HERIOT WATT UNIVERSITY

STUDENT RESIDENCES PROPOSAL
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## Student Residences Proposal

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1.0 Introduction

This document reviews defines the Brief for 500 beds for Heriot-Watt University (HWU). This document has been prepared using information collated from HWU and through consultation meetings with various University stakeholders.

The requirement is to procure a further 500 beds with completed scheme for delivery in summer 2015.

1.1 Project Scope

The accommodation will primarily consist of 5 bed cluster apartments with shared living/kitchen space. A small number of studios can be provided as required to maximise the efficiency of the building footprints. There is a requirement for communal social space within the new accommodation and a small management suite. It is anticipated that two Laundry areas will be required.

1.2 General Requirements

1.2.1 Generally

HWU requires the Provider to undertake the design, delivery and management of student residences providing the number and arrangement of accommodation and associated external works and drainage as outlined in this document.

For the avoidance of doubt, the design and construction under this contract must comply with the Employer’s express requirements as to the size and dimensions of rooms and flats. These requirements shall take precedence over all other requirements of the contract and any drawings with regard to areas and dimensions of rooms and flats. If for whatever reason the Provider or his design team can not comply with the Employers requirements a “non compliance” document should be included in the contractors proposals.

1.2.2 Scope of the Employer’s Requirements

The Provider is to ensure that he makes full and due allowance for the design and construction of a fully complete and usable building in keeping with student accommodation of a similar quality and size,

1.2.3 Minimum Building and Accommodation Requirements

All changes from the standard room layouts and design must be approved by The Employer prior to contract award.

The Employer defines the minimum and specific requirements as follows:

- All rooms and layouts shall be of a workable design
• All elements shall comply with the spirit and the conditions of all current regulations related to this type of building
• All elements shall comply with the Equality Act except where otherwise agreed in writing.
• The design shall comply in all respects to the following design criteria as well as to all the updated Parts of the Building Regulations. Where conflict between these criteria and any statutory, Building Regulation, British Standard, Code of Practice, HMO or legal requirement occurs, the design shall conform to the higher standard and the Contractor shall be deemed to have included for all costs
• Planning Consents

1.3 Collateral Warranties

It is a condition of this Contract that the Provider provides Collateral Warranties both in favour of the Employer and the funder, in the form as issued by HWU. It is also a condition that the Provider shall ensure that each and every designer and each and every major subcontractor employed by the Provider under this project shall also provide similar Collateral Warranties in the forms as provided.

Warranties from the Contractor and the Consultants must be provided by the Provider to the Employer as a condition precedent to the Contractor being entitled to payment of its first interim progress claim.

All other warranties are to be provided prior to the Practical Completion certificate being issued.

1.4 Copyright of Design

Copyright of all design work shall be passed to the Employer for his use royalty free in perpetuity. If the Contractor sublets any part or parts of the design, he shall ensure that copyright of that part or those parts are also passed to him.

1.5 Insurance

The Contractor may be required to take out and maintain a Joint Names Policy as referred to in the Standard Form of Contract (liability etc of Employer) for an amount to be specified. The Contractor is to take out and maintain a Policy as required by the Standard Form of Contract (Erection of new buildings - All Risks Insurance of the Works by the Contractor).

1.6 Professional Fees

The Contractor is to include for the cost of fees of the professional consultants as follows:-

• Architect
• Structural Engineer
• Landscape Architect

All other designers/consultants/advisers that may be required to complete, approve, test or verify the design to ensure its compliance with the
Employer’s Requirements, including Highways Engineer, Acoustic Engineer, Environmental Engineer, approved Building Control officer and the like.

- All reports produced prior to contract and included in the Employer’s Requirements are deemed to be integrated into the final decision
- The employer will retain the services of an Employers Agent, Cost Manager, Clerk of Works and M&E Services Consultant

1.7 Show Flat

HWU requires one student flat cluster to be available for the purpose of marketing the building. This flat is to be on the ground floor, include a wheelchair accessible room, and is to be in a position closest to the final main entrance of the development.

The Provider shall be deemed to have allowed in his tender to provide this flat by the due date, together with any costs in returning the flat to newly completed condition including the costs of re-decorating and re-carpeting the flat, which is to be carried out at the time of Practical Completion of the Project.

The show flat must have fully working services (with the exception of television) to include lighting (appropriate to represent final lighting levels), electricity (sufficient to use power sockets), drainage, and water (sufficient to use for drinking and sanitary use) and must include 3 (phone, fax and pdq) working telephone lines. It must have dedicated, lit access routes without steps, which can be safely used by the public. The access to the show areas must be separated from the main construction site and activities, and suitable enclosures provided by the contractor, including a lockable gate/door into the access provision. After the agreed date, the Contractor must allow the Employer and any other persons the Employer authorises, permanent access to the flat, and must provide the Employer with a set of keys to the flat.

1.8 Employer’s Approval

All items, unless specified with a brand and model number within this document or otherwise, shall be subject to the approval of the Employer. Where alternatives are specified, they shall be specifically highlighted, the final choice shall remain the Employer’s and the contract sum shall not be subject to adjustment providing the Employer chooses one of the stated alternatives. All appliances should be mid range; for example Beko, Zanussi etc. and should be presented to the Employer for approval.

**The Provider shall allow adequate time in his programme and procurement schedule for the provision of all the following information to the Employer to obtain advance approval.**

The Provider must allow in the programme for a period of 3 weeks following the receipt by the Employer or their Agent of all the information, in order for the Employer to issue his formal approval. Therefore items identified below should be provided to the Employer as soon as possible within the contract period.

The approval process shall be as defined in the Standard Form of Contract.

Although not an exhaustive list, the minimum schedule of items which the Employer shall approve in advance of contractor procurement shall include:
The principal construction method (i.e. loadbearing masonry, steelframe, modular, etc)
All external works and furniture, ancillary buildings, landscaping designs etc.
All fixtures and fittings as identified within this documentation.
Colour scheme.
All furniture as identified within this documentation
Room layouts of all principal room types, including kitchen and dining arrangements (room layouts must be issued ONCE as fully co-ordinated and must show co-ordinated positions of all listed furniture, appliances, fixtures and fittings, power/phone/data sockets, lights, switches). Any variation from the standard layouts must be approved by the Employer
CCTV design and layout – to include full operational strategy and specification.
Fire alarm design and strategy, including evacuation strategy for people with impaired mobility, vision or hearing. A preliminary fire risk assessment for the building in occupation shall be carried out by the designers as part of the design process. Confirmation of acceptance of design will be required from submission to the Employer BEFORE submission and approval by LA Building Control and/or Fire safety enforcing authority is obtained
Site Access control, vehicular and pedestrian – To include full operational strategy and specification
Security and access control systems to accommodation– to include full operational strategy and specification
Window Cleaning Strategy

1.9 The Provider Proposals

A detailed programme showing critical path to be provided within the proposals, During the course of the project this is to be updated on a 4 weekly cycle (AT THE EMPLOYERS REQUEST) this update shall include critical path analysis, resource allocation, a management summary indicating key milestones and action plan to address issues within the overall programme.

If the Provider Proposals seek to amend or amplify the Employer’s Requirements, this should be clearly identified and attached as a separate annotated schedule.

The Provider Proposals must clearly and distinctly identify any change and/or deviation from the Employer’s Requirements including programme and cost implications.

In addition to the above, the Provider Proposals MUST incorporate the following documents and provide the services listed below as a minimum:

- Architectural/Structural/Services design proposals including general arrangement drawings at a scale of 1:50
- The Contractor must allow for adequate surveys to confirm the accuracy of existing services information provided and takes full responsibility for this information
- The Contractor is to provide full PPE for the Client, EA, COW and suitable PPE for up to 8 visitors of the client
- The Contractor shall provide an Office within the site set up for the Clients project manager this shall include, desk, chair, conference table with 4 chairs filing cabinet storage cupboard, telephone
- The Contractor is to provide desk space and telephone/fax access for client’s Clerk of Works (Separate from the Clients Office)
The Contractor must make allowance for the provision of appropriate personnel both at management and operative level for the management of the handover/occupation level weekend including representatives from all the major sub contract packages and installation specialists, allowance shall also be made for cover at an appropriate level for the first 2 weeks following occupation e.g. plumber electrician and management supervision.

1.10 Communications – Early Completion and Access

The Provider is required to provide the Employer and his agent's access to the communications room and the risers and other parts of the works relating to the internet and telephone cabling system prior to Practical Completion.

The Provider is to ensure that 2 weeks prior to the date for Practical Completion, the communications room and the riser cupboards in each block on the ground floor (or floor at the level of the main block entrance) are complete and lockable, together with all other required works relating to the telephone and internet system.

The Provider is to ensure that at this date all works necessary have been completed to allow the Employers internet and telephone service providers to install their equipment and connect to the cabling within the development, and that the termination and labelling of the cables by the Contractor has been done satisfactorily.

