CSU The California State University

CSU OWNER'S PROJECT REQUIREMENTS GUIDE

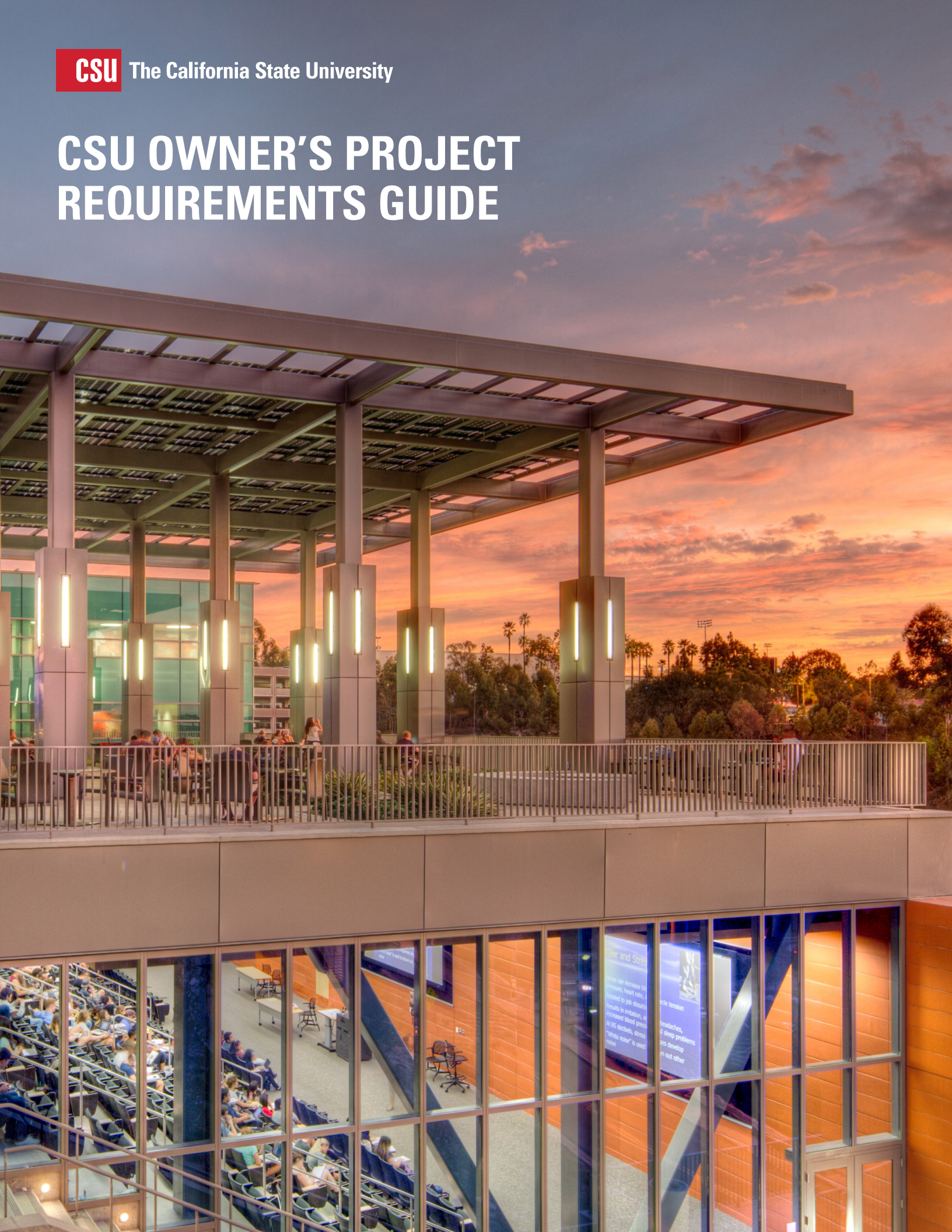


TABLE OF CONTENTS

I. How to use this document

This document has been prepared as a guide and starting point when preparing Owner's Project Requirements (OPR). Sections, headers, and examples included may be applicable to typical projects at the California State University. The contents of the document should be tailored to address the needs of the individual project as every project is unique. For example, infrastructure projects do not typically need many of the building design sections and such sections should be deleted.

The OPR document is the foundational document for a successful project. It defines the expectations of the project, from its ideas and concept as well the functional criteria which the owner wants to track throughout design and construction. It forms the basis for the design team and serves as a tool for measuring quality at the end of construction during the commissioning process. A clear and detailed OPR document defines success and reduces project risk.

