient scheduling
  - admitting
  - cancer registry
  - transcription
  - document management
  - clinical workflow
  - coding and abstraction
  - chart management
  - patient registration
  - clinical trials
  - results reporting
  - diagnostic image management
  - clinical data marts
- LOKI (timekeeping)

**6.2 NETWORK EQUIPMENT**

PeopleSoft Portal (business applications for end-users)  
 Microsoft Sharepoint Portal

Specialized Applications:  
 Microsoft Project  
 Visio

Pharmacy:  
 Medware WORX (Pharmacy information system)

Radiation Therapy:  
 Varis (various applications)

11. The current applications on FHA workstations are as follows:

Clinical and Financial MediTech Applications

<b>Patient Registration &amp; Revenue Management</b>	<b>Information Technology for Physicians</b>
Community-Wide Scheduling	Physician Care Manager
Registration	Medical & Practice Management Suite
Billing / Accounts Receivable	
<b>Patient Care Management</b>	<b>Laboratory</b>
Enterprise Medical Record	Laboratory
Patient Care Inquiry (MAGIC)	Microbiology
Patient Care System	Anatomical Pathology
Order Entry	Blood Bank
Patient Education	
Operating Room Management	
<b>Imaging</b>	<b>Health Information Management</b>
Imaging and Therapeutic Systems	Health Information Management
	Records
	Abstracting
<b>General Financials</b>	Enterprise Medical Record
General Ledger	
Accounts Payable	
Payroll / Personnel	<b>Ambulatory</b>
Staffing and Scheduling	Emergency Department Management
Materials Management	Patient Discharge Instructions
Fixed Assets	
<b>Reporting and Decision Support</b>	<b>Pharmacy</b>
Budgeting and Forecasting	Pharmacy
Costing Accounting	Bedside Medication Verification
Data Repository	
Quality Management and Risk Management	

E-Business & Related Applications

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## 6.2 NETWORK EQUIPMENT

Standard PC configuration:

- Microsoft Office Professional
- Microsoft Outlook
- Microsoft Sharepoint Portal
- Adobe Acrobat Reader
- IE

Specialized Applications:

- Microsoft Project
- Visio
- MS Project Server
- MS InfoPath
- MicroStrategy BI Tool
- Pagemaker

Other:

- Picis Food & Nutrition System
- Human Resources Portal Software
- Medical Equipment Management System (HECS)
- Home Support – Procura
- Home Care – InterRAI system (Meditech)

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## 6.3 TELEPHONE EQUIPMENT

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### 6.3 TELEPHONE EQUIPMENT

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#### 6.3.1 Overriding Principles

1. Telecommunications is a key element in the provision of healthcare and wellness for patients and staff in the Health Authorities. With the increasing demands on outpatient care and home care the telecommunications systems must support these clinical objectives. The FHA has established common technology platforms for their telecommunication services including abbreviated dial plans, centrally managed systems, provision of call centre and networked voicemail systems. The current MSA Hospital is part of this technology plan and the new Facility will also form part of this technology plan. Project Co shall provide a new PBX for the new site and all associated peripheral devices to integrate this Facility into the common telecommunications services provided in the FHA.
2. The PSHA's BC Cancer Agency currently utilises IP phone technology as their technology platform for all of their existing sites. They have decided to allow this site to follow the technology platform provided by FHA. The BC Cancer Agency believes that their current technology (and proposed future upgrades) will integrate with FHA's current technology (and proposed future upgrades) to allow the same level of services at this Facility as compared to their other facilities.
3. Convergence of media sources and the new PBX at this Facility will support voice/data/video convergence. IP Telephone technology will be utilized at this Facility.
4. Health Co will utilise centralized attendants or call centres that will manage all traffic residing on the telecommunications platform. The new PBX will support the Health Authorities' centralized attendant functionality.
5. The technology platform proposed for this Facility must be reliable, cost effective, scalable, expandable, not prone to obsolescence and seamlessly operate in the regional telecommunication and data network systems.
6. Project Co shall have a public telephone company provide pay phones in all lobbies and departments

#### 6.3.2. Quality Requirements

1. Project Co shall comply with all Applicable Standards including, but not limited to, the BC Building Code and those standards in Appendix 5A Technical Reference Standards. Refer to Output Specifications Section 5 – Design and Technical: Subsection 5.2.6.2. Other Codes and Standards for information regarding Appendix 5A Technical Reference Standards.
2. The telephone equipment is to comply with all BICSI / IEEE and EIA / TIA standards.
3. The telephone equipment is to fully integrate with the Health Authorities' telephone network and operate seamlessly with their networks.