The comms room is to be located in an area which will be watertight at an early stage to the contract and shall be specifically made watertight for a date to be specified.

1.11 Plant

All plant should be serviced annually (or on a 6 month basis) during the 12 months maintenance period dependent on the servicing requirements. The servicing should be carried out by the main contractor or their sub-contractor. All servicing requirements should be completed one month before the end of the maintenance period.
2.0 Regulations/Legislation

2.1 Planning

The application will be classed as a major application which means that there is a requirement for a pre-application notice to be issued to the Council following which a minimum 12 week public consultation period is required before the planning application can be submitted. It would be expected that there will be two Public Consultation events held prior to the Planning Application being submitted. Further discussions will require to be held with the Planning Department as the design develops.

In particular the transport strategy will have to be carefully considered due to the potential increase in traffic volume and parking requirements. Measures supporting minimal parking provision will have to be demonstrated.

2.2 Building Regulations

As noted previously the building will be classed as “Non Domestic” for the purposes of the Building Warrant application.

The Building Regulations require 5% of accommodation to be accessible to all. This means wheelchair accessible rooms sized to provide manoeuvring spaces, wet rooms and fittings to meet the current standards for accessibility.

Further detailed discussions will be required regarding the extent of fit out to the accessible accommodation to ensure where possible that only appropriate measures are taken based on individual requirements. In all other respects the buildings are to be designed to meet the requirements of the Non-domestic Technical Standards.

2.3 HMO Requirements

All student apartments which fall within HMO standards criteria need to comply with the guidelines and requirements stipulated, and are subject to regional and/or institutional variations. Where HMO standards differ from the client requirements, the one with the greater requirements is to take precedent.

2.4 Fire and Safety

The buildings are classified as a Residential buildings, as defined by the Building (Scotland) Regulations 2004, and therefore the 2011 Non-Domestic Technical Handbook should be used as a basis for the design.

The buildings should be constructed such that every residential cluster forms a fire compartment and each cluster is arranged such that access is available to alternative storey exits. The fire detection and alarm system should be designed in accordance with BS 5839-1 to a category L2 standard, comprising of detectors installed throughout all escape routes, all rooms located directly off escape routes and any other area considered to represent a high fire risk. The type of detector chosen will be determined based on the speed of response required, the nature of the fire hazard and the need to minimise false alarms.
Evacuation lifts should be installed to assist in disabled escape and located within the protected zones. Temporary waiting spaces should be provided within all protected zones other than those at ground level, and should be provided with a level threshold. These spaces will be a minimum of 700 mm x 1,200 mm and will not obstruct the width of the escape route. An Emergency Voice Communication (EVC) system designed and installed in accordance with BS 5839-Part 9, should be provided to each temporary waiting space.

Fire service access should be provided with fire fighting shafts, comprising of ventilated stairs and lobbies and dry rising mains. The addition of ventilation to the fire-fighting lobbies is not necessarily required for a building of the height proposed but may be provided to compensate for the reduction in fire-fighting access to the perimeter of the buildings.

2.5 Equality

It is recommended that an Equality Impact Assessment be carried out as part of the next stage of the design process to ensure that as the designs progress any equality issues have been reviewed and actions agreed with the University.

Accessibility

Careful consideration should be given to the movement of disabled students throughout the accommodation and site, however wheelchair accessible accommodation will be provided primarily on the Ground Floor at a 1 in 20 ratio or as otherwise agreed.

The wheelchair accessible accommodation should be distributed throughout the cluster flats to ensure student inclusion. It is intended that suitable equipment for individuals will be fitted as required and that not all accessible rooms will be completed fitted out as standard. It is understood that no interconnecting doors between bedrooms are required for carers. Access will be provided for wheelchair users throughout all the buildings. In addition the design should include the following:

- Dropped kerbs and tactile warning surfaces at the approach to each entrance
- Adequately lit building entrances
- Car parking in adequate proportion and correctly sized for people with reduced mobility
- Level entrances to meet the requirements of the Technical Standards
- Manifestation to all glazed doors and full height screens
- Contrasting door surrounds and door furniture
- Power assist doors to all main entrances
- Level thresholds at all doorways apart from en-suite pods in standard bedrooms
- Signs designed and positioned to inform those with visual impairments and wheelchair users with reduced eye-levels
- Corridors with a minimum width of 1200mm and passing places in accordance with the Technical Standards
- All doors excluding en-suite shower pod doors and service hatch doors to have a clear opening of 800mm
- All doors across corridors to have vision panels at a height appropriate for both sitting and standing
- All manual doors to comply with the 20kN rule
• Colour schemes selected to provide visual contrasts for orientation
• Natural and artificial lighting to avoid glare and silhouetting
• Stairs to be clearly indicated by use of sign/colour/contrast/texture
• Handrails to both sides of every stair flight
• Lifts (if required) clearly defined by visual and tactile information with controls accessible from sitting and standing levels together with support rails
• A clear landing of 1500x1500mm to the front of the lift at each floor
• Lift door with minimum clear opening of 900mm
• Internal lift dimensions of at least 1100x1400mm
• Visible and audible alarm system

2.6 Acoustics

All floors and walls are to comply with the requirements stated within the latest building regulations. The performance level for the walls (party & bedroom) will vary dependant on the buildings classification and should be agreed with the Approved Inspector or Local Authority Building Control. Please see table below for typical values.

For ‘non-domestic’ accommodation both the party walls & bedroom walls need to comply with table below.

Ancillary walls do not require an acoustic rating.

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3.0 Accommodation Requirements

Student Rooms
- The accommodation shall be set out in 5 bed cluster flats with a nominal number of studios totalling 500 beds for the development.

Standard Bedroom
- The minimum usable size for a standard student bedroom shall be circa 14.5m² including the area of the en-suite facilities.

Wheelchair accessible standard accommodation - 5% of total room numbers but subject to liaison with the LA.
- The minimum usable size for a wheelchair accessible student bedroom shall be 21 m², including the area of the en-suite facilities.
- 1% of all student bedrooms shall be fully fitted at handover for use as accessible rooms.
- An additional 4% of all student bedrooms shall be easily modified for use, with no structural or other major work required – WC in appropriate position, wet floor shower area and walls capable of supporting grab rails around sanitary fittings.
- These rooms should initially be fitted out with deluxe style fittings if possible, any variation to be agreed by the Employer.

Standard Studio Bedroom
- The minimum usable size for a Studio student room shall be 25m² including the area of the en-suite facilities.
- At least one wheelchair accessible room shall have the future facility of a communicating door to an adjacent bedroom, for a carer to assist a disabled student.
- At least one wheelchair accessible room shall be capable of having a hoist retro-fitted to move between bedroom and en-suite.

Communal Kitchen/Dining Rooms
- Kitchen/dining/living areas for a 5 bed room flat shall be a minimum of 27m² usable space.
- Flats that have wheelchair accessible rooms shall also have a kitchen/dining room that is accessible to a wheelchair user.

Laundry
- Ideally should be located adjacent to the entrance.
- Laundry facilities maybe split across buildings as agreed by the employer.
- The laundry will have 1 washing machine and dryer to every 75 students, with access for disabled people.

Corridors
- All corridors shall be a minimum clear width of 1.2m, with minimum 825mm clear opening width of all room doors, and 100mm dado rail.

Visitor WC’s
- A single wheelchair accessible WC shall be provided adjacent to the principal entrance to each block.
Cleaners Rooms
- An appropriate number of cleaners rooms to be provided to an average size of 3m² inc ‘Belfast sink’ Hot and cold services and drainage. They will have a vinyl floor and some shelving.

Comms Rooms
- A Comms Room will be located on alternate floors in each of the new proposed blocks.

Plant Rooms
- The size and locations for other Plant Rooms will be reviewed during the next stage following a decision on the proposed energy strategy in each residence.

Bin Stores
-Externally allowance is to be made for bins for general waste, glass and mixed recycling. The numbers required will be based on capacity, occupancy and the frequency of pick-ups and are to be confirmed by the university however approximately one 1100litre bin should be provided per 50 residents. A wash down facility is to be provided adjacent to the bin areas. All locations should ensure safe pedestrian access with segregation from vehicular access where possible.

Cycle Stores
- Covered cycle storage is to be provided at each residence and the aspiration is for sufficient storage to obtain the required BREEAM credit.

Car Parking and Traffic
- It is understood that the only additional parking proposed at the residences will be disabled parking bays adjacent to each residence.
- Access requirements however will form part of detailed discussions with the Planning authority and a full transport plan may be required.