Italic Blue text provides a guide to the OPR outline to help campuses develop their individual OPR document. Delete the *blue* text before finalizing your OPR. Text in black can be used as a basis for campus' OPR.

Bracketed [ ] and Yellow highlighted text indicates areas where a campus needs to fill in a detail.

Some project features will be identified as future decisions to be developed in conjunction with the design team.

II. OPR Summary

A. Overview, Definition and Scope

Use this section to clarify what this document will and will not do for your project. This does not replace General Requirements of the contract nor other design requirements and guidelines. The OPR is most effective when developed prior to schematic design phase and used to develop the Basis of Design (BOD) during the design process. The level of detail and complexity of the OPR will vary according to the project, building use, type, and systems. ***The OPR should be provided with the Request for Proposal (RFP) as part of the solicitation process.***

If there are areas you are choosing not to cover in your OPR, this is a good place to mention that. The black text below can serve as a starting point.

The Owner's Project Requirements is an inclusive, detailed description of the Owner's goals, requirements, and expectations for a proposed project. This is separate from the Basis of Design document which is a detailed description of the design team's concepts, assumptions, decisions, product selections, and detailed operating conditions.

The California State University OPRs are not exclusive to commissioned systems and are inclusive of the physical and functional building characteristics desired by the owner and establish performance and acceptance criteria. The OPR is intended to be developed prior to the design phases and earlier issuance of the project RFP. It will likely leverage information from earlier project planning, such as feasibility studies or Capital Plan projects submissions.

Owner's Project Requirements are mandatory for new buildings and renovations over 10,000 GSF by the California Code of Regulations, Title 24, Part 6 (California Energy Efficiency Standards).

B. Conformance to CSU Contract Requirements

Nothing in this document is intended to modify provisions of the contract that the design team is required to follow. The overall design process shall comply with all stated California State University contract requirements.

C. Conformance to Campus Standards

In addition to the project expectations provided herein, the design team may be provided with specific campus standards with respect to the interface of the project with the campus mechanical, electrical, and plumbing systems. It is not the intent of this document to deviate from such standards. Design team shall coordinate with the applicable campus departments as designated by the University Project Manager to obtain relevant details pertaining to the same during the design process.

D. OPR Process and Tracking

Changes to the OPR and/or deviations from standards set out in the OPR shall be reasonably justified, documented, and tracked. The text below outlines a simple means for documenting those changes. This section can also outline where the document "lives" and who has authority to make changes to the document and how those changes should be communicated out to relevant parties.

Owner Changes – Changes to the requirements set out in the OPR shall be reasonably justified, documented, and tracked internally prior to issuance of the document.

Identify the responsible party and describe how your OPR will be applied and updated as the project advances.

Owner Changes to the OPR after issuance of the document in RFP or Request for Quotation (RFQ) shall be tracked as addendums. We recommend a log to track Owner Changes so that design team members can easily follow (see Section VI.) in addition to changes being bolded and underlined within the main document and deletions struck through then removed after any future revisions. Note that OPR is separate from Basis of Design documents (see II.A).

Deviations – Deviations from requirements set out in the OPR shall be reasonably justified, documented, and tracked by the design team. Design and construction teams are both responsible to maintain a log with itemized deviations listed in the order they appear in the OPR document. Identification of the deviation, reason for deviation, method of addressing an alternative solution, responsible party for the deviation, date, and owner party responsible for final approval shall be included in the Project OPR Deviation Log. Deviations must be approved prior to implementation of the Project.

E. Reference Documents and Agencies

List all applicable codes and design guidelines, both CSU and campus-specific and any other guidelines that may not be CSU policy but that you would like to be applied to this project (such as the Illuminating Engineers Society (IES) Guidelines for lighting). The CSU design guides listed are below as starting point. Known agencies, including the CSU as an authority having jurisdiction, that impact the project may also be listed; however, they need to be verified as agency involvement can change due to factors such as the specifics of a site, project type, or function of the project.

Applicable Codes, including but not limited to:

1. California Building Standards Code (California Code of Regulations, Title 24)

Policies

1. CSU Seismic Requirements
2. Policy Statement on Energy Conservation, Sustainable Building Practices, and Physical Plant Management for the CSU
3. CSU Compliance Requirements for Current Title 24 Building Energy Efficiency Standards
4. CSU and Campus Sustainability Policies

Standards

1. CSU bulletins
2. CSU Office of Fire Safety standards
3. Any existing standards campus has adopted or chooses to adopt for this project

Guidelines

1. CSU Control Systems Design Guideline
2. CSU Control Systems Procurement Guide
3. CSU Building Metering Guide
4. CSU Energy Metering for Utilities Management Guideline
5. CSU Indoor Lighting Design Guide
6. CSU Outdoor Lighting Design Guide
7. CSU Building Decarbonization Framework
8. CSU Access Compliance Guideline
9. Existing Campus Design Guidelines

Known Agencies

1. California State University – Overall Authority Having Jurisdiction and/or shared co-authority
2. Office of Fire Marshal – Fire and Panic Safety Authority
3. Division of State Architect – Access Compliance entity issuing written approval of compliance intent
4. California Department of Industrial Relations – Elevator Unit – Elevators
5. Local County Department of Public Health – Food preparation and pool Safety Authority
6. [Insert others as needed].

