THE NEW ENGLAND NORTH WEST REGIONAL CANCER CARE CENTRE AT TAMWORTH RURAL REFERAL HOSPITAL

NSW GOVERNMENT | HEALTH INFRASTRUCTURE
NSW HEALTH

MECHANICAL AND ELECTRICAL SERVICES

PART 3A APPLICATION

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TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

This report has been prepared by Steensen Varming, for the Part 3A Application, for the New England North-West Regional Cancer Centre at Tamworth Rural Referral Hospital.

This Part 3a Application provides the outline description of the design solutions for the Mechanical, Electrical Services and Medical Gases which will serve the new NENW RCC at Tamworth Hospital and will form the basis for the design development and documentation phases.

The scope of Mechanical, Electrical and Medical Gas Services in this report covers the following items:

- This report has been developed from the PDP and concept design report
- Plant rooms and internal development

Each system that is proposed for use in the new building is identified and discussed in this report.

2 MECHANICAL SERVICES

2.1 INTRODUCTION

This Part 3a Application report provides an outline description of the design solutions for the Mechanical Services that will serve the NENW RCC at Tamworth Hospital.

This will form the basis for the schematic design and documentation phases of the project.

2.2 SELECTION OF SYSTEMS

All systems are selected to provide flexibility, reliability, and economy in installation, maintenance and operation. The extent of redundancy for the new building is to be discussed and finalised with the client.

2.3 FIRE COMPARTMENTATION

A fire engineer will be required to advise on the compartmentation between the new and existing buildings and determine the requirements of the scope of works for this project that are related to fire protection and smoke control. Fire separation and any requirement for smoke control or pressurisation of areas for smoke control will need to be determined and confirmed by the fire engineer.

2.4 DESIGN GUIDELINES

The mechanical services designs will be based on a number of performance and engineering principles relating to temperature, humidity, air flow/pressure gradients, energy efficiency, acoustics, and flexibility/adaptability/reliability, maintenance and code requirements.

2.4.1 Temperature and Humidity

The following design conditions are referenced from AIRAH DA9 Guidelines.

2.4.1.1 Summer

For general air-conditioned areas, the internal design condition will be 23 degree C and 55%rh. The relative humidity will not be actively controlled but is expected to fall within the design value within a 10% range as a by product of air-conditioning. The temperature will be controlled to within plus and minus 2 degree C.

For any specialised rooms, control of relative humidity will be provided subject to verification of this requirement by the Room data Sheets.

The external design condition to be used for all non critical area load calculations and equipment selection will be 31 degree C DB and 23 degree C WB.

2.4.1.2 Winter

For general air-conditioned areas, the internal design condition will be 22 degree C. Temperature will be controlled to within plus and minus 2 degree C. The relative humidity will not be controlled.

For any specialised rooms, control of relative humidity will be provided subject to verification of this requirement by the Room Data Sheets.

The external design condition to be used for all load calculations and equipment selection will be 6 degree C.

The following list shows the key critical codes and design guidelines that will be referred to in the design:

- Health Services Facilities Standards
- TS-11 Department of Health Design Guidelines
- Building Code Australia
- AS 1668 Ventilation and Smoke Control systems
- AS 2117 Acoustics
- AS 2896 Medical Gases
- AS 3666 Control of Legionella Bacteria
- AS 3000 Electrical Wiring

2.5 PLANT ROOMS AND ACCESS

Plantrooms housing mechanical plant to serve the new extension will be required.

2.5.1 Air Handling Plant

It is proposed to have new air handling plant for the new building and that all air handling plant be located on the roof of the new building.

Air conditioning for the new NENW RCC at Tamworth Hospital will be conditioned with the proposed air handling system which will incorporate a Central Air Handling unit plant with a VAV system for zone control throughout the space.

Variable Air Volume (VAV)
VAV systems offer good flexibility in zoning and are therefore suited to this application. The option for a Multizone system was investigated; however these are usually less energy efficient to achieve the same degree of control of temperature as VAV. In order to achieve the same degree of zoning control as that offered by VAV, the amount of ductwork emanating from the plant room to each floor will be substantial, not to mention the associated riser and ceiling space required.

Variable speed drives will be provided to each VAV air-handling unit and return air fans with a static pressure sensor to modulate the fan speed to match the building loads. Each VAV box will include a heating coil to provide winter heating and zone adjustments.

