USU GENERAL DESIGN CRITERIA  
January 25, 2016

1. **University Requirements:** The Consultant shall become familiar with all the requirements of Utah State University. A Facilities Design and Construction Project Coordinator will be designated as the main point of contact and will coordinate the project with appropriate representatives from the users.

2. **Site Visit:** The Consultant shall become familiar with all site conditions. Review all site conditions and locations of utilities with Facilities Planning and Design at an early stage of design.

3. **Campus Master Plan:** Meet with Facilities Planning and Design to review the Campus Master Plan. All new facilities must meet Master Plan objectives as required by Facilities Planning and Design.

4. **USU Delegated Projects:** Projects assigned to USU for administration shall use USU's contract forms. Bidding shall be done through the Purchasing department as coordinated by Facilities Design and Construction.

5. **Sound Control:** Consider the need for sound control both inside and outside the facility. Analyze existing and future sound problems; also consider sound control during construction. Observe neighborhood sound ordinances, where they exist.

6. **Climatic Conditions:** Consider the positive and negative effect of wind conditions on the site. Winds coming out of the canyons are of particular concern. This shall affect glass design, orientation of entrances, etc. The consultant shall design for 110 mile per hour winds (3 second gusts), 37 pounds per sq. ft. snow loads, and -20 degree temperatures. Solar orientation shall also be considered.

7. **Materials Selection:** Site paving materials and building exterior materials shall be compatible with existing facilities. The Consultant shall select building materials that are low maintenance, economical to operate, and have lasting value. The Consultant is required to perform an adequate evaluation before selection of materials. All material selections must be approved by Facilities Planning, Design, and Construction, early in the Design Development phase.

8. **Service Access:** Provide easy access to mechanical and electrical rooms for maintenance and replacement of equipment and transformers. Locate air intakes away from loading docks and exhaust outlets. Provide easy access for garbage and recycling collections.

9. **Exterior Equipment:** Emergency engine generators, transformers and garbage dumpsters shall be located underground or enclosed by a screen. Screens shall be an
integral part of the facility design. Noise, fumes, and odors must be mitigated in the design.

10. **Roof Access Requirements**: All roofs shall be accessible by ladder or roof hatch. All roof hatches shall be sized to accommodate any service equipment that is required. Roofs with major mechanical equipment shall have stair and elevator access. Exterior ladders at ground level are not preferred because they are a security risk. If they are used, they must be equipped with locking cages to restrict public access. Roof hatches must also be equipped with locks.

11. **DESIGN REVIEW PROCESS**

   A. **Programming**

   1. Primary Design Professional shall obtain in writing the approval from Facilities Design & Construction's Project Manager before proceeding beyond Programming.
   2. **Specific Program Requirements**:
      a. Room diagrams to include attic stock rooms, mechanical rooms, IT rooms, electrical rooms, janitorial closets and storage rooms, equipment rooms, utility spaces, and all other support spaces.
      b. All room diagrams and specifications shall include programmed permanent equipment as well as furniture, fixtures, and specialized non-fixed equipment (FF&E), both existing and new.
      c. All room specifications shall include AV and IT requirements and equipment.
      d. The program shall include a budget for FF&E.
      e. The program site plan shall include location of the utility tunnel (if applicable) and other campus-wide utility connections. The budget for utilities and tunnels shall be included in the project estimate.
      f. The program shall identify potential exterior finishes and styles that are appropriate to the site context.
   3. Submit four copies of the program document for review to the Facilities Planning Design, and Construction office.

   B. **Schematic Design (25%)**:

   1. Primary Design Professional shall obtain in writing the approval from Facilities Design & Construction's Project Manager before proceeding beyond Schematic Design.
   2. Design review approval meetings with the design team and USU staff shall be set at 25%, 60%, and 100% intervals. Architectural, Mechanical and Electrical drawings and specification shall be reviewed as a group with USU’s engineering personnel.
   3. All review questions presented to the design team shall be responded to, in writing, before proceeding to the next design level. The Primary Design Professional shall be responsible to coordinate with sub-consultants to ensure that all review comments have been satisfactorily responded to prior to re-submittal. This will necessitate meeting with the Facilities Design and Construction project manager to indicate
clearly how each comment has been incorporated before proceeding to the next phase. The Consultant shall budget sufficient time for these reviews.