III. Project Information

A. General Project Information

Use this section to introduce the project, including the desired building size, form, and program need it is designed to address. Much of this information will overlap with campus Five-Year/Multi-Year Capital Plan submissions and any feasibility studies that have been completed. Please leverage that information and coordinate information across documents where necessary.

The proposed [PROJECT NAME] will be a [XXX]-story building or infrastructure project designed to address XXX. The program will include [XXX]. The size is approximately [XX,XXX] (GSF) or [XX,XXX] (ASF). The completed project will house [XXX].

B. Location and Schedule

1. Location

Describe the project location on campus including building number and any potential site challenges. If final location is not yet determined, describe all potential sites under consideration.

The general location(s) of the Project has been identified as [xxx].

2. Anticipated Schedule

In this section, include projected dates for major milestones of your project schedule. If there is a required completion date (such as the opening day of classes) include that here.

The University expects development of the project under a schedule as shown below, assuming funding is approved/available by Month 20XX.

Contract Award – [February 20XX]

75% Schematic Design – [June 20XX]

100% Schematic – [July 20XX]

100% Design Development – [September 20XX]

Submit for Construction Permit/Plan Check – [October 20XX]

Phase II – Construction Agreement to be executed – [December 20XX]

Construction Start – [January 20XX]

Start of Commissioning – [December 20XX]

Occupancy, Move-in – [March 20XX]

Notice of Completion – [April 20XX]

Post Occupancy evaluation – [April 20XX]

C. Owner, Occupancy, Space and Use Requirements

Use this section to detail the expected program for the proposed facility. We advise inclusion of a short description of each functional use to provide the context in which it was detailed.

Includes a listing of the key Owner's Project Requirements which the Commissioning Process will focus upon and which the owner has determined are critical to the success of the project.

Includes the number of occupants (users and visitors) and the schedule of occupancy, including all special conditions (after hours use, etc.). Note that CSU station counts are a planning tool and will likely vary with the requirements of the California Building Code when detailed occupant counts are calculated for use and exiting.

Include indoor service and technology requirements (clean room and bio-safety classifications, fume hood sizes and types, vivarium, and environmental room conditions).

D. Furniture and Equipment

Use this section to describe requirements and preferences for furniture and equipment of a certain specification. No need to have all decisions complete but emphasize the need for durability and value and broad needs for type I (furniture and equipment that are intended to be purchased as part of the construction agreement) and type II (furniture and equipment that is purchased by the owner).

Quality and Durability of Materials and Desired Project Lifespan

Refer to each discipline and system for design life expectations. Campus should carefully consider what requirements they want to put in place for life expectancy of systems. In some cases, campus may want to exceed industry standards. Campus must weigh decisions based on availability of resources such as maintenance budget, staff, expected changes in the technology, and upfront versus ongoing costs. When finding clarity around these trade-offs is challenging, the use of outside consultants may be warranted.

The expected Project Life after construction is [30-50] years; however, the project may be used beyond the listed range. Major mechanical, electrical, plumbing, and energy systems elements expected design life is [#] years. Selection of materials should be based on the ability to provide years of service with minimum maintenance. Materials selected for exterior work, where applicable, shall withstand weather conditions typical in this region. Selection of interior finishes shall emphasize high durability. Heavy traffic areas should be designed to have durability and resilience.

E. Budget Considerations

Use this section to describe your budget constraints and CSU culture of seeking the best possible value in our capital planning.

F. CEQA Pathway

Use this section to identify the proposed CEQA pathway for the project.

G. Commissioning Requirements

Use this section to describe the commissioning process, report, and designated commissioning agent, if already selected.

IV. Design

The design section of your OPR will cover general considerations for design of your project across several sections. Use only the sections that apply and feel free to add your own.

