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# **1. Overview and Scope**

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## **1.1 Overview and Definition**

The Owner's Project Requirements (OPR) provide an explanation of the ideas, concepts, and criteria that are considered to be very important to the owner and which are desired to be tracked throughout design and construction. The OPR is developed by the owner, not the design team. The OPR provides the direction for the design team.

The OPR document sets the functional goals that the design is judged against and establishes the basis of the criteria used during construction to verify actual performance. The OPR does not list items that are already required by code. The OPR is generally not a description of what specifically will be included in the project design but is the more general feature and categorical performance criteria to be met by the design. Where practical and known, the OPR includes measurable indicators used to verify that the performance requirements were met.

The OPR will be followed by the basis of design or design narrative written by the design team and included with design package submissions. The basis of design documents the primary thought processes and assumptions behind the design decisions and describes the design elements being incorporated to meet the OPR.

## **1.2 Scope**

This document includes requirements for the systems that are more likely to be included under the formal commissioning umbrella or be impacted by their interactions. This document is not a comprehensive project OPR, and does not include all project requirements and directives to the design team which could include: disciplines such as structural, civil, geotechnical and other earth work, specification division 1 requirements, demolition, all the materials, furnishings and special construction disciplines, drawing, specification and calculation requirements, codes and references, etc.

This document focuses on the mechanical, electrical, and plumbing systems and on their associated integrated systems. Other areas impacted by commissioning or commissioned systems are covered more broadly.

# **2. General Requirements**

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## **2.1 Project Summary**

Maverick Hall on the University of Texas at Arlington campus is a planned residence hall to be located adjacent to the newly constructed West Hall. The new residence hall will be located in the space that is currently a parking lot on the North side of West Hall along UTA Blvd.

## **2.2 Project Goals**

Due to the continued growth at the University of Texas at Arlington, there is an immediate need for more residence hall space on campus. The new Maverick Hall will be 140,000 gross square feet and will include over 500 beds. Due to the short construction schedule, to be outlined below, this will be a design-build project. Though it will be located directly next door to West Hall, the University wants

Maverick Hall to be an upgrade from West Hall and not an exact copy. It should resemble The Commons building located next to the parking garage on Nedderman Dr. It will be constructed to the UTA Guideline specifications, which will be attached to this document, with the goal of having a 50-year life cycle. Due to its proposed location, it is desired to have the main entrance to the building facing to the Southeast towards The Commons. Though it will be replacing a surface parking lot, no additional parking will be required for this project. The adjacent parking garage will provide the necessary residence hall parking. The proposed building will be designed to LEED Silver criteria but will not be certified by the USGBC.

### **2.3 Proposed Project Budget**

2.3.1 Overall project budget - \$75,000,000

2.3.2 Architect and Contractor budget - \$60,000,000

2.3.3 Additional budgetary requirements or cash allowances will be detailed in the appropriate sections below, if known.

## **3. Design Process**

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### **3.1 Basis of Design Documentation**

3.1.1 The requirements for developing the basis of design will be provided to the A/E team in Appendix L of the Owner Design Guidelines. The UTA product selection is non-negotiable.

### **3.2 Project Design**

3.2.1 Due to the proposed construction schedule, Maverick Hall will be a “design-build” project. The contractor will be responsible for the overall design of the building. Sub-contractors will provide “design-assist” services. Clash detection between building systems is the responsibility of the design-build contractors and their subcontractors.

### **3.3 Design Reviews**

3.3.1 The expected design packages will be as follows:

- 50% Schematic Design
- 100% Schematic Design
- 50% Design Development
- 100% Design Development
- 50% Construction Documents
- 100% Construction Documents

3.3.2 A page-turn design review meeting will be held after the owner and owner's consultants review each individual drawing package.

### **3.4 Design Schedule**

3.4.1 The following dates must be met during the design process:

- Schematic Design complete and reviewed for Board of Regent approval in November 2023.

- Cost certainty meeting complete.
- Design Development complete and reviewed for Board of Regent approval in February 2024.
  - GMP will be delivered with the 100% Design Development documents.

### **3.5 Construction Schedule**

3.5.1 The following important dates relate to the project construction:

- Notice to Proceed will be issued February 2024.
- Substantial Completion will be July 1, 2025.
- Students will occupy the building for the Fall semester of 2025.