Localised Fan Coil Units (FCUs)
Localised FCUs may be used for specialised rooms. This will be confirmed through the review of room data sheets. FCUs may be mounted within the ceiling void and provide zone control for each associated space.

2.5.2 Energy Plant

Investigations of existing plant locations, spare capacity and unused space have been undertaken, it is currently proposed to incorporate a standalone energy plant for the new cancer care centre. The maintenance for all the equipment for the cancer care centre will be local to the new building with ease of access and maintainability.

The plant rooms housing the Air Cooled Chillers and a Heating Water Unit are required to accommodate the following:

- Individual air cooled chillers to serve the Varian Linear Accelerators
- An air cooled chiller for the air conditioning of the new building
- A hot water heater for the air conditioning of the new building.
- Associated pumps
- Chilled water buffer tank for low load requirements
- Pipework
- Access space for maintenance etc.

Chilled Water Plant

A new air cooled chiller will be provided to serve the new cancer centre as described above. Air cooled chillers are required to be situated within an open plant deck with louvre screening around the outside or on the roof of the building with no screening.

The plant configuration will have notionally 1 main air cooled chiller, for the air conditioning of the new site and a chilled water buffer tank to accommodate for the low load requirement.

Individual air cooled chillers (in the order of 29KW each) will be used for each Linear accelerator. The level of redundancy required for these specialised units needs to be reviewed and agreed.

Hot Water Plant

The heating plant shall be of new plant to separately serve the new building. The boilers will be accommodated within an enclosed plant room incorporating natural ventilation to meet the gas code requirements.

2.5.3 AIR FILTRATION

All air handling systems as a minimum will be provided with good quality filtration including both outside air filtration and final filters. Panel filters will be provided to the outside air with deep bed bag filters being used as final filters.

2.5.4 EXHAUSTS

Toilet Exhausts

The mechanical services drawings will indicate the level of exhaust and associated duct routes for each exhaust system. Exhaust of toilets will be compliant with AS 1668.2.

Other Exhausts

Exhaust systems will be provided to serve other rooms such as cleaners, dirty utility and the like and will be compliant with AS 1668.2

2.6 BUNKERS

There are two types of cooling that are required for the bunkers:

- Direct cooling to the Varian Linear Accelerators
- Cooling for the room

Individual chillers shall be provided for the individual cooling requirements of the Varian Linear Accelerators.

The air conditioning of the bunker will need both cooling and heating. This will be provided on a centralised system that will serve the entire Cancer Centre.

2.7 ENERGY CONSERVATION

Energy efficiency will be an integral part of all mechanical services design. The items that will be considered for inclusion are detailed in the ESD report.

2.8 ACOUSTICS AND VIBRATION

Information on the systems and equipment will be sent to the acoustic consultant for review and advice on treatment of ductwork and any special sound attenuation that may be required to treat break out as well as in duct noise levels.

2.9 BUILDING MANAGEMENT SYSTEMS AND AUTOMATIC CONTROLS

2.9.1 SCOPE

The Tamworth hospital does not have an existing complete BMCS system. It is proposed the that works for the new NENW RCC will include a new BMCS system for control and monitoring purposes of the new building.

It is proposed that the system will cover the following services:

- Mechanical services
- Chilled water plant
- Heating plant
- Air handling systems
- Ventilation systems
- Lighting
- Power
- Medical Gases supply
- Water systems
- Interface with security and other communication systems as appropriate

3 MEDICAL GAS SYSTEM

3.1 GENERAL

The location of plant and outlets will be coordinated with architectural planning but will take into consideration maintenance and operational requirements. Oxygen and other gases will be served from the existing compounds.

Each department will be provided with an isolation valve box and alarm panel. Their locations will be determined in the detail planning of the departments. Medical services outlets will be specified to suit user requirements and it is anticipated the types will be compatible with the existing Hospital outlets.

The entire installation will be designed to AS 2896.

3.2 OXYGEN

The existing Tamworth Hospital is served by an oxygen VIE compound. This compound accommodates a bulk vessel as well as a standby vessel. It is proposed that these existing units will be sufficient for the new cancer care centre.

An oxygen line is installed from this compound into the Hospital. A connection will be made from the main distribution point to serve the new cancer care centre.