## 6.3 TELEPHONE EQUIPMENT

4. The telephone equipment is to be CSA and ULC approved.

### 6.3.3. Performance Requirements

1. Design, provide and install a new telephone system consisting of a new PBX, new voice mail system, new telephone handsets and all necessary input / output modules for a full functioning telephone system at this Facility. Health Authorities will be responsible for operating and maintaining the system including 24-hour support, and Project Co will manage and provide the standard manufacturer's warranty.
2. All standard PBX and voice mail features are to be provided as well as networking and integrating this telephone switch and voice mail system into the Health Authorities' telephone network.
3. The current PBX systems in the FHA are the NEC NEAX 2400 series and the Nortel Meridian 1 series. The system provided by Project Co is to be **DELETION** or latest equivalent and be able to completely integrate with these two manufactures and be sized to suit this Facility. The numbering plan is to be integrated to both FHA and BCCA. Provide required hardware and software to incorporate this.
4. The PBX is to offer the following features, IP technology, computer telephone integration, speech recognition, unified messaging, integrated wireless telephone, connect to the existing coordinated dialling plan, interactive voice response, automatic call distribution, system administration software, music on hold, centralized networked voice mail, call centre functionality, centralized attendant, and connect to the Health Authorities' service providers (Telus) digital WAN networking system.
5. The PBX shall have redundant CPU's, have a full UPS system to operate the entire PBX / voice mail system and a disaster recovery option.
6. The system installer shall provide moves / adds and changes (MAC) software for remote changes for both, the PBX and voice mail system.
7. The PBX shall be integrated to the Public Address (overhead paging) system. Provide and install the telephone interface modules and paging zone modules.
8. The PBX shall be integrated to the Health Authorities' Dictaphone dictation system to allow any phone handset to act as a dictation station. The Dictaphone system is not located at this site. It is located in one of the Health Authorities' sites.
9. The PBX shall integrate with the new wireless phone system to allow the wireless handsets the same functionality as the wired handsets.
10. The PBX shall integrate into the Health Authorities' numbering plan.
11. The PBX and voice mail system can be used for all of Health Co's needs and Project Co's needs. Project Co's requirements are known only to Project Co and if Project Co intends to use this switch for their telecommunication needs, they are to include additional capacity and functionality as required. Health Co's requirements are as listed below.



### 6.3 TELEPHONE EQUIPMENT

- 11.1 Provide at minimum incoming service connectivity to match the existing MSA hospital PBX at time of completion plus any additional requirements to support this new Facility and 10% spare.
- 11.2 All locals to support all telephones and PDA's identified in the Equipment Schedule both wired and wireless plus 10% spare.
- 11.3 All single line sets identified in the Equipment Schedule, plus 5% spare.
- 11.4 All multiline sets identified in the Equipment Schedule, plus 5% spare. 80% of the multiline sets shall have 8 buttons, 15% shall have 16 buttons, and 5% shall have 32 buttons.
- 11.5 All consoles identified in the Equipment Schedule, plus one spare.
- 11.6 100 analog ports for specialized equipment such as fax, modem, identified in Equipment Schedule, plus 5% spare.
- 11.7 Voice mail system with sufficient mailboxes for all Health Co and Project Co users plus 20% spare. It is the intention that Project Co will do a traffic study and design the most suitable system to meet these requirements. The current number of voice mail users at MSA is 500. The unified messaging requirement is 250. The traditional voice mail requirement is 450 users. In addition, there are 4000, 600, and 5500 Fraser East users served out of this centralized platform.
- 11.8 Voice mail system to be sized based on two mail box classes. Management and Staff. Each will have a different mailbox metric. Estimated message time 1.5 minutes, 10 messages pending, 10 minutes per user with a 14-day message retention.
- 11.9 Box standard features to include, automatic day light savings time correction, automatic route selection, account code dialing, call detail recording, call forwarding, call display, call park, call pickup, service restrictions, conferencing, distinctive ringing, do not disturb, hunt, holiday mode, paging, privacy, power failure recovery, recall, speed dial, hands free and several programmable options.
- 11.10 Voice mail standard features, call logging, announcement only, broadcast message, call sender, service class restrictions, distribution lists, forwarding, header, lockout message writing indication, multiple languages, multiple greeting, passwords, out calling and full administration.
12. Project Co to install and program entire system – once programmed all Health Authority and Project Co staff specialists and users are to be fully trained on the system.
13. Project Co will provide the required telephony inventory/spare parts as required in this Section 6. After Substantial Completion Health Authority will manage and purchase all inventory/spare parts

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### **6.3 TELEPHONE EQUIPMENT**

14. For the 597 wireless phones, the physical plant phones, the housekeeping phones, and the security phones are to be 2-way radio capable.
15. There are no wireless remote connections required from the new hospital to any other facilities.