A. General

In this section, include project components that include more than one discipline or that do not really fit in any other section. A few examples are:

- *Design excellence*
- *Need for hazardous materials testing or abatement*
- *Transportation and parking*
- *Equipment and systems expectations (redundancy and reliability)*
- *Access to equipment and POCs*
- *Emergency or backup power*
- *Vibration concerns*
- *Site (how to address the various types of geologic conditions that exist on campus—e.g. high water table, fault line proximity, undesirable soils)*

B. Accessibility

This section should describe goals and expectations for project accessibility such as compliance with California Building Code, Title II and/or III of ADA, use of facilities by children and the aged, but also considerations of systems requiring routine maintenance to provide adequate clearance for maintenance tasks that minimize interference with day-to-day access and operations.

C. Building Requirements

Describe any requirements for the building including specific desires and needs for views, orientation, fenestration systems, aesthetics, interior or exterior collaboration spaces, relationship to other campus facilities, or campus standards as included in the reference document section, such as campus master plan design guidelines or architectural character guidelines.

D. Vertical Transportation

Describe expectations for elevator, lift, and escalator systems including exclusive or shared service elevators, requirements for standby and emergency service beyond minimum code requirements, wait times acceptable, and desire for Destination Selection Controls (DSC).

E. Acoustics

Describe acoustical design goals and noise criteria of the project for internal and external noise control as well as intelligibility of sound. Identify any need for an acoustical consultant on the project design team. See example text below:

The acoustical design goals of the Project shall center on providing a suitable acoustical environment for the various occupancies throughout, resulting in high occupant satisfaction. This consists of:

a) providing adequate sound isolation;

b) limiting background noise level both from environmental sources and building systems;

c) location of noisy equipment as far away from occupied areas as practical;

d) selection of the least noisy equipment models;

e) sizing branch duct runs serving occupied spaces to limit velocities;

f) sizing main ducts and common plenum return collection points such that no normally occupied space within the building is exposed to any noise higher than [35-40 dBA]; and

g) providing acoustical finishes to promote good speech intelligibility and avoid noise build-up. The acoustical performance criteria should achieve these goals while being cost-conscious and remaining consistent with industry standards for this type of facility.

Recommended noise criteria for common spaces shall be as follows:

Room Type	NC
Computers/server rooms	55
Corridors/Public circulation areas	45
Open-plan offices	40
General labs	40
Private offices	35
General classrooms/lecture rooms	35
Library	30
Private offices	30
Conference rooms	30
Conference rooms w/teleconferencing	25
Film/audio laboratories	25
Auditorium	25
Residence Hall Bedroom	30
Residence Hall Common Area	35

Design team shall include review and study of acoustics and potential noise impacts due to mechanical and plumbing systems to ensure that the above standards are met in the final design.

F. Fire Protection and Safety

Describe fire protection, smoke protection, and alarm system requirements. Describe any concerns with use and conditions that the design team should be aware of. Identify any desires to exceed the minimum code requirements. Identify if active fire protection (sprinklers) is an owner requirement regardless of it being needed per applicable codes if so desired. Provide information on general types of chemicals that may be stored or used to inform the design team.

CSU advises design teams that CSU Office of Fire Safety (OFS), an internal CSU entity, is separate and distinct from the Office of the State Fire Marshal (OSFM), the co-authority having jurisdiction for fire and Panic Safety at the CSU. Regularly scheduled submissions to the CSU Office of Fire Safety are required to minimize delays at the Office of the State Fire Marshal official project permit reviews.

CSU strongly advises design teams not to pursue Requests for Alternate Means of Protection, also known as Alternate Means and Methods Requests (AMMR) in the design phases instead of use of compliant systems, materials, assemblies, and/or designs as specified by regulations of the code and or tested systems due to extensive risk and time delays associated with reviews and approvals.

Additionally, due to similar risks and delays, design teams shall endeavor to use tested systems in lieu of Engineering Judgments (EJ), technical documents unique to jobsite conditions during construction that are stamped and validated by a qualified technical third-party entity to demonstrate compliance of non-standard condition deviations from tested systems.

G. Building Envelope

Describe building envelope considerations, including expected performance, design life, and aesthetics.

The Title 24 Performance Certificate of Compliance energy use summary shall indicate that envelope component energy usage meets or is better than the Title 24 Standard.

Building envelope commissioning shall be provided.

1. Below Grade Waterproofing

   Describe any requirements for below grade waterproofing, if applicable, as well as University standards.

2. Glazing

   Describe any specific requirements related to glazing.

3. Roofing

   Describe any specific requirements related to roofing, for example, years of warranty or desire to reduce heat island effect.

H. Structural Considerations

Describe structural considerations for the project, including structural and lateral needs as well as systems to avoid.