4. Schematic Design drawings and specifications shall demonstrate adherence to the Project Program. Deletion of any items in the program during Schematic Design will require the Design Team Consultant to provide FD&C Project Manager with a list of these items and written justification for their deletion.

5. USU will not approve Progress payments to the Primary Design Professional until all design review requirements are satisfied.

6. The architect shall present an exterior materials palette including samples as a part of the SD review.

7. Furniture layouts shall be shown on the floor plans at the SD review.

8. Submit the basis of design and design calculations for all major HVAC and plumbing systems.

C. Design Development (60%)

1. Primary Design Professional shall obtain in writing the approval the FD&C Project Manager before proceeding beyond the Design Development.

2. All review questions presented to the design team shall be responded to, in writing, before proceeding to the next design level. The Primary Design Professional shall be responsible to coordinate with sub-consultants to ensure that all review comments have been satisfactorily responded to prior to re-submittal. This will necessitate meeting with the Facilities Design and Construction project manager to indicate clearly how each comment has been incorporated before proceeding to the next phase. The Consultant shall budget sufficient time for these 1 day, on-site reviews.

3. Design Development drawings and specifications shall demonstrate adherence to the Project Program. Deletion of any items in the program during Schematic Design will require the Design Team Consultant to provide FD&C Project Manager with a list of these items and written justification for their deletion.

4. USU will not approve Progress payments to the Primary Design Professional until all design review requirements are satisfied.

5. The architect shall present an exterior and interior materials palette including samples as a part of the DD review.

6. Furniture layouts shall be shown on the floor plans at the DD review.

7. Submit the basis of design and design calculations for all major HVAC and plumbing systems.

D. Contract Documents (100%):

1. The Primary Design Professional shall submit a coversheet so the FD&C Project Manager can obtain signatures of Department Heads, Facilities Design and Construction Director, and the University Vice President before releasing documents for bidding. In order to do so, the consultant must submit a final check set indicating all revisions, along with the previously marked up review set and project manual to verify correction completion and that the documents are sufficient for bid purposes.
2. All review questions presented to the Design Team shall be responded to in writing before proceeding to the next design level. The CD phase shall have a minimum of three levels. The Primary Design Professional shall be responsible to coordinate with sub-consultants to ensure that all review comments have been satisfactorily responded to. This will necessitate meeting with the Facilities Design and Construction architects, mechanical and electrical engineers to indicate clearly how each comment has been incorporated before proceeding to the next phase. The Consultant shall budget sufficient time for these reviews.

3. The architect shall present an exterior and interior materials palette and furniture selections (if applies) including samples as a part of the CD review. Color boards with all finish material samples shall be developed from at least three different color schemes.

4. USU shall receive a minimum of 1 full size set and 6 half size sets of drawings with specifications for each review plus pdf disks.

5. Furniture layouts shall be shown on the floor plans at the CD review.

6. Submit the basis of design and design calculations for all major HVAC and plumbing systems.

12. Drawing Requirements: At the end of the project the architect is required to provide the following documents and files:

   A. PDF – Complete set of As-Built drawings and specifications (All disciplines).
   B. PDF – Complete set of O&M manuals. Provide hyperlinks to all sections within the manual.
   C. Hard Copy - 1 Complete Record Set (As-Built) of Drawings and specifications (All disciplines).
   D. Hard Copy - 1 complete set of Hard Bound O&M Manuals. Provide hyperlinks to all sections within the manual.
   E. CADD Files – Complete set of As-Built drawings (All disciplines):
      1. ACAD Dwg file (As-built, not construction)
         - Non Standard Fonts used in the drawings (AutoCAD(.shx) and TTF)
         - Compiled Shape Files
         - Plot Style Tables (.ctb)
         - Plotter configuration Files
         - Images (logos, maps, etc)
         - Xref Files (attached or bound)
      2. Revit (if exists)
         - Revit File
         - NavisWorks File

All final documents must include final as-built information for all disciplines.
13. **Room Numbering:** Utah State University (USU) follows procedures put forward by the National Center for Education Statistics (NCES) 2006 Postsecondary Education Facilities Inventory and Classification Manual (FICM) for assigning room numbers. The following listed procedures shall be followed for room numbering at USU.