## 6.4 END-USE DEVICES

### 6.4 END-USE DEVICES

#### 6.4.1. Overriding Principles

1. Health Co shall supply and Project Co shall install all End-Use Devices required for Health Co as identified in the Equipment List. Project Co should supply and install their own end use device to provide a fully operational Facility. All End-Use Devices required for Health Co are listed in the equipment list. Project Co may, at their own discretion, propose an option to provide End-Use Devices that will meet or exceed the required specifications, pricing and value for money (as determined by Health Co).
2. The End-Use Device supplied at the time of occupancy of the Facility shall be the latest current proven device available at the time. End-Use Devices shall use the latest Microsoft operating system and be compatible with the current standards of the Health Authorities.
3. The use of these devices, especially the wireless PC, PDA or tablet is to create efficiencies for clinical staff in performing their tasks in each department. These devices will have specific uses in each department providing access to applications such as Meditech or CAIS as well as clinical software applications and the standard Microsoft suite of products.
4. Where possible these devices shall integrate with other systems in the Facility such as nurse call, security, and building management to display alarms for Health Co staff. An example would be a patient uses the nurse call to call a nurse; this action causes the nurse's wireless PDA to display the call across Meditech and display who called, display a portion of the EHR describing why the patient is in the Facility and give access to the nurse to the electronic chart, if needed. The nurse may answer the call (including voice response) from the wireless PDA and access any available patient information to assist in the response to the call. Integration between the IT/Tel System and the other technology systems shall occur if efficiencies in operation are proven, if the integration is cost effective and / or if integration is essential for the tasks performed in the department. It is the responsibility of Project Co to integrate to Health Co's End-Use Devices.
5. Currently the Health Authorities have only a few clinical applications where wireless devices are utilized. The Health Authorities anticipate a large expansion in the use of these devices in the facilities and ask Project Co to propose as an option wireless devices for these clinical applications in the new Facility. Anticipated applications are in Renal, Maternal Child, Surgical, Ambulatory Care, Cancer Centre, Rehabilitation, Emergency, ICU/CCU, Diagnostic and Laboratory services. It is anticipated that all clinical staff on a particular shift will need these wireless devices.
6. At minimum the systems utilized in the existing MSA Hospital at the time of the move to the new Facility will be provided in the new Facility.
7. The End-Use Devices are to be the latest current technology at the time of installation. During the course of operation they are to be replaced by Health Co. with the new, latest technology every 3 years with 1/3 being replaced each year.

#### 6.4.2. Quality Requirements

## 6.4 END-USE DEVICES

1. Project Co shall comply with all Applicable Standards including, but not limited to, the BC Building Code and those standards in Appendix 5A Technical Reference Standards. Refer to Output Specifications Section 5 – Design and Technical: Subsection 5.2.6.2. Other Codes and Standards for information regarding Appendix 5A Technical Reference Standards.
2. The End-Use Devices shall utilize the latest Microsoft operating systems.
3. The Health Authorities shall provide the operating system on a CD for all personnel computers to be installed.
4. All devices that utilize the network shall conform to the IEEE 802.3 standards or if wireless the IEEE 802.11 Standards, latest revisions.
5. All products supplied shall be consistent in manufacturer and all devices of each type shall be the same manufacturer.

### 6.4.3. Performance Requirements

1. Personnel computers shall be Pentium 4 or latest processor, Minimum 3.5GHz, 512Mb RAM, 60GB hard drive, desktop case, 17" flat panel monitor, 25 dot pitch, CD Rom drive, sound card, mic and speakers, standard windows keyboard, mouse, mouse pad, Microsoft Windows XP, 100mB Ethernet NIC card and 128Mb video card.
2. Thin client workstations shall be the latest version similar to Wyse 3235LE with mouse, keyboard and 17" flat panel monitor. Must support the current applications and connectivity.
3. Printers shall be Hewlett Packard Laser Jet series or equivalent ranging from the simple 2200 series up to the 9000 series as indicated in the Equipment List.
4. Wireless tablets shall be Pentium 4 or latest processor, Minimum 2.0GHz, 256Mb RAM, durable metal case with touch screen LCD monitor, pen type stylus, CD Rom drive, Microsoft Windows XP, 54Mb wireless 802.11X network card and video card.
5. Wireless personnel digital assistants (PDA's) shall have 800MHz or latest Intel or compatible processor with 128Mb RAM, LCD display, latest Microsoft operating system, navigation button, stylus, built-in speaker microphone system, sleek compact design, durable impact resistant plastic and IEEE 802.11 wireless network card.
6. Project Co to interface with End-Use Devices identified in the Equipment Schedule.
7. All Health Co supplied End Use Devices will be Pre-loaded, Pre-staged, and Pre-labelled, there will be no post configuration by Project Co. Project Co will be required to receive hardware, install and ensure network connectivity.

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## 6.4 END-USE DEVICES

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