3.3 MEDICAL AIR

It is proposed to extend the existing medical air system to service the requirements of the cancer care centre.

3.4 VACUUM SUCTION

It is proposed to extend the existing vacuum plant to service the requirements of the cancer care centre.

4 ELECTRICAL SERVICES

4.1 INTRODUCTION

The Part 3a Application report provides an outline description of the design solutions for the Electrical Services that will serve the NENW RCC at Tamworth Hospital. The scope of Electrical Services in this report covers electrical services, communications, nurse call and electronic security systems.

4.1.1 Standardisation of Plant and Equipment

To avoid concerns of the engineering and maintenance department in regard to the differences in type of plant installed in various parts of the Hospital and the resultant difficulties in servicing and replacing plant components, where possible new plant for all stages will be of similar configuration, component manufacture and control sequence.

4.1.2 Maintenance

4.1.2.1 Maintenance Contracts

Preventative maintenance of a new installation will form part of the project 12 month maintenance period.

4.1.3 Occupational Health & Safety (OH&S)

Adequate space will be provided for servicing of equipment and parts in plantrooms and the general areas. Equipment will be installed to ensure adequate serviceability without the need for unsafe work practices. Reference will be made to:

- Manufacturer's installation instructions
- Workcover requirements
- Australian Standards

Where special equipment is proposed, all necessary operating details of such equipment will be provided.

4.1.4 Redundancy and Spare Capacity

The redundancy and spare capacity provisions will be in compliance with TS11.

4.2 AUTHORITY CONNECTIONS

The existing Tamworth Hospital site is served from 2 separate 11KV supplies which terminate into the main substation located adjacent the existing Ambulance Drop Off bay at the Brudelin Building.
This Country Energy substation (No. 3020) has 2 x 1MVA transformers which from most recent information are currently loaded to approximately 50% and 75% capacity, respectively.
There is also an available space for an additional 1MVA transformer to be installed at a future date.

Electricity - The existing external electrical infrastructure has sufficient capacity to supply the requirements of the new cancer centre.

Communications - The existing external telecommunications infrastructure has sufficient capacity to supply the requirements of the new cancer centre.

4.3 POWER SUPPLY

The existing substation feeds onto existing main switchboards 1 and 2 which serve various locations around the site. The main switchboard within the Brudelin Building does have spare spaces available that can be used for the new cancer centre non essential light and power loads. Based on investigations on site and review of as-built switchboard drawings it appears that the existing switchboards may not have sufficient capacity for three new linac units. Therefore it is proposed to install a new transformer within the existing substation and connect to the existing main switchboard to supply the cancer centre linac units and non essential load. Further investigation on site is required to finalise the details of the electrical supply to the new cancer centre.

4.3.1 Standby Generator Power Supply

There are various stand-by generators located around the site. The closest generator to the new cancer centre is directly outside the substation at the Brudelin Building.
This existing unit has recently been replaced and is a 380KVA Diesel Generator.
From the most recent site tests carried out, this unit currently has a demand of only around 20% of it's capacity, therefore the proposal is to use this spare capacity to serve the back-up power for the new cancer centre via the existing Mid Coast Board.

4.3.2 Uninterruptible Power Supply

An uninterruptable power supplies will be provided for selected items of equipment as listed below.
Uninterruptible power supplies will be provided with 10 minute battery autonomy and be adequately sized to accommodate the electrical capacity of the following:

- Computer Room Lab racks.
- Linac Computer Equipment

The electrical reticulation associated with Linac UPS will be designed and installed to incorporate an external maintenance bypass to allow removal of the UPS (for maintenance if required) without compromising the integrity of the power supply to the items of equipment listed above.

4.3.3 Power Cable Reticulation

Submains will be reticulated from the main switchboard throughout the new cancer care centre via a cable tray network secured to the soffit of the building floor slabs. Submains will terminate at separate normal supply and a standby supply distribution boards. Power sub-circuits will originate from each respective distribution board to provide both normal and standby supplies to outlets, equipment and appliances. The whole of the electrical installation will be designed and installed in accordance with the Australian Standard AS/NZS 3000:2000. Cable management systems will be utilised to ensure that cables are installed in a neat and professional manner and to ensure that equipment is serviceable

4.3.4 Electrical Distribution Cupboards

It is proposed to distribute general power and lighting sub-circuit cabling from a new electrical cupboard located towards the centre of the new NENW RCC to limit cable distance, thereby limiting voltage drop.
As the Linac's require high power load, a separate and independent electrical cupboard will be provided to service this specialised equipment.