3.1 Accommodation Details

Preferred layouts for the standard bedroom, studio and kitchen living area are shown within Appendix 1

3.1.1 Standard En-suite Bedrooms

A standard bedroom including the en-suite will be approximately 14.5m² and will contain the following:

Bedrooms
- ¾ Bedframe. Nominal dimensions, 1250mm(w) x 1950mm(l). Bed supplied with 4 ft mattress. Mattress to be flame and water resistant.
- Safety mirror mechanically fixed back to wall c/w mirrored domed screw caps. Nominal dimensions, 400mm(w) x 1500mm(h).
- Wardrobe (open fronted) c/w clothes rail. Nominal dimensions, 600mm(w) x 600mm(d) x 2100mm(h) x 35mm(thk).
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- Wardrobe (open fronted) c/w clothes rail & 2 drawer base unit. Nominal dimensions, 600mm(w) x 600mm(d) x 2100mm(h).
- Bed head unit. Nominal dimensions, 1250mm(w) x 250mm(d) x 700mm(h). Shelves to end panel (see 16). Light switch and double power socket to be provided above bedhead, within wall.
- Laminate work desk with chamfered corner. Nominal dimensions, 40mm(thk) x 600mm(w) x 2500mm(l).
- Book Shelf. Nominal dimensions, 500(w) x 250(d) x 1350mm(h) x 35mm(thk)
- Study chair. Height adjustable c/arms, skid feet, upholstered pad seat & back.
- 2 drawer fixed pedestal unit underneath work desk. Nominal dimensions, 600mm(w) x 600mm(d) x 700mm(h).
- Easy chair. Jacobson Egg Chair Replica shown in model (spec. to be agreed).
- Single box shelf wall mounted over desk c/w integrated task lighting to underside of shelves (light switch within dado trunking). Nominal dimensions, 1400mm(w) x 300mm(d) x 550mm(h) x 35mm(thk).
- Bathroom pod. (Walker “K1” shown in layouts). Nominal 1310mm(w) x 2400mm(l) Access panel required (corridor side) to match main door.
- Bedroom door c/w coat hook & security viewer.
- Pinboard. Nominal dimensions, 1600mm(w) x 450mm(h)
- Whiteboard. Nominal dimensions, 750mm(w) x 120mm(h).
- Bed head shelves to be 300mm(d) x 35mm(thk) c/w back panel.
- Roller blind. To have blackout capabilities and flame resistant. Size to suit window opening.
- Corner desk shelving with chamfered corner. Nominal dimensions, 300mm(w) x 600(d) x 700mm(h).
- Radiator. Size & spec to M&E design. Allow for boxing out of all down pipes location to be agreed.
- Dado trunking to full width of desk with power and data to M&E spec. & design.
- Ceiling lights (Qty shown indicative only) to M&E spec. & design.
- Smoke and/or heat detector (Qty shown indicative only) in accordance with Fire Strategy & M&E Design

3.1.2 Wheelchair Accessible Bedroom with Wet Room - 5% of total room numbers

- The minimum usable size for a wheelchair accessible student bedroom shall be 21 m², including the area of the en-suite facilities.
- 1% of all student bedrooms shall be fully fitted at handover for use as accessible rooms.
- An additional 4% of all student bedrooms shall be easily modified for use, with no structural or other major work required – WC in appropriate position, wet floor shower area and walls capable of supporting grab rails around sanitary fittings.
- These rooms should initially be fitted out with deluxe style fittings if possible, any variation to be agreed by the Employer.
- A wheelchair accessible bedroom including the en-suite facilities will be approximately 28m². Each wheelchair accessible bedroom should include the following:
  - Fixed wardrobe with pull down hanging rail.
  - Chest of drawers with 3 no. drawers
  - Low level shelving unit with 2no. shelves
  - 1980mm long x 1200mm wide bed with mattress (and cover). Bed to have a height to the top of the mattress of 480mm. The frame will not have legs at the mid-point to enable a mobile hoist to be used if required, will not have below bed storage and will not be fixed
• 2m long adjustable height worktop 650 – 800mm
• 3 drawer pedestal on castors below the desk with contrasting handles
• Pin board mounted at 800mm above finished floor level
• 2no. 1200mm long shelves to accommodate A4 sized folders mounted at 1150mm to the top shelf
• Operator style desk chair
• Mirror mounted at 400mm above finished floor level
• Low level radiator with towel rail. Radiator to be low surface temperature type.
• Access to (easily operable) window catches
• Cord or rod operated Blackout blinds required.
• Cord operated assistance alarm and reset as per M&E specification
• Plastic waste bin
• Wall mounted reading light above bed, pelmet light above desk and ceiling mounted fittings as per M&E specification
• Dimmer switches as per M&E specification and additional sockets around the bed including for connection of a vibrating pillow
• Visual and audible addressable heat detection and standalone smoke alarm as per M&E specification
• A 1500 x 1500mm open floor space for turning
• Small pin board located in the corridor adjacent to the door mounted at 800mm above finished floor level

3.1.3 Wet Room

The accessible bedroom en-suite will be of traditional build rather than pod construction. The wet room will meet the requirements of the Technical Standards and include the following:

• Level entrance threshold
• Anti-slip flooring graded to ensure water run off to gulley in shower area accessible from the top.
• Adjustable TMV3 shower head with a measured flow rate that does not exceed 9 litres per minute for a water pressure of 0.3MPa with lever operated diverter
• Folding shower seat and back support to contrast with wall and floor colours. Separate folding seat for drying area. To be capable of taking 22st load at outer edge of seat
• Shower curtain with rod fitting to assist in opening / closing
• Wall mounted basin with lever operated mixer spray tap with TMV3 and maximum flow rate less than 6 litres/min for a water pressure of 0.3MPa
• Raised height WC with exposed cistern, spatula type side lever, dual flush with a maximum effective flush volume of 3 litres and guidance or symbols instructing the user on the appropriate operation of the flushing device
• Wall mounted light with integral shaver socket outlet fixed at 1000mm above finished floor level as per M&E specification
• Extract fan as per M&E specification
• Mirror - 450mm wide x 1000mm high - top of mirror to be 1600mm above finished floor level (in addition to mirror above basin)
• Toilet roll holder
• Coat hooks- 1050mm and 1400mm above finished floor level
• Wall mounted shelf
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- Grab rails (to contrast with wall and floor colours): - 6x 600mm grab rails, 1x 450mm grab rails, 3x drop-down grab rails
- 2x cord operated assistance alarm and 1 reset as per M&E specification
- Power to WC.

3.1.4 Kitchen/Living Rooms

Kitchen/Living areas to be provided for each 5 bed cluster. These will be approximately 24m²

Each kitchen area should include the following:

- Base unit with integral shallow drawer. Nominal dimensions, 400mm(w) x 600mm(d)
- Wall unit. Nominal dimensions, 400mm(w) x 700mm(h) x 300mm(d)
- Drawer Base unit (4 drawers). Nominal dimensions, 400mm(w) x 600mm(d)
- Oven c/w oven housing (blanking plate as required to match adjacent doors) & hob with easy grip timer controls.
- Extractor hood complete with housing (to match hood style). Hood automatically operated by electrical current sensor. Extract as M&E design
- Sink and drainer c/w base unit
- Tall Unit with shelf at high level. Nominal dimensions, 500mm(w) x 600mm(d) x 2100mm(h)
- Soft Seating Jacobson Egg Chair Replica shown in model (spec. to be agreed).
- Coffee table. Nominal dimensions, 600mm(w) x 400mm(d).
- Breakfast bar stools
- Worktop formed from high gloss Formica. Nominal thickness 35mm.
- 1Breakfast bar to serve 5 people formed from high gloss Formica. Nominal dimensions, 35mm(thk) x 300mm(d) x 3600mm(l) x 1250mm(h). End panel/support to match breakfast bar. Additional stainless steel support legs as required by specialist. Nominal 300mm infill/upstand between worktop and breakfast bar to match.
- Fridge & freezer Unit (A+ Rated) with 1 shelf in each per student.
- Recycle bins (3 no) under worktop.
- Flat screen TV c/w wall bracket.
- Corner base unit c/w bi-folding corner unit doors. Nominal dimensions, 900mm x 900mm(w).
- Worktop hot rods. Nominal 6 No. 450mm(l) Stainless rods inset into worktop to one side of hob
- Book shelf underneath breakfast bar. Nominal dimensions, 900mm(w) x 300mm(d) x 1150mm(h)
- Standard splashback, spec & colour To be agreed. Nominal 300mm high.
- Stainless steel splashback behind hob up to extractor hood.
- Radiator. Size & spec to M&E design. Allow for boxing out of all down pipes location to
- Ceiling lights (Qty shown indicative only) to M&E spec. & design.
- Smoke and/or heat detector (Qty shown indicative only) in accordance with Fire Strategy & M&E Design
- Roller blind to have blackout capabilities and flame resistant. Size to suit window opening.
3.1.5 Kitchen/Living Rooms in Flats with Wheelchair Users

The following variations to the standard kitchen/living room are applicable where a fully fitted wheelchair accessible room is located:

- 1 no. sink maximum 150mm deep fitted in a variable height worktop with insulated fittings below and lever arm taps
- 1 no. hob fitted in a variable height lipped worktop with insulated fittings below and accessible controls
- 1 no. oven located between 650 – 800mm above finished floor level with front controls and side opening door.
- Suitable low level dry food storage
- 1200mm clear floor space in front of all units and work surfaces
- An area of work surface with a clear space below
- Accessible power sockets
- Cord operated assistance alarm and reset as per M&E specification
- Area of breakfast bar at a lower level suitable for wheelchair user access
- Variable height worktops to have a lip all round.

