## Performance Specifications Exhibit

## Cover Sheet and Instructions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | APPROVED DOCUMENT – This document is approved by the Office of the President and Office of the General Counsel for use by the Facility and is available on computer diskette. | | | | |
|  | | |  | | | | |
| **PURPOSE OF DOCUMENT:** | Provides specific performance requirements of the Work. | | | | | | |
| **CROSS-REFERENCE TO FACILITIES MANUAL:** | None | | | | | | |
| **CONTENTS:** | Performance Specifications Exhibit | | | | | | |
| **FOR USE WITH:** | Energy Savings Brief Form Design Build Contract Documents | | | | | | |
| **COMPLETED BY:** |  | Filling in | |  | Adding Text |  | No Data Required |
| **ITS USE IS:** |  | Required | |  | Optional | | |

**Completion Instructions:**

1. Provide an index of all performance specifications utilized as first page of this exhibit.
2. Incorporate performance specifications.

**Modifications and Additions:**

None

**Comments:**

None

**END OF COVERSHEET AND INSTRUCTIONS**

[EXHIBIT X: ENERGY EFFICIENCY MEASURE PERFORMANCE SPECIFICATIONS]

[CAMPUS NAME]

[PROJECT NAME]

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Summary of Work

[CAMPUS] is soliciting proposals from qualified Design Build teams for the execution of an energy efficiency retrofit to [CAMPUS PROJECT] This project will be executed as a design-build (DB) project. The DB team should anticipate participating in the full project timeline, with responsibilities to include:

Pre-Construction Responsibilities

* Develop the project design, drawings, and bid documents as Engineer of Record (EOR)
* Secure necessary permits and approvals from Authorities having Jurisdiction
* Participate in design review meetings with [CAMPUS] and energy efficiency engineering consultant

Construction-Phase Responsibilities

* Install energy efficiency measures consistent with contract requirements and approved designs.

Commissioning and Project Close-out

* Coordinate commissioning activities with 3rd party commissioning agent (CxA) as needed
* Implement Operational Commissioning (OCx) program as required in [EXHIBIT #] to this RFP.

This request for proposal (RFP) contains background information for the project and includes performance criteria for each energy efficiency measure that shall be included in the project scope. It will be the responsibility of the selected Design-Build team to design and construct a project that meets the performance parameters provided.

Background Information

[CAMPUS] performed an energy efficiency study with [FIRM] on [PROJECT]. Through that effort, multiple energy efficiency measures were identified for implementation. The goals of the project include:

* Provide leadership and support for state climate-related policy and strategic goals for greenhouse gas emissions reduction
* Implement energy projects to further compliance with University of California (UC) sustainability requirements
* Achieve energy and financial savings as a result of implementing energy efficiency measures
* Ensure ongoing system performance and lasting savings by implementing of tracking and reporting mechanisms consistent with the OCx requirements

The scope of work looks to implement measures that include [LIST CATEGORIES OF MEASURES: LIGHTING, HVAC, CONTROLS, AND MOTOR CHANGEOUTS, ETC.] Specific measures included in the project are shown in the table below:

|  |  |
| --- | --- |
| Measure # | Measure Name |
| EEM-1 |  |
| EEM-2 |  |
| EEM-3 |  |
| EEM-4 |  |
| EEM-5 |  |
| EEM-6 |  |
| EEM-7 |  |
| EEM-8 |  |

Savings for the project will be tracked using whole building electricity and gas consumption data immediately after the scope of work is completed, consistent with applicable utility incentive programs and the OCx requirements in [EXHIBIT #]. Ultimately, the performance and success of the project will be determined based on the measured savings results [ADD FOLLOWING IF REQUIREMENT OF UTILITY], which will be reported to the participating utilities and to [CAMPUS]. [FIRM NAME] will be providing 3rd party post-implementation analysis for [CAMPUS], and is outside the scope of this RFP.