4.3.5 Wiring Systems for Patient Treatment

Wiring Systems for patient treatment areas will be designed and installed in accordance with the requirements of Australian Standard AS 3003 and the recommendations of TS-11.

Body Protected Areas will have 10mA Residual Current Devices.

Cardiac Protected Areas will have 10mA Residual Current Devices and be wired with Equipotential Protective Earthing.

In some cases such as operating theatres where cardiac-pulmonary by pass equipment is used Line Isolation Monitors and Isolation Transformers would be used instead of the RCDs.

In non patient areas 30mA RCDs will be used in accordance with AS/NZS 3000.

4.3.6 Medical Services Panels

The MSPs will be provided complete with all services including power, equipotential studs, RCDs, Nurse Call buttons, indicators, light switches, as shown on the room data sheets or typical drawings including communications, Cardiac Monitoring outlets & gas and suction outlets.

The Nurse Call points will be supplied and installed under Nurse Call trade and details of the outlets will be provided to the MSP manufacturer to allow the fascias to be factory punched to suit.

The communications and Cardiac Monitoring outlets will be supplied and installed under communications trade and details of the outlets will be provided to the MSP manufacturer to allow the fascias to be factory punched to suit.

The Gas and Suction outlets will be supplied and installed under Medical Gases Trade and details of the outlets will be provided to the MSP manufacturer to allow the fascias to be factory cut to suit.

RCDs will be flush mounted in the MSP. All power outlets located on the MSPs will be provided with switches and 'power available' indicators for normal supply, standby supply and the UPS (where applicable) supply. An audible signal is to be activated when a RCD trips or is switched off.

The shop drawings for each different type of MSP showing all dimensions, layout, labelling will be provided by the contractor.

The MSPs will generally be recessed, with outlets arranged as per the drawings. The detailed design and installation of the panels will be coordinated with other services and joinery units etc. Where recessed the Panels will be capable of being mounted back to back in 92mm stud wall.

Where fire and acoustic walls exist cabling will be installed through joinery units to avoid penetrating the fire/acoustic wall.

All conduit 'droppers' are to be recessed into walls and are to terminate in recessed boxes at the rear of the MSP. The Recessed mounted medical services panels will be a standard proprietary item complete with all segregation boxes and separators between power services, communications and medical gas services.

For ease of installation and maintenance, all electrical and nurse call components will be grid mounted to the service duct independent of the fascia panels. All electrical equipment, accessories etc will be factory assembled and panel wired. Aluminium tee bars will be fitted at butt joints between panels to provide support and correct alignment. All corners and end plates will be fully factory welded and dressed.

4.3.7 Lighting System

Artificial lighting will be provided throughout the new buildings in accordance with the requirements of Australian Standard AS 1680 and the requirements of TS11. Luminaries will be energy efficient in their operation and incorporate a high light output ratio. Generally, the majority of luminaires used within the new buildings will incorporate efficient T5 triphosphor fluorescent lamps and electronic control gear.

Externally located luminaires will incorporate triphosphor fluorescent lamps or metal halide lamps. The lighting system will consider the security requirements of the Hospital. All triphosphor fluorescent lamps and metal halide lamps will incorporate high colour rendering properties Ra≥80 and a colour temperature of 4000K, to comply with the recommendations of TS-11. Where required cyanosis observation lamps will be provided.

Lighting control within the new building will generally be by local switches to individual rooms. Large open plan spaces may be bulk switch controlled. The lighting control system is to be designed and installed to utilize daylight wherever possible to minimise energy usage. Internal areas that have good levels of day lighting will be provided with automatic PE cell lighting control.

In addition to local switches, lighting in inter-departmental corridors will be 50% switched from the DB cupboards, 50% on BMCS control. External luminaires will be switched via photo-electric cell and time clock (BMCS) control. External lighting will be designed in accordance with AS 1158, AS4282 Obtrusive Lighting Code and AS4485, for new carpark areas, pedestrian pathways, and stairs.

Emergency exit lighting and emergency lighting is to be provided throughout the new building in accordance with the requirements of the Building Code of Australia and Australian Standard AS/NZS 2293.