3.2 Studios

A limited number of studios are required throughout up to a total of 20. A studio including the en-suite will be approximately 28m². The en-suite will be as per the shower pod in the standard en-suite rooms. Each studio may include the following:

**Studio Bedroom & Living**

- ¾ Bedframe. Nominal dimensions, 1250mm(w) x 1950mm(l). Bed supplied with 4 ft mattress. Mattress to be flame and water resistant.
- Safety mirror mechanically fixed back to wall c/w mirrored domed screw caps. Nominal dimensions, 400mm(w) x 1500mm(h).
- Wardrobe (open fronted) c/w clothes rail. Nominal dimensions, 600mm(w) x 2100mm(h) x 35mm(thk).
- Wardrobe (open fronted) c/w clothes rail & 2 drawer base unit. Nominal dimensions, 600mm(w) x 2100mm(h).
- Headboard. Nominal dimensions, 1250mm(w) x 550(h) x 35mm(thk) wall mounted. Light switch and double power socket to be provided above bedhead, within wall.
- Laminate work desk with chamfered corner. Nominal dimensions, 40mm(thk) x 600mm(w) x 2100mm(l).
- Bedside table. Nominal dimensions, 450mm(w) x 450mm(d) x 500mm(h)
- Study chair. Height adjustable c/w arms, skid feet, upholstered pad seat & back.
- 2 drawer fixed pedestal unit underneath work desk. Nominal dimensions, 450mm(w) x 600mm(d) x 700mm(h).
- Sofa, 2 seat (spec. to be agreed).
- Double box shelf wall mounted over desk c/w integrated task lighting to underside of shelves (light switch within dado trunking). Nominal dimensions, 1200mm(w) x 300mm(d) x 700mm(h) x 35mm(thk).
- Bathroom pod. (Walker SW3 shown in layouts). Nominal 1310mm(w) x 2400mm(l) Access panel required (corridor side) to match main door.
- Bedroom door c/w coat hook & security viewer.
• Pinboard. Nominal dimensions, 1600mm(w) x 450mm(h)
• Whiteboard. Nominal dimensions, 750mm(w) x 120mm(h).
• Roller blind. To have blackout capabilities and flame resistant. Size to suit window opening.
• Corner desk shelving with chamfered corner. Nominal dimensions, 300mm(w) x 600(d) x 700mm(h).
• Full height book shelving units. Nominal dimensions, 735mm(w) x 300(d) x 2100mm(h) x 35mm(thk).
• Full height book & TV shelving unit. Nominal dimensions, 1200mm(w) x 300(d) x 2100mm(h) x 35mm(thk).
• Radiator. Size & spec to M&E design. Allow for boxing out of all down pipes location to
• Dado trunking to full width of desk with power and data to M&E spec. & design.
• Ceiling lights (Qty shown indicative only) to M&E spec. & design.
• Smoke and/or heat detector (Qty shown indicative only) in accordance with Fire Strategy & M&E Design Tall Unit (open fronted). Nominal dimensions, 600mm(w) x 735mm(d) x 2100mm(h) x 35mm(thk).

**Studio Kitchenettes**

All appliance power provisions to M&E spec. & design

• Wall Unit. Nominal dimensions, 500mm(w) x 700mm(h) x 300mm(d)
• Base unit under sink. Nominal dimensions, 500mm(w) x 600mm(d)
• Stainless steel worktop with inset sink & 2 ring hob. Nominal dimensions, 600mm(d) x 1800mm(l)
• Extractor hood and housing above hob.
• Integrated combination oven/microwave.
• Integrated fridge with freezer box.
• Stainless steel splash back.
• Breakfast bar to serve 2 people formed from high gloss Formica. Nominal dimensions, 35mm(thk) x 400mm(d) x 1250mm(l) x 1250mm(h). End panel/support to match breakfast bar. Additional stainless steel support legs as required by specialist.
• Breakfast bar stools
4.0 Building Services Introduction

The outline scope of the new mechanical, electrical, public health, BREEAM, Fire Engineering and services installation serving the new student accommodation requires to be developed.

4.1 Statutory Authority Client/Supplies

4.1.1 BT/ Voice / Data Ductwork

CAT 6 Structured cabling shall be installed to all bedrooms, kitchen/living rooms, reception area and staff rooms. Wi-Fi shall be provided in each flat corridor/kitchen and reception area.

2 no data points to be provided for each bedroom.

4 no data points to be provided to each kitchen.

1 no high level data point and power point to be provided in each kitchen for IPTV provision.

As a minimum a comms room shall be located on alternative floors equipped complete with the active and passive server equipment necessary to provide a complete data/telephone network.

Comms rooms to be sized to allow 1 Metre access to all sides of comms cabinets.

No water/drainage pipework to be installed in comms rooms.

All comms rooms to be provided with air conditioning. Two alarm levels are required to be monitored by the BMS, 24 deg and 28 deg.

4.1.2 Building Research Establishment Assessment Method (BREEAM)

The engineering services designs will be developed on the understanding that the University wishes to secure a BREEAM ‘Excellent’ rating for the new development.

4.2 Mechanical & Public Health Services Provision

4.2.1 Comfort Heating

It is currently envisaged that the development will be heated by means of a wet system, via panel radiators with individual thermostatic valve control. However, a number of options on the energy strategy to provide the heat source for the wet systems should be considered at this stage.

4.2.2 Controls

A building management system (BMS), compatible with the existing campus wide system, should monitor and manage the building services to:
• Start and stop the systems as required;
• Operate the systems efficiently;
• Take corrective action as appropriate in the event of a fire, power outage or failure of plant;
• Alert the user to emergencies and fault conditions;
• Record the performance of the systems;
• Monitor real time energy and water use as part of the BMS or as a standalone energy monitoring system.

The installation should be designed & installed generally in accordance with the recommendations of:

• Building Regulations
• The 17th Edition of the IEE Wiring Regulations (BS.7671).
• British Standards
• CIBSE Guide H

4.2.3 Metering

The DDC Controls installations shall monitor the following main utility meters:

- Electricity
- Gas
- Water

In addition, the following sub-metering provision shall be provided:

- Space heating energy usage for each block
- Domestic hot water generation energy usage for each block
- Electricity usage at each block
- All metering shall be provided with the facility to connect to the Universities metering monitoring software.

4.2.4 Ventilation

It is essential fresh air to the bedrooms be provided via openable windows not only to comply with the relevant BREEAM credit but also to ensure that summer time overheating is minimised and comfort levels for occupants is maintained. The bathrooms will be maintained under negative pressure to contain steam and to reduce the build-up of moisture and odours. The bathroom pods are to be provided complete with air extract grilles/air valves and associated ductwork for connection by the mechanical contractor at a later date.

4.2.5 Cold Water Service
On the incoming water main to each block a smart meter will be provided as a minimum to ensure that the relevant BREEAM credit can be achieved and water consumption monitored.

4.2.6 Hot Water System

Options on the best solution for hot water generation will need to be appraised as this is a major component of energy use as heat losses are minimised through improved U values and air infiltration.

4.2.7 Foul Water Drainage

Internal foul drainage systems shall be provided throughout in accordance with the requirements of the Building Standards (Scotland) Regulations and BS EN 12056:2000.
Foul drainage pipework shall be PVC-U to BS EN 1329:2000 and PVC-C to BS EN 1566-12000.
All drainage stacks and vent pipes shall be wrapped with 50mm acoustic mineral fibre insulation.

4.2.8 Design Criteria

Proposed Design Parameters / Basis of Design

The following criterion should form the basis of the design for the Mechanical, Electrical & Public Health Services installation:

External Design Criteria:

Summer 29°Cdb / 20°C wb (35 °C for external condensers)
Winter 5°C saturated

Internal Design Criteria:

<table>
<thead>
<tr>
<th>Area</th>
<th>Summer</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilets/Circulation/Cleaners</td>
<td>No specific temp control (No RH control)</td>
<td>16 °C db ±1 °C (No RH control)</td>
</tr>
<tr>
<td>Bathroom</td>
<td>No specific temp control (No RH control)</td>
<td>23 °C db ± 1 °C (No RH control)</td>
</tr>
<tr>
<td>Bedroom</td>
<td>No specific temp control (No RH control)</td>
<td>20 °C db ± 1 °C (No RH control)</td>
</tr>
</tbody>
</table>

Cold Water Storage:

Centralised cold water storage will be provided within the plant room or within plantrooms within each block.