A. **Numbering Floors:** The first digit indicates the floor on which the room is located. The level bearing the number 1 as its first digit should be the uppermost floor entered at grade or one half flight above grade.

B. **Numbering Flow Pattern:** In a building with only one dividing corridor: room numbers should flow in ascending order from one end of the building to the other. In a building with a more complex corridor system: numbers should flow in ascending order in a clockwise direction from the main entrance from plan view.

C. **Numbering Suites & Nested Rooms:** Each room must have only one number regardless of the number of doors opening into it. Rooms entered from a main corridor or lobby receive numbers with no suffix (101, 502, 331, etc.). Rooms within a suite are always numbered with the entrance room number and an alpha suffix (101A, 101B, 101C, etc.) beginning with the room closest to and clockwise from the main entrance and proceeding in a clockwise direction as viewed from a plan view. See Figure 1. The alpha suffix “I” and “O” are to be skipped and not to be used for any reason; this is to avoid confusion with the numbers 1 and 0. For suite rooms that may be accessed through multiple entrance rooms: only one entrance room number and alpha suffix shall be used. See Figure 2. Nested rooms within suite rooms shall be numbered the next sequential suffix as part of the suite numbering process. See Figure 3.

D. **Odd & Even Number Placement:** Room numbers should be assigned so that odd numbers are on one side of the corridor and even numbers are on the other; whenever possible. Odd and even room numbers should correlate with each other and numbers should be skipped, if need be, to keep numbers close in proximity. See Figure 3.

E. **Numbering Room Types:** All rooms should be numbered as referenced in Point C above. This practice includes: public bathrooms, mechanical rooms, communication closets, electrical closets, and custodial closets. See Figures 4, 5, 6, and 7. Exceptions are vestibules, main corridors, lobbies, stairs, mechanical & pipe chases, elevators, and covered patios when used as circulation areas. See Point F, Figure 4, 5, 6, and 7. Covered patios used as circulation shall be numbered as stated in Point F below. Covered Patios not used as circulation are to be numbered as mentioned in Point C above.

F. **Numbering Special Cases:** Vestibules, corridors, lobbies, stairs, mechanical & pipe chases, elevators, and circulation area covered patios (at all levels) are always numbered with the appropriate floor level followed by the number 00 and an alpha suffix: 100A, 300F, etc. and should be numbered sequentially. On the rare occasion that all single alpha suffix options have been exhausted, a double alpha suffix can be used: 100AA, 200AG, 300AT, etc. See Figures: 4, 5, and 6. No room shall be
numbered with only the appropriate floor level followed by the number 00 (ie. 100, 300, 400, etc.) This is to avoid confusion with special case rooms as described above and regular rooms as referenced in Point C. Areas not divided by physical walls, termed: phantom walls, may also be numbered. Specific numbering format of areas divided by phantom walls will largely be determined by usage of the intended space. Phantom walls may be used to separate corridors into multiple sections: See Figure 9, to separate office space to better distinguish different groups within the space (See Figure 10), or for future remodels. It is strongly recommended to coordinate with USU’s Space Management before applying phantom walls. Study areas, lounges, and other specially designated areas within a circulation area are to be numbered according to Point C above; see Figure 11.

G. **Open Areas:** Areas not covered by a roof system should not be given a room number. See Figure 8.

H. **Skipping Numbers:** When possible, room numbers shall be skipped sequentially to accommodate future remodels of the space. A room number should be skipped by at least one number in the current running series, if a space is 300 square feet or greater. See Figure 3. Space exceptions include those listed in Point F.