4.3.8 Lightning Protection System

A lightning protection risk assessment will be undertaken for the new building in accordance with Australian Standard AS 1768. It is anticipated that a lightning protection system to the building will be designed and installed in accordance with the requirements of Australian Standard AS 1768.

Lightning protection will be achieved by bonding the steel reinforcement rods within vertical concrete encased columns and bonding from these nominated down conductors to the metal roof to provide an electrically continuous path to earth from the roof and all exposed metal elements that project the roof line.

Co-ordination between the roof contractor and the lightning protection trade will ensure that warranties are maintained.

Transient Surge protection is also proposed to be installed on the power system.

5 COMMUNICATIONS

5.1 STRUCTURED VOICE/DATA CABLING SYSTEM

5.1.1 General

A new structured voice / data cabling system will be provided within the new buildings. The installation will conform to AS/NZS3080 requirements, as well as the HNEAHS communications standards.

5.1.2 Telecommunications Rooms / Risers

The voice and data communications services for the cancer centre will be an extension of the existing hospital telecommunications system. The existing Hospital main communications room has capacity to accommodate additional copper and optical fibre backbone cabling to connect to the new telecommunications room for the NENW RCC.

5.1.3 Telecommunications Rooms

Communications structured cabling equipment shall be enclosed within a new communications room centrally located within the cancer care centre. The room will be a minimum of 12m^2 and are accessible from the corridor. The communications rooms will not have a raised floor but rather a grid of cable trays above the communications racks. An anti-static floor will be provided to comply with TS-11.

The room will have air conditioning using local fan coil units and be provided with standby power supply. The rooms will also have no ceiling, be painted and have anti-static flooring to architectural details.

The rooms will be the service nodes for:
Voice and Data Structured Cabling
Nurse Call
Security
MATV
BMCS

The services within the communications room shall be supported by UPS's.

5.1.4 Proposed System

It is proposed that for Horizontal Structured Cabling be a Category 6 end to end solution utilizing Category 6 UTP communications cabling, terminating at RJ45 outlets at the work place. Any required shielding of cabling will be facilitated by the communications cable management system rather than use of the STP cabling in local areas.
The recently circulated draft update of TS-11 communications section calls for shielded cabling to be provided, STP rather than UTP. We will review this requirement with HNEAH IT to consider this in conjunction with the current Network Standards.

Category 6
This standard is tested to ISO/IEC 250MHz Class E Channel requirements.

For performance to be guaranteed the entire structured cabling system is to utilise matched components from the same manufacturers system as the sockets.

5.1.5 Information Outlets

Information outlets will consist of the nominated number of Cat 6 RJ45 jacks, mounted in a faceplate to match the electrical power faceplates. The location of each outlet will be coordinated with power, and other relevant equipment. The cable will run back to the nearest communications room using cable tray and centenary wire cable support systems in the ceiling space.

Cable runs will generally be over corridors and publicly accessible areas, with good maintenance access. At the communications room, the cable will be terminated on rack-mounted RJ45 patch panels, grouped according to the floor where the outlet is located.

Reticulation of cabling will be such that the Cable Lengths are within 90m, 5m lengths are allowed for by fly leads and patch leads, total lengths 90m maximum.

5.1.6 Patch Leads

Sufficient quantity of RJ45 to RJ45 Category 6 patch leads of various lengths to patch all field voice and data outlets will be provided.

Patch leads shall be coloured to identify voice and data services.

5.1.7 Fly Leads

Sufficient quantity of RJ45 to RJ45 Category 6 fly leads of 3m lengths to patch all data field outlets to end user equipment. Fly leads associated with the telephone handsets shall be provided with the handsets.

5.1.8 Vertical Cabling

General

Redundancy will be as detailed on the communications single line diagram drawing.

Campus Backbone Between Buildings

Major network nodes will be connected by single-mode optical fibre cables, to form a ring structure spanning the campus.

For telephone services, major distribution frames will be connected by multi-pair UTP external grade block cable, in the form of a hierarchical tree structure, spanning the campus. The capacity of the cable will be determined by the local requirements, in multiples of 50 pairs.

Where available, these will be run within building spaces, however, where this is not possible, the cables will be run underground, within a pit and conduit network established for this purpose.