## **4. Architectural**

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### **4.1 General Building Design**

4.1.1 The residence hall will be at least 500-beds. The residence hall will be configured with 250 single bedrooms and 125 double bedrooms. The building will have a 30-seat classroom similar to West Hall. The first floor will have a large two-story lobby with communicating space. Additionally, the first floor shall have a meditation room, two unisex restrooms adjacent to the classroom, and a counseling office. At the main entrance there should be a main office and two staff offices with a storage room, another storage room for res life. A maintenance storage room shall be located on the first floor with double door access to the exterior of the building and a single door access to the interior corridors. The minimum size for the storage room is 100 square feet.

To access the upper floors, three hydraulic elevators will be provided in one elevator bank. Each resident floor shall multiply 8 student study lounges on each floor, a kitchen in the common area, and a laundry room. Each kitchen shall have a stove, oven, refrigerator, and a microwave. There is no need for a commercial kitchen in the building since The Commons building has those student services. The laundry rooms shall have six washers, six electric dryers, ice machine with fill station and a folding area.

Each single bedroom shall be a minimum of 349 square feet with a closet. Each double bedroom shall be a minimum of 560 square feet and have two closets. Beds and desks will not be the built-in type. Both operable/ non operable windows will be considered. All rooms to have blinds and built-in shelving. Room doors shall not be hollow core. The Sound Transmission Class rating between the rooms will be 50.

Architecturally, the building will meet the campus standards and UTA Design Guidelines. Metal panels, masonry, and Hardie plank are acceptable finishes; stucco is not. The UT System standard allows only two floors of brick. The flooring in the corridors should be carpet, LVP in the rooms or stained concrete, porcelain tile in the bathrooms, and ceramic tile or terrazzo in the lobby. Ceilings will be accessible in the public area for maintenance of utilities. Corridors can have a combination of gypsum board and drop tile ceilings. No floating cloud ceilings are allowed in the common areas and the University does not want metal plank ceilings due to access issues in

other buildings on campus.

Structurally, the University does not want any post tension slab. West Hall was built as a residential building with a wood frame. The University prefers to not replicate this for Maverick Hall.

Access to the roof shall be provided by one stairwell and one roof hatch.

## **5. Utilities**

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### **5.1 Existing Site Conditions**

- 5.1.1 The utilities for the new residence hall were installed during the construction of West Hall. There are buried 8" chilled water supply and return pipes located at the Northeast corner of the West Hall site. In this general area is the location of the temporary transformer to be used for construction of the new residence hall. Natural gas is located at the generator serving West Hall and will be used for the generator serving the new residence hall to be installed in the same generator yard. Campus water and sewer are both available at the site; however, the storm drain is at capacity. All new storm drains for the new residence hall will need to be surface drains. There are no provisions in this location for campus steam. Utilities to the new residence will be metered, including the landscape irrigation.

## **6. Heating, Ventilating and Air Conditioning**

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### **6.1 Building Design**

- 6.1.1 The heating and cooling system used for West Hall is chilled water fan and coil units with electric reheat. This type of system is an acceptable solution for the new residence hall; however, the University would like to explore other options. A list of proposed heating and cooling systems will be provided below. If the design utilizes chilled water, new chilled water pumps will not be required; however, provisions should be provided to add two secondary pumps in the future. If a heating water system is utilized, the natural gas boilers and heating water pump should be in a lead/standby configuration. Additionally, the University does not want a heating water skid, the components for the system should be provided separately. Hydronic systems should be designed with automatic flow control devices at each coil. Common areas on the first floor should be served by air handling units with fan-powered terminal units. Any combination Fire/Smoke Dampers shall be monitored by the Building Automation System (BAS). Data and electrical rooms shall be conditioned by split system air conditioning units with standalone controls.
- 6.1.2 Additional mechanical systems that the University would like the design team to consider for the bedroom areas are as follows:
- 6.1.2.1 Geothermal Water Source Heat Pumps
  - 6.1.2.2 Variable Refrigerant Flow (VRF) Fan and Coil Units
  - 6.1.2.3 Variable Volume Air Handling Units with Terminal Units. If this type of system is used, the units should be installed in a mechanical room on the floor

being served.

## 6.2 **Indoor Environmental Quality Requirements**

- 6.2.1 The temperature setpoint requirements for all space will be between 70°F and 74°F for cooling and between 68°F and 72° for heating. The occupant will be allowed to adjust the temperature setpoint between these ranges only.
- 6.2.2 The humidity requirement for all spaces is to maintain between 40%RH and 60%RH.
- 6.2.3 The ventilation requirement is the minimum required by the International Mechanical Code. The University would like to consider utilizing dedicated outside air units with an energy recovery system.
- 6.2.4 The minimum filtration for common spaces is MERV 13 filters. The minimum filtration for bedrooms is MERV 8 filters.