I. Security

Describe required security system and other requirements to the design of the project's security (i.e., inclusion of lockdown buttons or other adaptations). Coordination with existing campuswide systems and central reporting (i.e. campus police station).

J. Telecommunications

List telecommunications requirements, including wireless access coverage requirements and any other needs.

K. Flexibility and Future Expansion

Describe any plans for future expansion or need for flexibility to adapt to different users in the long-term plan for the proposed project.

L. Environmental and Sustainability Measures

1. CSU Policy

   a) The CSU requires that the Project achieve a building energy use efficiency that is at a minimum 10% better than the current Title 24 energy efficiency on a performance basis. Each individual assembly (envelope, lighting, HVAC, etc.) should meet Title 24 prescriptively.

   b) Leadership in Energy and Environmental Design (LEED) Silver Equivalency, as defined in CSU Sustainability Policy.

   Refer to other campus additional project requirements with regards to LEED certification.

2. California Green Building Code

   The Project shall comply with the mandatory measures as adopted by Building Standards Commission in the current edition of CCR Title 24, Part 11 – California Green Building Standards Code (CalGreen).

   While CSU has not formally adopted Tier 1 and/or Tier 2 voluntary measures, campus may choose to indicate a goal of compliance with those Tiers.

3. Buy Clean California Act

   At minimum, contractors shall submit Environmental Product Declarations (EPDs) for all materials or products subject to the Buy Clean California Act.

4. Leadership in Energy and Environmental Design (LEED)

   Describe any project LEED certification goals and any priority areas where LEED points should be sought to maximize cost-effectiveness.

   See example text for explanation of other project goals.

   a) This project should endeavor to make sustainable choices, regardless of rating systems. Among other sustainable goals, we strive to promote healthy indoor environments, reduce energy consumption, reduce operational costs, meet storm water retention regulations, maximize recycling practices, eliminate or reduce the use of hazardous materials, preserve surrounding green spaces, and increase the use of alternative and mass transit options to reduce global pollution.

   Other project goals are summarized in the list below.

   b) The University encourages the design team to use proven and innovative schemes to minimize energy use below energy code budget levels to assist in securing LEED equivalency or certification. The Design team shall demonstrate through a performance modeling approach that the building will meet or exceed these standards.

   c) Use building materials and products that have been extracted, harvested, or recovered, as well as manufactured within a [500-mile] radius of the project site for a minimum of [20%] (based on cost) of the total materials value.

   d) Use low-emitting materials and sealants. Mechanical scope shall include the specification of low-VOC adhesives and sealants for mechanical systems.

   e) The University also promotes water conservation. This project is expected to include low-flow fixtures whose function will not be distinguishable from standard fixtures. In aggregate, fixtures shall use [40%] less water than the baseline calculated for the building after meeting the Energy Policy Act of 1992.

   f) As part of the requirements for achieving LEED equivalency, the project will use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least [20%] of the total value of all materials specified.

M. Heating Ventilating and Air Conditioning (HVAC)

1. HVAC Equipment

   Describe criteria for HVAC equipment, such as connections to central plant, if applicable, water supply temperature, and any other campus standards around direct buried piping, materials selection, vaults, isolation valves, avoidance of exposed ducts at the roof, and metering. To meet systemwide and campus carbon reduction goals, the CSU Building Decarbonization Framework should be referenced and integrated wherever possible.

a) Heating Hot Water

Describe means of heating hot water supply. Describe central plant hot water capacity (if project will be connected) and anticipated impacts of proposed project on capacity. You may also specify any preferences or requirements for piping size, control valves, design temperatures, and maximum face velocity.

b) Chilled Water

Describe means of chilled water supply. Describe central plant chilled water capacity (if project will be connected) and anticipated impacts of proposed project on capacity. You may also specify water coil design temperature targets and conditioned air temperature targets.

c) Air Handling System

Specify any criteria around air handling unit location and specific ventilation system requirements, proposed ducting and coil configuration, and desired retrofits (if not new construction).

d) General Exhaust Systems

Note any spaces that require exhaust systems (e.g. labs, restrooms, janitor rooms, and break rooms shall require exhaust) and any requirements around exhaust fan locations and EC monitoring and target for negative pressure.You may also want to specify an exhaust rate here.

e) HVAC Controls

Identify proposed building automation/energy management system on campus (BMS) and any specific standards for sensors, controls, scheduling functionality, zoning, and reset temperatures etc.

2. HVAC Equipment Efficiency and Characteristics

Describe any other specific measures required related to HVAC equipment characteristics. For example, you could specify desire for variable speed booster pump for hot water and chilled water or requirement to have premium efficiency motors, duct installation guidelines.