Cold water down service flow rates (minimum): -
WC's - 0.10 l/s 4/6 litre dual flush
Urinals - 0.05 l/s
WHB's - 0.1 l/s 1.5Bar l/s nominal (total)
Sinks - 0.2 l/s at 1.5Bar l/s nominal (total)
Showers - 0.15 l/s at 1.5Bar nominal (total)

100 litres demand per person per day for the Bedrooms

Although there is no specific temperature control for the areas noted above, there is a summer overheating criteria. The limitation defines the hours in a year that the room or space can be over a maximum

**Occupancy Level:**

Bedrooms – 1 person/bedroom

**Ventilation:**

Toilets 10 air changes per hour extract
Cleaners 10 air changes per hour extract
Bedrooms MHRV Natural ventilation at 0.5 air changes per hour via, with potential for 50% boost to 0.75 air changes per hour. Openable windows with a minimum 5% free area of floor area.
Bathrooms 15 l/s extract or 10 air changes per hour extract whichever is the greater linked to the MHRV system
Cluster Kitchens 60l/s extract, via integrated cooker hood/ MHRV.
Common room Balanced supply and extract, 8 l/s/p

**Hot Water Storage:**

Centralised hot water storage will be provided within the plant room or within each kitchen cluster.
Hot water service flow rates (minimum):-
WHB’s/sinks - 0.1 l/s at 1.5Bar l/s nominal (total)
Showers - 0.15 l/s at 1.5Bar nominal (total)
Hot water storage to bedrooms - 20 litres stored per bedroom (minimum)

**Drainage:**

Minimum pipework connection sizes per fitting: -
WC’s - 100ø
WHB’s - 35ø
Urinals - 42ø
Showers - 42ø

**Lighting Levels:**

<table>
<thead>
<tr>
<th>Room Type</th>
<th>Lighting Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled Toilets</td>
<td>200 lux average at FFL</td>
</tr>
<tr>
<td>Cleaners Rooms</td>
<td>100 lux at FFL</td>
</tr>
<tr>
<td>Plant room</td>
<td>200 lux at FFL</td>
</tr>
<tr>
<td>Bedroom</td>
<td>200 lux at Floor level</td>
</tr>
<tr>
<td>Bathroom</td>
<td>200 lux at Floor level</td>
</tr>
<tr>
<td>Main Entrance</td>
<td>200 lux at Floor level</td>
</tr>
<tr>
<td>Corridors</td>
<td>150 lux at Floor level</td>
</tr>
</tbody>
</table>

**Task Uniformity:**

0.8+

All lighting levels will be designed in compliance with the appropriate CIBSE codes and BSEN standards. It should be noted that the bedroom will be provided with two ceiling mounted lights to provide lighting to the general area and lighting to the wardrobe area.

4.3 **Sustainability**

4.3.1 **BREEAM**

It is anticipated that Breeam Excellent will be the minimum target.

4.3.2 **Passive Design**

The aim for the design of the proposed development should be to optimise the passive building elements where possible and hence reduce the energy consumption associated with the mechanical systems.

4.3.3 **Energy Efficient Systems and Appliances**

**Eco-Labelled Goods** - Where domestic appliances are installed energy efficient units will be incorporated, i.e. A and A+ rated appliances, including all laundry equipment.

**Low-Energy Lighting** - To reduce the energy consumption associated with artificial lighting, high efficacy luminaires should be specified.
HVAC Plant Efficiencies - The design should aim to substantially exceed the minimum requirements of the non-domestic HVAC guide. It provides guidance on the means of complying with the requirements of Section 6 of the Building Regulations for conventional space heating systems, hot water systems and ventilation systems.

4.3.4 Renewable and Low Carbon Energy Sources

Scottish Planning Policy SPP 6 “Renewable Energy” requires all new developments in Scotland to achieve a reduction in carbon dioxide emissions of 15% from on site renewable energy generation unless it can be demonstrated that such provision is not feasible.

The following technologies should be considered for supplying a proportion of the development’s energy demand.

- Combined Heat & Power (CHP)
- Wind Turbines
- Solar Thermal
- Photovoltaics
- Biomass Heating
- Air Source Heat Pumps – VRF & Air to Water
- Ground Source Heat Pumps – Closed Loop
- District Heating

Water

The following water saving appliances and technologies should be incorporated:

- Dual Flush Cisterns on WC’s
- Flow Restrictors to Taps
- Low Flow Taps (less than 5 l/mins)
- Low Flow Showers (less than 9 l/mins)
- Water Meters for each cluster
- Water Leak Detection
- Sanitary Supply Shut-Off Valves in Toilet and bathroom areas
- High efficient irrigation system
Cyclist Facilities

As part of the BREEAM assessment an equivalent number of compliant cycle storage spaces are required to be provided for each building as follows:

- 10% of building staff, or where there are less than 10 staff, a minimum of at least 1 compliant cycle storage facility, plus
- 50% of building residents.

Compliant cycle storage facilities are those that meet the following:

- The space is covered overhead and protected from the rain
- The covered area and the cycle racks are set in or fixed to a permanent structure and allow both the wheel and frame to be locked securely Or racks are located in a locked structure fixed to or part of a permanent structure with CCTV surveillance.
- There is a minimum distance of 1.0m between cycle racks, where the racks allow for two-sided parking, and 0.8m for one-sided parking to enable bikes to be easily stored and accessed.
- Racks positioned in a circular array are spaced in accordance with the guidance in the New Metric Handbook.
- There is a minimum distance from any obstruction e.g. wall (located either to the side of the stand or in front of it) of 300mm for single-sided use and 900mm for double-sided use.
- Adequate lighting is provided in accordance with BS5489 Part 1 – Lighting of roads and amenity areas.
- The facilities are in a prominent site location that is viewable from the building.
- The majority of the cycle racks are within 100m of a building entrance (ideally within 50m).

4.4 Electrical

4.4.1 Electrical Supply

- From the Energy Centre Low Voltage supply shall be taken from the main switchboard to service the various buildings and services within the scope of works.
- Distribution within the buildings shall be formed from a main switchboard located within the plant / switch room of each building.
- From there electrical supply cables shall service various equipment, distribution boards and rising busbar systems.
- A main LV switchboard shall be provided within the external energy centre located at ground level to distribute power to all services. The switchboard will be stand-alone and will be located in a dedicated LV area.
- In general, LV supplies shall be routed via the external main service route from the Switchboard to the distribution boards/load centres located around the site and from there to the final outlets and appliances. The sub-mains cables shall be steel wire-armoured, XLPE-sheathed, low smoke and fume, multi-core, copper cables or fire resisting cables (to BS5839-1:2002) as indicated in the schedules.
- Final Circuit Distribution boards shall be of the Miniature Circuit Breaker and each shall be complete with an incoming switch-disconnector device.
- New small power circuits serving socket outlets will additionally be provided with Residual Current Circuit Protection (RCCD). Each circuit will be
provided with combined MCB/RCD units, which will have a 30mA tripping characteristic.

- All final circuit distribution boards will be provided with 25% blank ways for future expansion

4.4.2 LV Switchboard
- The Main Switchboard shall be of the floor standing cubicle type and shall be mounted on a 100mm high plinth.
- The panel construction shall achieve separation to Form 3b.
- The incoming protective device shall be a fused switch.
- All outgoing ways shall be protected by MCCB’s and shall exit via the bottom of the board.
- Each outgoing way and the incoming supply shall have digital metering (V, A, kVA, kWh) with a Trend compatible connection to the BMS system.
- The board will be fitted with a fully lockable door with the key opening all electrical distribution panels, three keys shall be provided for each panel.
- Transient surge suppression will be provided at incoming services connection to mitigate interference on the supply and lightning surge suppression shall be installed at the connection of the lightning protection system to the earth bar.

4.4.3 Distribution & Containment
- All cable installations to comply with BS 7671 and latest amendment.
- Installations must be suitable for the environment in which they are installed.
- Steel galvanised conduit/tray/trunking/ladder rack will be used on all installations.
- The minimum acceptable conduit size will be 20mm
- All areas of conduit marked by tools and exposed threads will be painted using galvafloid paint or equal and approved.
- All conduit and fittings shall comply with BS 31: 1940 (9180)
- All conduit installations shall be carried out using medium gauge screwed conduit.
- Steel trunking shall be adequately fixed and installed in accordance with BS 7671.
- All steel trunking bends will be of the gusset type.
- Steel trunking will be galvanised.
- Earth links will be fitted at all trunking joints irrespective of internal earth wires being used.
- Where trunking passes through walls a fixed portion of lid will be fitted and intumescent fire barriers will be installed.
- The space factor for all cable containment systems will comply with appendix 5 of the IEE On-site Guide.
- Methods of support for cables, conductors, and wiring systems will comply with appendix 4 of the IEE On-site Guide.
- Perimeter and island trunking systems will be manufactured by Marshall-Tufflex or MK Prestige range. The trunking type will depend on the cabling required and the amount of segregation of services required.