## 6.3 **Equipment and Systems Expectations**

- 6.3.1 All new mechanical equipment shall be scheduled per the UTA Guideline Specifications. Product manufacturers and quality listed in the Guideline Specifications are non-negotiable. The following list of equipment manufacturers and system requirements is provided as a guide only if these particular systems are utilized in the mechanical design.
- 6.3.2 **Air Handling Units** –Air handling units shall be Temtrol custom units. The variable volume units shall use direct drive fan arrays with one redundant fan. VFDs for the fans shall be Yaskawa or ABB. Maintenance access must be provided for easy removal of filters, coils, and fan assemblies. Fan assemblies must be removable with internal hoist.
- 6.3.3 **Exhaust Fans** –For toilet exhaust in the bedroom areas it's preferred to use individual ceiling mounted fans. These can vent out of the side of the building in necessary. General exhaust fans shall be roof mounted down-blast fans. The dryer vents for the laundry rooms can be an Exhausto type system. Motors, sheaves, belts, and dampers must be fully accessible for maintenance. Any bearing that requires grease must be easily accessible.
- 6.3.4 **Terminal Units** – The terminal units shall be either Titus or Envirotec. They must be internally lined without fibrous insulation. Access doors shall provide access to the damper section and to inspect the heating coil, if necessary. Each unit will not have its own transformer, power trunks will be provided as indicated in the controls section of the UTA Guideline Specifications.
- 6.3.5 **Fan and Coil Units** – The preferred manufacturers for fan and coil units are First Co., Titus, and Envirotec. FCUs shall be steel cabinets with variable speed direct drive fans. They shall be interior lined without fibrous insulation. Easy access shall be provided to fans and filters.
- 6.3.6 **Pumps** – HVAC pumps shall be vertical inline pumps. The preferred manufacturer is Armstrong. The bearing and seal must be able to be replaced without removing the motor.
- 6.3.7 **Heating Water Boilers** – The preferred manufacturer for heating water boilers is PVI to match the domestic water heaters.
- 6.3.8 **Unit Heaters** – The preferred manufacturers for hydronic unit heaters are Modine or Reznor. All unit heaters should be controlled by the Building Automation System and

have easy access to fans and filters, if necessary.

#### **6.4 Energy Efficiency and Demand Reduction**

- 6.4.1 Minimum efficiency is 15% greater than IECC requirements. Designer shall provide an energy model of the building.

#### **6.5 Building Automation System (BAS) and Controls**

- 6.5.1 Siemens is the campus standard for Building Automation. The current Siemens platform is Desigo CC. In addition to controlling all mechanical equipment, the Building Automation System will monitor the utilities serving the building, i.e., chilled water, domestic water, electricity, and natural gas, if applicable.
- 6.5.2 Chilled water coils serving air handling units shall use Belimo energy valves if this type of system is utilized in the design. All other control components shall be provided as indicated in the controls section of the UTA Guideline Specifications.
- 6.5.3 The following control strategies shall be included in the sequences of operations:
- 6.5.3.1 Occupied/Unoccupied temperature reset
  - 6.5.3.2 Common areas shall use Occupancy control for HVAC
  - 6.5.3.3 Demand-Controlled Ventilation
  - 6.5.3.4 Static pressure reset
  - 6.5.3.5 Air side economizer
  - 6.5.3.6 Building pressure control

## **7. Electrical Systems**

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### **7.1 Building Design**

- 7.1.1 The main electrical feed for the new residence hall will be provided from the southwest side of the site from the Vista gear. The existing pad mounted transformer (1500KVA) is for construction use and was installed during the West Hall project. This transformer is to be moved and used as the permanent power transformer to the new building. Engineer to approve if transformer has the capacity. The normal and emergency electrical room locations should be coordinated with the utilities entering the building from the Southwest side.
- 7.1.2 West Hall has a 500-kW natural gas generator located in an enclosure on the Northwest side of the building. The generator serving the new residence hall will be located adjacent to the existing generator within an expanded screen wall. The new generator will be owner provided; contractor installed.

### **7.2 Equipment and Systems Expectations**

- 7.2.1 The electric rooms shall be stacked between floors. All panelboards shall be fed from a distribution panel located on the same floor. All circuits, normal and emergency, shall be fed from a panel on the same floor.
- 7.2.2 The preferred manufacturer for the switchgear and panels is Eaton.