The design team must certify at the completion of the project that the building meets or exceeds the applicable latest edition of the California Code of Regulations (CCR) Title 24. All reasonable innovative and proven measures shall be considered in the design of HVAC systems to maximize energy efficiency and accelerate decarbonization of building systems (primarily heating).

3. Maintenance

See below for some stock text on our CSU priorities for keeping maintenance and operational costs low, feel free to retain or edit to suit.

Ease of maintenance and low operational costs of the HVAC system and its components shall be a priority in the design. The operation and maintenance of HVAC system should be within the capacity of the University's maintenance staff.

The HVAC equipment shall not use hard-to-find components or custom-made parts that will need to be replaced as part of routine or lifetime maintenance. There shall be locally stocked parts and service available within a 50-mile radius of the campus for all HVAC equipment.

4. Accommodations for After-Hours Use

See below for some stock text on creating HVAC systems to accommodate after-hours use, feel free to retain or edit to suit.

Control systems and HVAC systems shall be designed to allow for operation of specified areas after hours and on weekends without requiring the entire building system to operate. These types of spaces will be clearly indicated so that design of all energy systems can accommodate the need efficiently.

N. Air Quality, Ventilation, and Filtration

Outline any specific additional requirements for air quality, mechanical ventilation rates, consideration HVAC in high fire-risk areas, and/or demand control ventilation.

All building spaces shall be provided with minimum outside air (OSA) per the requirements, ASHRAE Standard 62.1 (Ventilation for Acceptable Indoor Air Quality) called out in CCR Title 24, Part 6 (California Energy Efficiency Standards) and CCR Title 24, Part 4, California Mechanical Code unless noted otherwise. Basis of Design document shall submit ventilation rates as well as occupancy assumptions for each space type for University's review and approval.

O. Electrical Systems

1. Electrical Design

See below for example text introducing the electrical system design, feel free to retain or edit to suit.

The design of the electrical system shall encompass service to the Project building, interior and exterior lighting, power distribution system, and a fire alarm system. Lighting should be designed to enhance both the overall building architecture and provide proper lighting levels for the building occupants and tasks. All these systems shall be designed to provide the user with maximum flexibility and all equipment that form part of these systems shall be selected for durability and maintenance ease that are consistent with all the current standards.

2. Lighting System Efficiency and Characteristics

- Design will maximize daylighting to minimize use of artificial lighting and help minimize energy use.
- Lighting power densities and controls shall comply with California Energy Code Title 24, Part 6.

3. Lighting and Visual Quality

See below for example text regarding lighting efficiency. Refer to any other standards or guidelines for lighting you would like followed (some campuses reference the IES standards, but this is not required by CSU).

Light fixtures and systems shall be selected for efficiency, durability, maintenance ease, and to accentuate the area architecture. Indoor lighting will be tailored to the building's needs and theme. Light fixtures will be selected to maximize energy conservation, provide glare-free illumination, allow users to have flexibility of light levels, and harvest daylight savings.

4. Lighting Equipment

Use this section to specify standards for light fixtures. Level of detail for this section can vary, up to including standards for the following: minimum color rendering index, minimum luminaire efficacy, measured flicker, desired minimum warranty, etc.

Light Fixtures: LED light fixtures shall be used for all interior and exterior lighting.

LED sources shall meet the following minimum technical requirements:

- Req 1
- Req 2
- Req 3

5. Lighting Control

Describe any requirements for occupancy and daylight sensing devices, manual controls, dimming options, task tuning for target light levels, and programming. Describe desired controls for exterior lighting (photocells, time switch, motion sensors). Describe any existing lighting control systems that the project would require compatibility with or if a specific system is desired and follow statement with "or equivalent".

6. Metering and Sub-Metering

Describe your project's specific metering needs. Please reference any specific metering systems already in use on campus to ensure compatibility and any necessary technology interfaces. See example text below.

Design team shall follow CSU Metering Guidelines, unless superseded by LEED, Title 24, and/or Campus specific standards for maintaining compatibility with existing metering systems. All major utilities including electricity, natural gas, chilled water (BTU), heating hot water (BTU), and domestic water shall be metered.

Electricity metering shall include (as applicable):

(i) HVAC loads
(ii) Lighting loads
(iii) Plug loads
(iv) PV generation on site
(v) Battery energy storage

Water metering shall include:

(i) Potable water use within the building
(ii) Irrigation water used for the building
(iii) Total graywater used for the building, if applicable

All metered systems shall be designed to communicate metered interval data to the campus BMS system and Energy Information System.