4.4.4 Power
- Power circuits to fixed appliances will take into account the full running current and any starting current.
- Socket provision to bedrooms and kitchens will be as per the current HMO regulations.
Ring circuits will assume a minimum design load of 18 amps
Each room will have one or more rings depending on size. No circuit will cover more than one room.
The appropriate grouping factors will be applied to all circuits.
The appropriate temperature factors will be applied to all circuits.
Regulation 411.3.3 BS7671 2008.
All sockets in public areas will be deemed for use by ordinary persons.
All sockets installed for use by cleaning staff will be RCD protected.
Under Regulation 411.3.3 BS7671 all socket outlets in plant rooms or fitted in an area where it is reasonably expected that the outlet could be used for external purposes will have supplementary protection provided by an RCD device.

4.4.5 Lighting

- Various types and manufacturers of lighting may be used provided they comply with the following specification and are approved by the Estate Office before being used.
- The use of LED/Low energy lighting is preferred.
- The minimum LOR rating acceptable will be 65% except where special conditions must be applied and have been verified by the Heriot Watt University.
- No fluorescent fittings will be accepted with wire wound control gear or switch start control gear.
- All fluorescent lamps will be of the tri-phosphor type.
- All lamps will have the longest life hours rating.
- Tungsten halogen lamps will be avoided.
- Any fitting connected to a lighting management system will have a plug and socket arrangement to disconnect all mains wiring to allow for maintenance and re-lamping. This will be in an accessible position.

4.4.6 Emergency Lighting

- All installations will have a central battery emergency lighting system installed.
- Self-contained emergency light fittings will only be permitted in small isolated installations.
- The charger will be of a suitable type for the battery rack and will be sited adjacent to the battery cubicle.
- The charger supply will be taken from a dedicated way on the main panel for the building in which the system is installed.
- Combined emergency and normal light fittings will not be permitted. Separate emergency fittings with an independent wiring and containment system will be installed.
The system can be maintained or non-maintained as required by the building regulations. If a non-maintained system is required it will be provided with a constant output from the central source and local hold off relays wired to the final lighting circuits. A test switch will be provided in each area to isolate the supply to the relay coils leaving the normal lighting and emergency lighting on. The test switch may be wired to local isolation relays and operated from a central position.

In areas such as seminar rooms or lecture theatres where a maintained system is installed a local switch and contactor system to change from maintained to non-maintained must be provided. This will not affect the exit lights.

All fittings will be of the energy efficient type and installed in easily accessible positions.

All wiring will conform to BS 5266-1:1999

All emergency lighting equipment will be clearly labelled with engraved white labels with red lettering; this includes switchgear, distribution equipment, and any boxes used.

All fittings will be fitted with a number corresponding to the as fitted drawings. This label may be of the label machine type but must be visible from floor level. In the event of the fittings being on a high ceiling a laminated numbered layout of the area must be fitted close to the test switch.

The system will operate at a voltage of 110V AC/DC.

4.4.7 Fire Alarm

The design of any fire alarm system will be carried out by an approved organisation and verified by the Heriot-Watt Fire Officer. The design and installation will comply with BS5839-1:2002+A2:2008

The fire control panel will be addressable, manufactured by Advanced Electronics and contain a fault tolerant network card for connection to the University Ad-NeT network.

Fire detection devices will be of the Apollo range. Each device will be clearly marked to indicate the loop it is connected to and the address number. Each call point will be similarly numbered.

All wiring will be carried out using LSF red sheathed mineral insulated cable with red sheath and clips. The use of soft skinned cable may be permitted on discussion with the Heriot Watt Estate Office.

At each fire panel an encapsulated zone chart will be fitted

At each manual call point a label will be fitted with a number. The numbering will be laid out in a logical sequence to assist in testing. The labels will be engraved on red with white lettering as follows FIRE POINT followed by the number. The labels will be 25mm x 90mm with 7mm lettering. The labels will be fixed by two round head No.6 brass screws.

The system will be commissioned by an approved fire alarm company who will issue a completion certificate and a printout of each device with address, zone, and location.

Where plant shutdown is incorporated into the fire system a key switch will be provided at the panel to allow testing without shutting down other services.
4.4.8 External Lighting

- The Contractor shall allow for liaison with the Local Crime Prevention Officer and appropriate Council Department Representative to determine a suitable security lighting scheme, which will also be in line with the secure by design requirements.
- The external lighting scheme shall generally provide minimum lux levels to courtyards, footpaths, entrance areas, roadways and facades as required by both the CIBSE Lighting Guide, British Standard for Security of Car parks, BS5489 and BS8220.
- Minimum illumination levels will be provided to suit the requirements of the external CCTV system.
- Generally a minimum illumination level of 20 lux at floor level shall be maintained to all external areas, except where a higher level is prescribed by the aforementioned reference documents.
- Each block entry will be provided with an external light over, photocell operated, which will be incorporated into the canopy soffit and provide a minimum illuminance of 100 lux at floor level.

4.4.9 Security/Access Control

- The system will be a Salto Access Control System which will be installed as a complete new system in all of the new buildings and will operate as a Client/Server architecture in "real time" over the buildings' dedicated wireless network, the buildings' LAN and the Campus WAN.
- The system will control access into all accommodation flats and rooms together with selected external entrance doors of each building.
- Salto wireless, battery powered proximity controlled door lock assemblies will be fitted to specified doors and will be connected via wireless Repeater and Gateway units to the structured cable network.
- Wireless Repeater and Gateway units will be located on each floor within the building; the Gateway units will connect directly to the structured cable network via an adjacent RJ45 socket.
- All Gateway units will have Power over Ethernet Functionality IEEE 802.3af (POE) with their power being delivered via the structured cable network from appropriate POE Switches located in the building IT room(s).
Specified external doors will each be fitted with an external Proximity Card Reader, Solenoid Lock and associated Control Unit; the Control Unit will connect directly to the structured cable network via an adjacent RJ45 socket.

The status of all controlled doors will be monitored by the system which will support alarm functionality in the event of the doors being breached or left open.

4.4.10 Communications and Information Technology

- CAT 6 Structured cabling shall be installed to all bedrooms, kitchen/living rooms, reception area and staff rooms
- Wi-Fi shall be provided in each flat corridor/kitchen and reception area.
- 2 no data points to be provided for each bedroom.
- 4no data points to be provided to each kitchen.
- 1 no high level data point and power point to be provided in each kitchen for IPTV provision.
- As a minimum a comms room shall be located on alternative floors equipped complete with the active and passive server equipment necessary to provide a complete data/telephone network.
- Comms rooms to be sized to allow 1 Metre access to all sides of comms cabinets.
- No water/drainage pipework to be installed in comms rooms.
- All comms rooms to be provided with air conditioning. 2 alarm levels are required to be monitored by the BMS, 24 deg and 28 deg.

4.4.11 Television

The University will determine whether a coaxial or TV over the internet is to be installed. A coaxial system including all associated gear ie, dish/aerial, boosters, splitters, etc may be installed to all buildings providing a television signal to all bedrooms.

4.4.12 Lightning Protection

A lightning protection system will be provided to the buildings utilising down tape conductors and tape air network system. All tapes will be copper and terminate into earth electrodes with suitable access covers. All roof mounted plant will be bonded where applicable.

4.4.13 Disabled Toilet alarms

There will be provision for a disabled toilet alarm to each disabled toilet within the disabled bedrooms. There will be a 13amp fuse connection unit and wiring installed to all outlet points associated with the disabled alarm system. System pull cords/reset button/over door tone-buzzer & remote tone-buzzer will be installed. The remote indicator will be located in an appropriate 24 hour manned local and notify which room has activated the alarm.

4.4.14 Emergency Phone system

Emergency phones will be provided at all disabled refuge points/lift lobby's and plantrooms.
5.0 Outline Specification

Superstructure

Frame

The Contractor is to propose with his tender the method of Construction, which he wishes to use on the proposed construction of this scheme. The Contractor shall seek the express approval of the Employer to the method of construction prior to commencement. Whatever method used, it shall be designed and constructed to incorporate the requirements and implications of the Building Regulations and must achieve the clear spans indicated within each room/space. The building shall, in any event, be designed and constructed based on the principle that the flats are considered as ‘fire compartments’ (To be confirmed by the Approved Inspector for the scheme), which will allow the design of a fire alarm system based on “apartment by apartment” evacuation.

External Walls

The external envelop construction is to be designed with the proposed frame, with External treatment all as described on the Architect’s drawings and as necessary to comply with the approved planning elevation drawings, or to achieve approval/discharge from the Planning Authority. The Contractor must consult and comply with the Planning Authority and fully discharge all reserved matters and conditions therein. Any amendments to the Contractor’s Proposals as a consequence of such consultation and compliance will not be treated as a change in the Employer’s Requirements.

External walls shall, be constructed to achieve an overall "U" Value as defined within the latest Building Regulations or U values required for SBEM, whichever is greater

The Bin Store and Cycle Sheds will be constructed In accordance with approved Architect’s drawings and Local Authority.