I. **Numbering Revision and USU Contact:** USU’s Space Management group shall be contacted, via USU’s designated contact for the project, if any unusual scenarios not listed above are encountered. Room numbering shall be completed and verified by Space Management prior to Construction and Contract Documents. Any space revisions made after the fact must be sent to Space Management; who shall verify the numbering of the revised space. The Consultant shall comply with any revised numbering set forth by Space Management.

J. **Figures:** Please view the attached figures on the following pages for reference.
14. SPACE & ROOM REQUIREMENTS

A. Entrances: Provide mechanically tempered entrance vestibules to all buildings. Where possible, provide at least ten feet of walking distance within vestibules. Major building entrances shall be designed with vestibules and a three part walk off system. These three parts include 1) an exterior mat or grate, 2) a recessed vestibule mat, and 3) a recessed mat on the inside of the building. All major north facing public entrances shall have an integrated hydronic snow melt system.

B. Custodial Closet: Custodial closet quantities shall be based on the gross floor area and configuration of each floor of the building (1 per 20,000 sq. ft. appx.) At a minimum, provide one custodial room on all floors, a minimum size of 50 sq. ft. Each custodial room shall have at least 6’ of mop and broom rack, for 48” wide adjustable shelves 12” deep, moisture protected wall surfaces, floor mounted mop sink, and adequate mechanical exhaust ventilation. In addition, a dry storage room shall be provided on the main floor, a minimum size of 120 sq. ft. On large buildings there may be a need for more than one “Primary” room.

C. Attic Stockroom: Provide an attic stockroom large enough for efficient storage of required overages of materials such as carpet, paint, ceiling tile, etc. Facilities shall be consulted for input into the types of materials requiring attic stock. The architect and engineers shall include requirements for attic stock within the specifications. The size of the room will vary by project, and shall be designed by the architect to accommodate all attic stock materials specified. The room shall be located to allow easy storage and removal of materials stored.

D. Lactation Rooms: USU is required by federal law under the Fair Labor Standards Act to provide a private, non-bathroom space for nursing mothers to express milk during the workday. All new buildings shall incorporate one room of this type. The room may be used for multiple functions as long as it is available for scheduling by nursing mothers, but may not be a part of a restroom. The room shall have the following features:
- A minimum of 7’ x 7’ footprint
- A locking door, and maximum visual and audio privacy
- A chair and work surface
- A small sink
- Electrical outlets
- Located in a safe and convenient part of the building

E. Snow Blower Storage: Each building must be provided with an exterior accessed, fire rated storage room for snow removal equipment for custodial use.
F. **Vending:** Each building may need to provide room for vending facilities sized and coordinated by Facilities Design and Construction and USU Vending.

G. **Recycling Areas:** Provide space for recycling areas as programmed. The design of these areas shall be integrated functionally and aesthetically with the overall design. Also, this space shall include facilities for the distribution of University papers, information and trash collection. Exterior recycling areas shall have an architectural design compatible with the new facility.

H. **Refuse Dumpster:** Provide a suitable site and enclosure for exterior trash dumpsters. The site should be designed to coordinate with existing and/or proposed landscaping and the building. The location shall be accessible for large tandem axle collection vehicles and allow clearance for required turning radii.

I. **Storage Cabinets:** Laboratories requiring storage of flammable, combustible, chemical, or radioactive materials shall be stored in the appropriate manner required by code and by the Campus Environmental Health and Safety Office.

J. **Mechanical Rooms:** Provide mechanical equipment rooms with sufficient space to allow proper installation, servicing, and replacement of all equipment. Locate the mechanical room central to the building to allow efficient ducting and piping distribution systems and outside utilities including utility tunnels where required. Provide access to the outside with an opening large enough to allow the removal of the largest piece of equipment. Provide area-way equipment access where mechanical rooms are located in the basement. Locate mechanical rooms away from sound sensitive areas. Provide concrete equipment pads for all major mechanical equipment. Allow space for storage of mechanical items such as filters and other maintenance equipment. Construct mechanical equipment rooms to reduce transmission of sound, vibration, and odor to other parts of the building. Install curbs around the perimeter and seal the floor of the mechanical room to prevent water from leaving the room to adjacent spaces. Mechanical rooms shall not be used as air plenums. See Division 23 for specific mechanical room design requirements.