Where fibre optic cable runs underground, it should be a loose-tube, jelly-filled construction, with slack cable coiled at every pit, and at each point where the cable enters a building.

5.1.9 Lab Racks

Each communication rack will have the following specifications:

45RU lab racks to accommodate standard 19" rack mounted equipment, complete with power rail, and sufficient number of RJ45 passive patch panels to terminate field outlets. Steel cable management panels are required at regular intervals.

Ventilation:
Rack Top Mounted Fans x 2, Open at side bottom.

Shelves:
2 fixed + 2 removable, perforated steel capable of holding 20 kg safely and adequately. No greater than 2RU on face mount.

Cable Entry: Top, Provide cable management to the sides.
Power Outlets: Single GPO x 10; mounted vertically down the rack

Fixing:
The lab racks shall be securely fixed to the floor and the slab above.

5.1.10 Labelling

The labelling of the Structured cabling will be as per the HNEAHS communication standards.

5.1.11 Testing

Testing of the installed telecommunications system shall be undertaken in accordance with the Australian standards and manufacturers recommendations.

5.2 PABX

Further investigation is required of the existing PABX to verify if any modification / upgrade works are required to accommodate the additional voice services associated with the NENW RCC.

5.3 PAGING SYSTEM

The existing paging system at Tamworth Hospital is to be retained and be expanded to incorporate the paging requirements of the cancer care centre.

5.4 NURSE CALL SYSTEM

The existing SEDCO nurse call system, currently used throughout Tamworth Hospital will be expanded to accommodate the nurse call requirements of the cancer centre. The nurse call systems will incorporate nurse call, staff assist, staff presence, emergency call and porter call points.

The annunciator panel must be located so that it is visible from the Staff station and those annunciator panels located along the length of the corridor must be double sided and ceiling mounted. The annunciator panel will be alphanumeric with logical numbering.

5.5 MATV / RADIO SYSTEM

The existing central MATV / Radio system at Tamworth Hospital will be modified / extended throughout the new cancer centre.

MATV outlet locations are as nominated on the room data sheets.

The TV monitors and their support bracket suspended from the ceiling pole or wall stud will be a Group 2 item, either from a hire company or purchased by the Hospital.

5.6 VIDEO CONFERENCING & TELEMEDICINE

Cabling and outlets suitable for the Video Conferencing requirements shall be provided for this project, the need for video conferencing will be taken up further during the schematic design stage of the project.

Any Video conferencing and telemedicine audio visual equipment will be a Group 3 item however cabling requirements for the following shall be confirmed:

- Planning Room
- Meeting / Tutorial Room

6 ELECTRONIC SECURITY

6.1 GENERAL SECURITY

Security issues are of increasing importance due to the prevalence of violence and theft in the hospital environment. Therefore, the following items have been considered in the development of this schematic design report.

- Personal security of patients, staff and visitors
- Security of property of patients staff and visitors
- Security of hospital equipment and stores items
- ACCESS and egress / unauthorised intrusion
- Night staffing conditions

The electronic security system includes functional elements as follows:

- Access control
- Intruder detection and alarm system
- CCTV
- Duress alarms
- Security Lighting

The extent of the electronic security system shall be determined by discussions with the security user group and identified by the Room Data Sheets.

6.2 ACCESS CONTROL SYSTEM

Access control will be provided where necessary to suit the user requirements of the new facility.

6.3 INTRUDER DETECTION AND ALARM SYSTEM

Intruder alarms must connect to the existing system, expanders are to be installed where required.

6.4 CLOSED CIRCUIT TELEVISION

A surveillance system is designed to be a deterrent to illegal activity as well as providing the ability to review incidents after the event. It is not intended for the CCTV system to be monitored at all times as incidents will be recorded automatically.

A new CCTV system will be provided to the cancer centre and incorporate the following elements.
CCTV Digital Video recorders
Colour CCTV Cameras

6.5 DURESS ALARM SYSTEMS

Duress alarm points will be provided where necessary to suit the user requirements of the new facility.

6.6 SECURITY INTERFACES

The interfaces include direct links to the security office, PABX , paging system and the building management system.

6.7 INTERCOM SYSTEM

New intercoms will be located at nominated entry doors as indicated in the Room Data Sheets.

The intercom system will connect entry points with internal secure areas and shall be combined with the electronic security system to control peoples movement during nominated times.