A façade maintenance, window cleaning and access strategy must be designed to meet CDM and HSE requirements and approval.

Upper Floors

The building(s) is to be designed and constructed as required to achieve the clear spans indicated within each room/space, fire protected as necessary. The floor construction must not limit nor impede in the clear and uninterrupted ceiling void/finishes required in the immediate storey below. The choice of floor system must not affect the overall cross-sectional building height agreed by the Planning Authority.

The choice of floor system must fully comply with any acoustic and sound transmission requirements of the Building Regulations but should not increase the buildings overall height, nor diminish the ceiling to habitable rooms below 2300mm in height, nor corridors below 2200mm, or as defined by the architectural details.
Where the project incorporates an internal transformer room or laundrette the floor construction shall be adequately separated to avoid transfer of vibration/noise throughout the remainder of the structure.

**Roof**

The roof system is to provide a minimum certified life span of 25 years with warranty obtained by manufacturer and subcontractor and is to have "U" value as defined within the latest Building Regulations or U Values required for SBEM, whichever is greater. Roofs to have overflow capability.

Flat roofs shall have access arrangements to allow for maintenance etc appropriate safety systems shall be included to make allowance for FALL PREVENTION as per current HSE guidance and should meet all the requirements under the CDM regulation. Parapets should meet current H&S design standards and be minimum 1100 mm high. Alternatively a 1100mm guardrail on the roof can be provided where design restricts 1100mm high parapets. Roofs with Upstands up to 300mm will have a mansafe system installed.

The fascias and soffits and verges shall be constructed in a “maintenance free” product.

**Stairs**

Stairs shall be metal form with concrete infill. Handrails and balustrades to be painted metal, using a “Hammerite” paint. Handrails shall be 50mm dia circular / tubular type, fitted both sides of the stair, and extending 300mm beyond the first/ last riser.

Balustrades must comply with building control on the basis that the scheme is designed so that children may visit and live for periods within the development. The balustrade must not be climbable, and all gaps must not exceed 100mm.

**External Windows and Doors**

Windows to be double-glazed (with "K" type glass) low emissivity uPVC (not white in colour) to the approval of the Local Planning Authority. Window boards internally to be round edged, gloss painted softwood or MDF. Security locks are required to all windows.

Windows to be tilt and turn design generally, to be cleaned from inside of the building in accordance with the maintenance design philosophy. They should be fitted with tamperproof permanent restrictors for normal safe usage allowing a maximum of 250mm opening. A second key operated window lock should be located at the bottom of the opening part of the window, securing the opening light to the frame. All windows not to have a push button locking system.

Restrictors and handles must be fit for purpose and not able to be overcome by force. They shall be fitted at 800mm –1000mm above the floor, and be easily operated without using two hands simultaneously. GF windows require the additional security bar to be fitted to prevent window being forced open.

Wheelchair accessible rooms, remote or powered operation will be required if furniture is located in front of the window

Principal entrance doors and lobbies shall be power operated, doors, linked to the fire alarm and fail-safe open. The doors are to be aluminium, fully double-glazed with security glazing. The locking mechanism shall comprise a fob operated electronic keep. The release on the inside of these doors shall comprise a
wall mounted push plate which when pushed opens the door. Whether or not specifically shown on the drawings, all entrances to the building or to individual blocks shall comprise entry lobbies with 2 sets of doors (suitably vented to prevent air pressure from hampering the spring closing and locking of the doors).

Secondary external doors are to open outwards and are to be aluminium finish to doors and frames. Doors are to be aluminium, fully double glazed with security glazing. The locking mechanism shall comprise a fob operated electronic keep. The manual handle/release on the inside of these doors shall comprise a sprung push plate which when pushed retracts the latch on the door allowing it to open. The spring closers in any doors are not to incorporate a 90 degree hold open device and must fully engage the door back into a locked position. The reception entry door should be fitted with a lock release button located on the desk.

The inner lobby doorsets shall be aluminium or timber doors. These doors are to be controlled by electronic locks suited to allow access by student’s resident into that Block only, using their own individual room key. The manual handle/release on the inside (corridor side) of these doors shall comprise a sprung push plate which when pushed retracts the latch on the door allowing it to open.

Doors shall contrast in colour to the surrounding brickwork/curtain walling frames, and where fully glazed have clear manifestation. Door handles shall contrast to the doors onto which they are fitted.

Ironmongery generally shall also include, hinges, escutcheons, kicking plates, finger plates, large D handles to pull side, push plate’s door stops, threshold plates, weather bars and the like as necessary. All ironmongery is to match as closely as possible the specified internal ranges but be appropriate to their final environment.

A door entry system is to be connected from each external door entrance to each relevant flat, but doors are not to open remotely. The door entry system must be useable by deaf and hard of hearing people, and people who cannot speak.

A fully auditable networked fob system is to be provided to all external doors with a key (included in master suite system) to internal lobby doors.

**Internal Walls**

All internal partitions shall be constructed from plastered blockwork, pre-cast concrete panels or timber/steel stud and plasterboard together with insulation if required, (insulation shall be placed in all plasterboard walls). The thickness and number of layers of plasterboard is to comply with all acoustic, thermal and fire requirements set out in the appropriate regulations or control documentation.

The contractor will be required to test these acoustically to demonstrate compliance, providing evidence of compliance using industry standard methodology and techniques. The Contractor is to incorporate costs for testing and any consultant fees necessary to undertake this requirement at no cost to Employer.

**Internal Doors**

Hollow/Solid core (as appropriate) veneered doorsets, in rebated softwood gloss painted frames. All doors are to be fire rated, with the fire rating as appropriate for the fire design/strategy and to include instumescent strips, smoke seals and statutory signs as required to meet statutory control.
Ironmongery to be good quality and durable and all to be to the Employer's approval.

All internal doors are to receive veneer finish with hardwood lippings.

Acoustic ‘batwing’ seals fixed to all internal Bedroom & Kitchen / Lounge doors.

Doors requiring 60 minutes fire resistance are to be 54mm solid type, incorporating intumescent seals, door closers and signage. Vision panels within these doors are to receive 13mm Pilkington Pyrodur glazing.

Doors requiring 30 minutes fire resistance are to be 44mm solid type, incorporating intumescent seals, door closers and signage. Vision panels within these doors are to receive 10mm Pilkington Pyrodur glazing.

Doors requiring no fire resistance are to be 44mm solid type.

Generally, all ironmongery is to be satin anodised aluminium, refer to schedule for specific items

**Floor Finishes**

**Bedrooms:**
Corded carpet as client specification; aluminium threshold strips as required.

**Bathrooms:**
Ceramic tiling – Johnson 150 x 150 non-slip floor tiles (colour to Employer’s approval); threshold between tiling and bedroom carpet to be a proprietary threshold strip incorporating a compressible rubber section which when the door closes provides a reasonably watertight seal to stop water ingress into bedroom. The Employer may consider vinyl flooring in the ensuites and bathrooms, which shall be Altro Marine 20 (colour to be advised).

**Living/Dining:**
Corded carpet as client specification; aluminium threshold strips.

**Kitchens:**
Vinyl sheet flooring (min 900 mm wide) with threshold strips as required.

**Entrance Halls/Lobbies:**
Barrier matting

**Staircases:**
Vinyl
Skirtings

All timber or MDF skirtings to be dark stained finished.

**Study Bedrooms:**
MDF; 15 x 94mm high pencil rounded.

**Living/Dining:**
MDF; 16 x 100mm high pencil rounded.

**Kitchen Area:**
MDF 16 x 100mm pencil rounded.

**Corridors/Halls/Stores:**
MDF 16 x 100mm high pencil rounded.

**Staircases:**
MDF strings – dimensions to be appropriate to staircase and adjoining skirtings /interfaces.

Architraves

MDF 44 x 22mm pencil rounded. Architrave to be flush with Skirting face. The use of scotias and quadrants is to be avoided.

Cillboards to be 25mm thick MDF with bullnosing.

Dado Rail

MDF stained, scribed and mitred dado rail at 1m high to all general circulation lobbies, corridors and staircases/landings, but not within the actual flat corridors.

Wall Finishes

**Study Bedrooms:**
Three coats vinyl silk or silk sheen emulsion paint (standard BS colour ranges to be agreed) on plasterboard base.

**Living/Dining:**
Three coats vinyl silk or silk sheen emulsion paint (standard BS colour ranges) on plaster base.
Kitchens:
Three coats vinyl silk or silk sheen emulsion paint (standard BS colour ranges) on plaster base;
Two course white glazed ceramic plus one course dark coloured tiling to contrast with white sockets as splashback to all kitchen worktops and returns - tiling to extend between top of worktop and underside of wall cupboards (450mm), including area beneath cooker extract hood and worktop. Sockets to be located on coloured tiling.

Tile to 900mm behind adjustable height worktops in flats with wheelchair accessible rooms.

Corridors/Halls:
Three coats vinyl silk or silk sheen emulsion paint (standard BS colour ranges) on plaster base.