For electric meters, the campus standard model is [XXX]. Campus standard model for gas meters is [XXX]. All meters shall be connected to the campus BMS system. At minimum, each building's electricity shall be metered per Title 24 requirements. Gas should also be metered on a per building basis and follow local, state and federal guidelines.

P. Domestic Hot Water System

Provide information on any requirements around water systems in the proposed project. See example text below.

Provide water efficient, ADA compliant fixtures for the restrooms. Provide an energy efficient, preferably electric, system within the project budget for low carbon emissions domestic water heating. The system must comply with the requirements of CCR Title 24.

Domestic hot water shall be generated using point-of-use heaters, with minimal or no losses in distribution systems or storage systems. Domestic hot water temperature shall be provided to the building at [120] degrees Fahrenheit. Insulation with appropriate thickness and fire-retardant jacket shall be installed on all hot water piping.

Q. Energy Efficiency Goals

1. Overall Building Efficiency

Describe the project's energy efficiency goals, energy usage intensity (EUI) targets (as applicable), and any energy modeling requirements during the design process. For example, if a project is seeking Zero Net Energy building status, please describe that below.

[At all milestone submittals, (i.e., Schematic, Design Development, 50% CD and 100% CD), the design team shall be required to maintain and update the building performance simulation model and advise the University on the latest status with respect to the building energy efficiency achieved in the design].

2. Other Measures Affecting Energy Efficiency

List any other energy efficiency measures that will apply for the project.

The following sustainability measures shall be required for implementation in the design:

-Temperature controls shall be by [name of building management system] (BMS) or equivalent per guidelines and shall be connected to the existing campus system and provided with appropriate graphics. This is the campus EMS standard.

R. Indoor Environmental Quality Requirements

1. Temperature and Humidity

a) Outdoor Design Conditions

Describe outdoor design conditions for the local area, including California Climate Zone and design temperatures. To ensure reliability of building over its lifetime, campus may also consider how climate change will impact design days and tailor the below description accordingly.

Heat gains and losses to the exterior will be calculated using the latest edition of Title 24 outdoor design conditions for [CITY NAME, CA] at frequency levels of [0.5%] summer dry bulb and web bulb temperature for cooling and winter median of extremes for heating. The following are based on California Climate Zone [X].

	Summer	Winter
Design Temperatures:	[88 deg.F (DB)/68 deg.F (WB)]	[35 deg.F]

b) Indoor Design Conditions

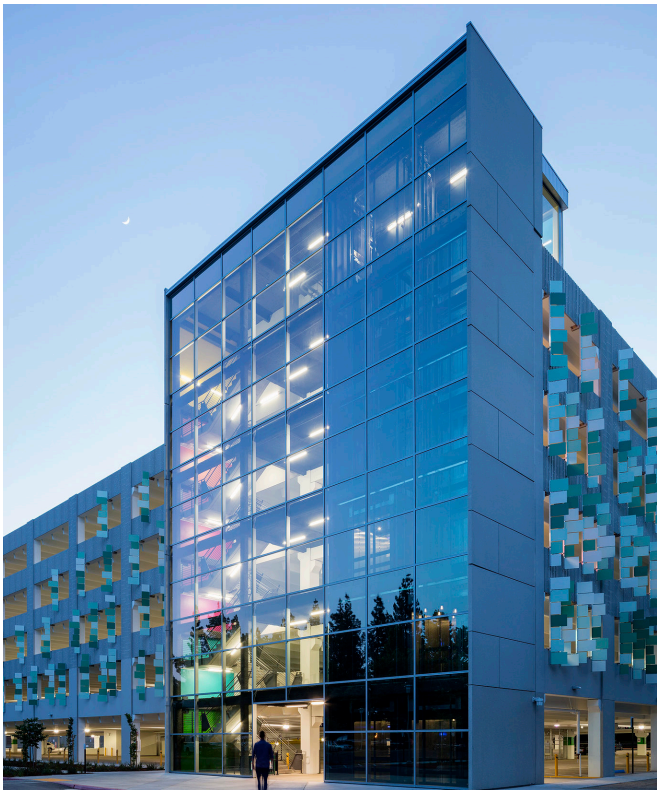
Describe indoor design conditions and target temperatures, as well as requirements for negative pressure and/or CO2 sensors in specific space types.

V. Project Closeout

Establish project closeout requirements, which are very specific to an individual project.

A. Operations and Maintenance Personnel Expectations

The purpose of this section is to outline operating and maintenance (O&M) expectations for the project as well as incorporation into the project General Requirements specifications, Division 01 sections 01 77 00 and 01 78 23 by the design team. See example text below and edit to suit.