K. **Transformer Vaults:** Electrical transformer vaults shall be included within the building envelope or within a sub-grade area-way. Stand-alone enclosures are not acceptable, except for farm and service area buildings. See section Electrical Design Requirements Section G for detailed requirements of transformer vaults.

L. **Electrical Rooms, clearances and entrances:** USU requires a minimum of forty eight inches (48”) in front of electrical equipment. Main switchboards may be housed in one or more separate rooms or within locked closets. A transformer vault entrance shall be separate from the entrance to the switchboard room or the high voltage switch room. The high voltage switch room entrance shall be separate from the main switchboard room, but may be accessed through the main electrical switchboard room provided the doors and access are sufficient for equipment removal/installation.
Electrical room sizes and clearances shall be addressed by the program and shown schematically with the room diagrams.

**M. Communications System Planning:** Provide space allocation as follows. If serving an area that is less than 460 m² (5000 ft²) then the interior dimensions of the room must be at least 3 m (10 ft) x 2.4 m (8 ft.). If the serving area is larger than 460 m² and less than or equal to 740 m² (>5000 ft² to 8000 ft²) room size should be 3 m (10 ft.) x 2.74 m (9 ft.). Larger than 740 m² and less than or equal to 929 m² (>8000 ft² to 10,000 ft²) size room to 3 m (10 ft) x 3.4 m (11 ft). If the building is smaller than 460 m² (5000 ft²) Walk-in rooms of at least 1.2 m (4 ft) by 1.83 m (6 ft) may be used. Communication spaces must have cooling considerations for active equipment. Provide conduit and cable tray raceways from each wall outlet to communication closets at 90 meter maximum distances.

**N. Standard Office Sizes:** Recommended office sizes are as follows:

- Open offices / Grad Students – 50 - 80 sq. ft.
- Administrative Support – 80 - 100 sq. ft.
- Faculty / Professional Staff – 120 sq. ft.

**15. Building Access Control:** Exterior doors and certain interior doors will be required to incorporate USU’s standard electronic access control system. The extent will depend on the project scope.

**16. USU Installed Items:** The Consultant may include in the project budget funding for the following items. Verify with project coordinator which items will be provided and/or installed by USU.

A. Fire extinguishers for each wall cabinet.
B. Elevator Lock Box Lids (two (2) required).
C. Cylinders for each door requiring a lock.
E. USU standard signage. These include interior room signs, exterior building identification signs and interior building directories
F. Audio visual equipment
G. Information technology infrastructure and equipment
H. Installation of toilet room accessories provided by USU.
I. Furniture, Fixtures, and Equipment

**17. Window Maintenance:** The building design shall provide for interior and exterior window washing and replacement.

**18. Fire Marshal:** Any communication with the Campus Fire Marshal shall be via the Project Coordinator from Facilities Design & Construction.
The following items are required:

A. Submit to Facilities Design and Construction, for the University’s Fire Marshal’s approval, shop drawings, showing how penetrations of rated walls and floors are being made.

B. All concealed penetrations of fire separation walls and floors must be inspected by the Campus Fire Marshal during installation. The contractor shall be responsible for giving 48 hours notice before requesting and inspection.

C. University Fire Marshal inspection is required on all water supply lines before any portion of it is covered. Minimum ground cover over all supply lines shall be sixty six inches (66”). Supply lines located under vehicular circulation shall be deeper when possible. Flushing of the system shall be done in the Fire Marshal’s presence.

D. Construction sites shall be equipped with a portable fire extinguisher(s) (not included in allowance) and shall have a water source available for fire fighting. Fire truck access shall be maintained at all times.

E. Provide recessed fire extinguisher cabinets without keys.

F. If required, Fire Marshal will provide access key lock boxes upon request for contractor installation.

19. **Project Identification Sign:** The Consultant shall provide the design for the contractor’s project identification sign to be included in the construction documents. Each project over a million dollars shall have a color rendering of the project on the sign.