- 7.2.3 The generator and any automatic transfer switch shall interface with the Building Automation System through BACnet.
- 7.2.4 The building systems that shall be served by emergency power are as follows:
  - 7.2.4.1 Emergency lighting
  - 7.2.4.2 Elevators
  - 7.2.4.3 Building heat
  - 7.2.4.4 IT equipment
  - 7.2.4.5 Apogee equipment
  - 7.2.4.6 Split system air conditioning units serving the IT rooms
  - 7.2.4.7 Fire & Life Safety Systems
- 7.2.5 The University does not want any solar panels serving the new residence hall.
- 7.2.6 Access will be provided to all light fixture drivers.
- 7.2.7 Power should be provided for electric shades in the main lobby.

### **7.3 *Lighting and Lighting Control***

- 7.3.1 The preferred lighting control system is Autani.
- 7.3.2 The classroom and student rooms shall have manual dimming capabilities.
- 7.3.3 Public restroom lights shall be enabled continuously for safety. All other rooms shall have on/off capabilities as required by code.
- 7.3.4 Occupancy sensors for the lighting control system shall be used to control the occupied/unoccupied schedule for the terminal units.

## **8. *Plumbing Systems***

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### **8.1 *Building Design***

- 8.1.1 The plumbing system will be served by existing utilities that were installed during the West Hall project. Piping for the domestic water and the fire protection systems were installed to the new future site and buried. The domestic hot water system serving the new residence hall shall be provided from natural gas water heaters with a main system mixing valve and dual domestic hot water recirculation pumps. One automatic flow control balancing valve shall be provided on each floor.

### **8.2 *Equipment and Systems Expectations***

- 8.2.1 The domestic hot water system shall be served by PVI domestic water heaters with a water softener before the water heaters. Alarm monitoring shall be provided to the Building Automation System. All valves and control panels shall have easy access for maintenance.
- 8.2.2 If it is necessary to utilize a domestic water booster pump the preferred manufacturer is Grundfos. The variable speed booster pump skid shall be controlled by a standalone controller. Alarm monitoring shall be provided to the Building Automation System. All valves and control panels shall have easy access for maintenance.
- 8.2.3 All domestic water piping shall be copper and have easy access to valves located at



every branch and every floor. Any other plumbing piping shall be schedule 40. Any piping serving bathrooms shall have the valves located outside the bathroom. Propress installations are allowed up to 2" pipe.

- 8.2.4 The Building Automation System (BAS) shall monitor the hot water supply temperature and status of the hot water heaters.
- 8.2.5 The washer drain for the laundry rooms shall have a lint catch.

### **8.3 *Fixtures and Fixture Controls***

- 8.3.1 Public lavatories, sinks, and hand dryers shall have automatic on/off. Power shall be provided to each fixture.
- 8.3.2 Individual lavatories and sinks shall be selected as indicated in the UTA Guideline Specifications. Maintenance access must be provided around the lavatories. The University would like extra room between the cabinets in the unit restrooms and the lavatories.
- 8.3.3 Unit bathrooms will have floor drains if they are ADA rooms. They will have showers and no tubs. The showers shall be one piece constructed of fiberglass.

## **9. *Building Envelope***

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### **9.1 *Overall Envelope Criteria***

- 9.1.1 The aesthetic for the new residence hall building will match recently constructed buildings on campus, such as The Commons. The glass, masonry, and metal used for the building shall match.
- 9.1.2 Zero Six will be the firm responsible for the commissioning of the building envelope. They should be utilized during design to provide reviews of the system.
- 9.1.3 Because the University has requested operable windows in the bedroom units, 100% window testing will be required during commissioning.

## **10. *Life Safety Systems***

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### **10.1 *System Expectations***

- 10.1.1 The fire protection design is the responsibility of the design-build contractor. Sprinkler heads throughout the building shall be concealed except in mechanical, electrical, or other non-public spaces. Concealed sidewall sprinkler heads shall be used in the dorm rooms. If an attic space is utilized in the building, a dry sprinkler system will be necessary. The fire alarm system shall be designed and installed by the University's preferred vendor, Johnson Control Fire Protection LLC (JCFP) to UTA Design Guidelines. The fire alarm system shall have 100% smoke detection throughout the building and use a sounder based system with smoke sensors. A 520 Hz sounder base is required in all sleeping rooms. The EH&S department has single mode fiber ring available for the integration of the new residence hall into the campus fire alarm network. All wall penetrations shall be sleeved per the requirements in the UTA Guideline Specifications. All fire dampers and combination fire/smoke dampers shall be installed to be easily accessible for inspection and testing.