Ceiling Finishes

All areas (with the exception of corridor area)

3 coats matt emulsion to plasterboard ceiling fixed to timber frame or as required to achieve acoustic separation.

Corridors/Halls:
Plaster board ceiling with appropriate lockable access points

Decoration Generally

Colour schemes shall be prepared to provide colour and luminance contrast between building elements, furnishings and fittings, including light switches and sockets.

Plaster or plasterboard Walls: Three coats vinyl silk or silk sheen emulsion.

Plaster/Artex Ceilings: Three coats matt emulsion.

Softwood/ MDF areas: Knot, stop, one coat oil based primer, 2 coats undercoat and one coat gloss. Vibration/noise throughout the remainder of the structure.

General Signage

- Good colour contrast between sign and wall and sign and text
- Minimum font size 15mm for directories, 30mm for room numbers and 100mm for pictograms
- Embossed door numbers and references
Student Residences Proposal

- Block numbers and/or references
- Outside each block, a sign showing a plan of the development and an indicator as to where the particular entry is location
- Signage for each floor opposite the lift, showing the flats on that floor also on each level on the stairway
- Signage on the main entry floor to the lift showing all flats and identifying which flats are on which floor
- Provide and install 8Nr 65mm diameter stainless steel posts with removable cap ends (ends to be 100mm diameter) to suit 4 Nr vertical banners 3200mm long and 800mm wide. The base and fixing of the posts is to be fabricated so as to be fit for purpose and strong enough to withstand and hold the banners in place in high winds. The base is to be built into the wall construction so as to be non-obtrusive. Position to be agreed with the Employer.

Post Boxes

- For each flat located in each building entrance lobby; with 1 key per resident and 1 spare per flat. Size to be capable of accepting A4 size package, 25mm thick, and have storage space within each box of a minimum of 250 wide, 375 long and 100 high. Boxes are to be mounted on a pedestal or box against a wall so that all boxes are between 750mm and 1600mm off FFL. Flats with wheelchair accessible rooms to have post boxes no higher than 1200mm aff

External Lighting

The Contractor shall provide a complete external lighting installation in accordance with the design intent drawings for comment by the architect/client.

The Contractor shall allow for liaison with the Local Crime Prevention Officer and appropriate Council Department Representative to determine a suitable security lighting scheme, which will also be in line with the secure by design requirements.

The external lighting scheme shall generally provide minimum lux levels to courtyards, footpaths, entrance areas, roadways and facades as required by both the CIBSE Lighting Guide, British Standard for Security of Carparks, BS5489 and BS8220.

Minimum illumination levels will be provided to suit the requirements of the external CCTV system.

Generally a minimum illumination level of 20 lux at floor level shall be maintained to all external areas, except where a higher level is prescribed by the aforementioned reference documents.

Each block entry will be provided with an external light over, photocell operated, which will be incorporated into the canopy soffit and provide a minimum illuminance of 100 lux at floor level.
Student Residences Proposal

Lifts

Typically 8 person traction machine room less (MRL) lifts which must be fully open protocol with a set of any required test tools provided. Standards Compliance: Lift to comply fully with the requirements of EN81-1, EN81-70, EN81-28. Landing doors to BS EN 81-71

Laundry

Provide a laundry room within the site, capable of housing 1 washer and 1 dryer per 75 students in an overall space that is practical and fit for purpose, 1 washer and 1 dryer to be accessible to wheel chair users. The contractor is to provide all services necessary to operate the laundry to a single point within the space, inclusive of power of required amperage and rating, power and permanent ventilation. The main contractor will be required to organise and liaise with the Employers fit out contractor, CIRCUIT Laundrettes to ensure full co-ordination of all services and locations etc in sufficient time to ensure compliance with contractor programme. No additional costs will be paid by the Employer post contract award and the tender will be deemed to include full allowance for this requirement.

Flooring is to be vinyl sheet flooring with threshold strips as required; Colour to be advised. For the vinyl floor, the contractor shall provided a fully welded coved skirting to a height of 100mm (as per standard hospital coved joint) all vinyl joints shall be fully heat welded. Allow for all walls to be plastered or plasterboard with vinyl silk emulsion and matt emulsion paint to ceilings.

Allow a 3 phase supply to an appropriate and agreed amp level, with sub meter and local distribution panel sufficient for 1 washer / dryer per 75 residents. Washers can be ‘double stacked’ subject to appropriate means of support and drainage etc.

The door is to be lockable with fob entry with an overriding suited keyed lock...

Circuit Laundrettes will operate and liaison will be required to ensure that all builder’s works and provision of services required by Circuit is being provided, including any louvres and grilles.

Car parking and landscaping provision

- Concrete slab or road basecourse of adequate strength to permit access by waste collection and fire fighting vehicles
- Access way of sufficient size and height to permit access by waste collection and fire fighting vehicles
- Roads, car parkings and pavements shall be designed and constructed to drain without ponding and to withstand the long-term use without deterioration or subsidence
- Paving should be a minimum of 1500mm wide and ramped, not stepped, to facilitate access by wheelchairs, with crossing points having dropped kerbs and tactile warning pavings
- Landscaping shall comprise the design and installation of a landscaping scheme, which shall include grassed areas, pedestrian paths with edging, feature lighting, ornamental shrub planting and 6 mature trees in positions to be approved by the Employer. The scheme shall also be approved by the Planning Authority. Twelve months maintenance shall be included
Bin Store

- Of sufficient number and size for whole scheme, sufficient to comply with the collection requirements of Operational Services
- Bin storage areas are to be sited in a position indicated on tender drawings
- For each structure, a drainage point for wash down with suitable gully outlet and adequate falls to drains
- For each structure an insulated water tap to be provided
- Permanent roof drainage to structure
- Bin stores to be screened to the height of the bins

Bicycle Storage

- Provide covered lockable storage for 1 bicycle per 4 student bedrooms or to comply with LA Legislation – lock to be digital type lock
- Flooring shall be a concrete or tarmac hard wearing surface, either painted or sealed.
- Sheffield type cycle stands with mild steel inserts to be provided for each bike
- Lighting - PIR operated light fittings
- Room to be naturally vented, via vents, louvred doors and the like
- Internal walls - to be flush pointed painted blockwork
- Ceiling to be prefinished or painted
- Permanent roof drainage to structure
6.0 

**Indicative Programme**

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<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
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<tr>
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<td>6 days</td>
<td>Mon 07/15/15</td>
<td>Fri 11/13/15</td>
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<td>2. APC</td>
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**Project Indicators**

- **Cost**:
  - **Target Cost**: $X
  - **Actual Cost**: $Y

- **Progress**
  - **Actual Completion**: 70%
  - **Target Completion**: 80%

- **Schedule**
  - **Actual Start**: Mon 03/01/15
  - **Actual Finish**: Fri 05/29/15

- **Quality**
  - **Target Quality**: 90%
  - **Actual Quality**: 85%

- **Risk Management**
  - **Identified Risks**: A, B, C
  - **Mitigation Plans**: X, Y, Z

- **Change Management**
  - **Proposed Changes**: 10%
  - **Approved Changes**: 5%

- **External Dependencies**
  - **Suppliers**: A, B, C
  - **Critical Path**: X, Y, Z

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7.0 Appendices

7.1 Appendix 1 – Plans and Visuals

Bedroom
Student Residences Proposal

Kitchen

Area 21.2m²

1. Use an integrated stove, oven, and hood, kitchen is cleaned.
2. Add sneeze guards, dishwasher is Winter, kitchen is Winter.
3. Clean floor and countertops inside the kitchen, kitchen is Winter.
4. Oversize undermount sink (also to be relocated to another position). You will notify prior to fitting.
5. Front door complete with locking mechanism laterally supported and electrically operated in between the 90°-120° range.
6. Sink on rear wall.
7. To undertake a fixed-sized kitchen, Winter, kitchen is Winter 1/2 Summer.
8. Built-in coffee machine and refrigerator, Winter, kitchen is Winter 1/2 Summer.
9. Built-in microwave, oven, dishwasher, Winter, kitchen is Winter 1/2 Summer.
10. Built-in refrigerator, oven, dishwasher, Winter, kitchen is Winter 1/2 Summer.
11. Built-in refrigerator, oven, dishwasher, Winter, kitchen is Winter 1/2 Summer.
12. Built-in refrigerator, oven, dishwasher, Winter, kitchen is Winter 1/2 Summer.
13. Built-in refrigerator, oven, dishwasher, Winter, kitchen is Winter 1/2 Summer.
15. Kitchen layout will include:
16. Corner bar, under the fitting cabinets, Winter, kitchen is Winter.
17. Frontal view of the kitchen, Winter, kitchen is Winter 1/2 Summer.
18. Built-in refrigerator, oven, dishwasher, Winter, kitchen is Winter 1/2 Summer.
20. Built-in refrigerator, oven, dishwasher, Winter, kitchen is Winter 1/2 Summer.
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