The proposed project will be operated and maintained by the campus Facilities Management department. Facilities Management staff includes skilled technicians in the fields of HVAC, plumbing, and electricity (also custodial and landscape, though not skilled trades). The operation and maintenance of installed equipment and controls should be within the capacity of the campus O&M staff.

1. Training

   For all key equipment or systems installed, contractor shall provide training to campus staff to ensure that building continues to operate as intended. The rigor and amount of training is expected to vary by system and equipment. Campus will decide which staff from their department shall attend each training session. For each piece of equipment or system for which training is provided, the trainer shall document the training session (e.g., duration and general subjects covered). Typical training topics shall include general orientation, health and safety concerns, operation of various modes, controls overview, preventive maintenance, and common troubleshooting problems. At minimum, training shall be provided for the systems listed below:

   - HVAC Systems
   - BAS/Controls
   - Electrical Systems
   - Domestic Hot Water Systems
   - Lighting Controls
   - Access Controls and Hardware
   - Security Controls Systems
   - Cleaning/Custodial Operations (optional)
   - Landscape (optional)

B. Reporting

The purpose of this section is to explain any requirements for project closeout that extend beyond the construction closeout of the project (such as reporting for contractor and architectural services, LEED, commissioning, or financial).

C. As-built Document Requirements

The purpose of this section is to identify any known expectations and information including quality and quantity of the contactor provided as-built documents for incorporation into the project General Requirements specifications, Division 01 sections 01 77 00 and 01 78 23 by the design team.

D. Record Documents

Post construction documents that incorporate and memorialize the information provided in the contractor-provided as-built documents for the university/owner to use.

E. Warranty Requirements

The purpose of this section is to identify any expectations and information beyond the normal construction and product typical warranties, including expected extended warranty desires for incorporation into the project General Requirements specifications, Division 01 sections 01 77 00, 01 78 36, and product specific sections by the design team.

F. Systems Manual

In addition to the Commissioning Plan, field reports, and test reports, the Commissioning agent's primary deliverable is a Systems Manual (i.e. Project Commissioning Reference Manual) as required by CalGreen and LEED, for new buildings with an area of 10,000 square feet or over. This manual provides the University with a single source of information and instructions for proper operation and maintenance of primary building systems.

As opposed to equipment-oriented "O&M manuals," the Systems Manual is to be systems-oriented to provide operators with easy access to both narrative and technically detailed reference material, descriptions, diagrams, schedules, and other information on stand-alone and, particularly, integrated systems.

The Systems Manual should be a living document that evolves throughout the life of the building. It is compiled by the CxA from documentation developed by the owner, design team, contractors, and CxA, then turned over for continuous use and upkeep by the University and future consultants and contractors throughout the building's life.

VI. Owner's Project Requirements Version History

This section serves to document any changes made to the OPR document after its initial release with the RFP.

The following is a summary of the changes made to the Owner's Project Requirement document throughout Pre-Design, Design phases, Construction, and Occupancy and Operations.

Date	Description of Revisions	Campus Party

Addendum process

Rev. No.	Date	Description of Revisions
1		

Reasons to modify:

- Correction of errors
- Shift in project scope

VII. Deviation from OPR

This section serves to document and justify any deviations from the finalized OPR document as the project proceeds. It can also outline the decision-making process and authority around potential deviations from the OPR.

If the project team makes decisions to deviate from requirements outlined in the OPR, this must be justified and documented. This information is critical to understand and document the trade-offs made and the resulting impact on the project.

OPR Deviation Log

Date	OPR Section	Description of Deviation	Alternate Solution Description	Party Responsible	Campus Authority Action

VIII. Recommended Activities of Designated OPR Manager

This section serves to outline general processes for an OPR Manager to consider:

- *Determine whether in-house resources or a third-party consultant will manage the OPR development.*
- *Develop a standard form and methodology for the stakeholders to provide their project requirements.*
- *Schedule meetings with the identified stakeholders and confirm commitment in developing the project specific OPR as well as the area of responsibilities. It may be more productive to identify who is the ultimate authority when general project requirements are developed. (Not all stakeholders may be appropriate for general elements of a project).*
- *Identify a workplan and a schedule of deliverables for the owner specific requirements.*
- *Collect and assemble stakeholder project requirements.*
- *Review and resolve discrepancies between stakeholders.*
- *Define the lifecycle desires of elements with budget, maintenance, and facilities resources in mind.*
- *Develop the final draft OPR and seek final approval from the Owner of the OPR process.*

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