- 10.1.2 Acceptance of the life safety systems shall be the responsibility of Jensen Hughes. Preliminary functional testing of the life safety systems shall be completed by the contractor prior to final acceptance. The life safety system must be accepted prior to allowing anyone to sleep in the building.
- 10.1.3 The building standpipe will need to be active, accessible, and serviceable during construction. It shall be active when the floor becomes available for access.
- 10.1.4 The building to have a remote microphone (RANN) tied into the fire alarm system

## **11. Data and Audio/Visual Systems**

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### **11.1 Network System Expectations**

- 11.1.1 The building network design shall be provided by Datacom. Cabling in the building will be CAT 6 and installed by the Contractor. The West Hall project used CAT 6A cabling and due to the size of the cable and the thickness of the wall cavity, a non-standard wall plate had to be used. Bedrooms shall have one data drop per bed. The contractor to provide all data drops for Apogee. The WAPs will be provided and installed by the campus' third-party internet service provider, Apogee. The fiber for the Apogee system is available at Ransom Hall. (See attached Apogee requirements.)

Data drops will be provided in the business areas of the residence hall. One drop is required per occupant of an office. The classroom podium will require a data drop. Additional data drops will be required for security cameras, HVAC control panels, and vending machines if they are being provided. The UTA campus Wi-Fi will only be deployed in the public spaces of the building.

IDF rooms on each floor shall be stacked throughout the building. The only systems that are allowed to install equipment in the IDF rooms are Security, EH&S systems, Cameras, and Apogee systems. The UPSs for the IT equipment will be provided by the OIT department.

In addition to any TV antennas provided with the building, it may be necessary to provide an emergency communication antenna with repeaters for communication with the Arlington Fire Department.

### **11.2 Audio/Visual System Expectations**

- 11.2.1 The AV system shall be contractor installed through an Owner's Cash Allowance. The budget for the A/V system is \$500,000. The Owner must approve the installing contractor. The classroom on the first floor will have monitor instead of a projector if the size of the room allows. Study rooms will have a monitor with HDMI connection. Gaming monitors with HDMI connection will be provided on the first floor similar to West Hall. Refer to West Hall for the quantity, type, and the location. Digital advertising boards shall be located on the first floor. No A/V systems are required in the sleeping areas.

## **12. Security and Access**

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### **12.1 System Expectations**

- 12.1.1 Requirements for access control systems are detailed in division 28 of the UTA Guideline Specifications. The Owner's preferred contractor is Blackhawk. Their scope shall be the responsibility of the Contractor. All access control components shall be hardwired. For doors with card readers, the card reader, the lock, and handle should be separate devices for easier maintenance. Card readers shall be contactless. The counselling room on the first floor will have an owner provided wireless panic button. The new residence hall will not have a monitored security desk.
- 12.1.2 All entrances into the building shall have card readers and crash bars controlled by security. If doors open against egress, the life safety system will integrate with security to release the doors. Elevators and stairwells will have card reader access to each floor. The access control and security system shall be on emergency power.
- 12.1.3 The following areas will be provided with coverage from security cameras:
  - 12.1.3.1 All building entrances
  - 12.1.3.2 Common areas on each floor
  - 12.1.3.3 Residence Hall corridors
  - 12.1.3.4 Elevator lobbies
  - 12.1.3.5 Main building lobby on the first floor
  - 12.1.3.6 Where card reader access is provided to residence hall corridors
  - 12.1.3.7 In laundry rooms
- 12.1.4 Security cameras are owner furnished and owner installed.

## **13. Custodial**

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### **13.1 Custodial Requirements**

- 13.1.1 Each floor will have on custodial room, to be separate from a dedicated trash room. The minimum size for the custodial room is 70 square feet and it shall have a mop sink. The trash room must be large enough for the standard campus trash bins. No trash chutes will be allowed.
- 13.1.2 Need a housekeeping breakroom area with room for a table, two chairs small sink and electrical for up to four small appliances about 80 square feet.
- 13.1.3 Trash and recycling collection shall be provided on each floor in the common areas.
- 13.1.4 A dumpster area shall be provided between West Hall and the new residence hall.

## **14. Landscaping**

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### **14.1 Landscaping Requirements**

- 14.1.1 The landscaping design and installation is the responsibility of the design-build contractor. The landscaping design should be considered an upgraded package from what was installed during the West Hall project.
- 14.1.2 Landscape lighting is Owner furnished and shall be installed by the Contractor. It shall cover all pathways outside of the building.