See attached Exhibit 1: [TITLE OF FEASIBILITY STUDY OR ENERGY AUDIT] written by [FIRM NAME]

Project Design Requirements

The scope of design services includes preparing complete plans, specifications, and sequences of operation to fully describe the required mechanical, electrical and controls work, including related fire and life safety requirements.

General

General design requirements include:

* The design documents shall be consistent with [CAMPUS STANDARDS] Guide.
* CAD Drawings: [INSERT LANGUAGE ON CAD DRAWING REQUIREMENTS AND LINKS FOR SUPPORT.]
* Submittal requirements: [[INSERT](http://maps.stanford.edu/delivering#submittals) LINK HERE FOR ANY SUBMITTAL REQUIREMENTS.]
* The UC [CAMPUS] will review and approve drawings at 50% and 100% complete stages of design.

Design Documents

Design documents must include at a minimum:

* A full MEP Design specification following the Construction Specification Institute (CSI) MasterFormat. Minimum expected Divisions will include [ADD OR DELETE AS NECESSARY]:
  + Division 01 – General Requirements
  + Division 02 – Existing Conditions
  + Division 23 – Heating Ventilating and Air Conditioning
  + Division 26 - Electrical
* Stand-alone design submittals detailing technical and operational information for each Energy Efficiency Measure (EEM). [INCLUDE AS MANY SUBMITTALS AS REQUIRED BY THE PROJECT. EXAMPLES FOLLOW.]
  + [EXAMPLE] Diagram of general control system architecture including the field-level DDC controls and the BAS control architecture.
  + [EXAMPLE] Written sequences of operation included in respective mechanical and electrical drawings to satisfy the energy efficiency strategies, ensure occupant comfort, and protect equipment integrity.
  + [EXAMPLE] A full mechanical drawing showing locations of all new VAV boxes and exhaust boxes.
  + [EXAMPLE] A VAV supply and exhaust box schedule showing for each VAV box: rooms served by VAV box, associated air handler units and exhaust fans, box size, cooling maximum cfm, heating maximum CFM, minimum CFM, reheat coil EAT and LAT, GPM, Rows, and any associated fan coils.

Governing Codes and Standards Requirements

It is the Design-Builder teams responsibility to ensure that the scope of work and design conforms with all existing requirements set forth by [CAMPUS] and UC Policy, local, state, and federally mandated codes This includes but is not limited to mechanical, structural, and fire life safety codes that may apply but are not specified herein.

The following table summarizes the critical policies and codes related to energy consumption that apply to the project scope of work; however, it is not a comprehensive list of all applicable building codes. [UPDATE TABLE AS NEEDED TO REFLECT PROJECT SCOPE AND/OR CHANGES TO CODES]

Table 1: Applicable Policies and Codes Table

|  |  |
| --- | --- |
| **Applicable Code** | **Meaning** |
| UC Policy on Sustainable Practices | Defines minimum energy-related requirements for new and renovated buildings. |
| Title 24-2019 | Use for minimum efficiencies of new mechanical equipment installed. |
| OSHPD 3 Clinics | Code shall be enforced for any spaces that fall under the category of clinics. |
| Title 20 | Use for minimum efficiencies of new mechanical equipment installed.  See section 1605.1.C Table C-5 for minimum efficiency of water source heat pump. |
| ASHRAE Guideline 36 | To be used as the basis of design for the control system’s supervisory and sub control sequences of operation for air-side systems. |
| ASHRAE Standard 62.1-2016 | Standard for ventilation rates. |

Additional Requirements

The selected Design-Build team is responsible for the following:

* Obtain all necessary permits
* Provide a rough order of magnitude (ROM) cost estimate for each measure
* Participate in one kick off meeting on-site, site visits as required, and at least four additional in-person meetings during the design phase.
* Provide services during construction, including participation in job walk, response to RFIs, submittal review, in-person attendance at least eight construction meetings.
* Provide services during commissioning including: Completion of required Title24 documentation, provide CxA with requested information during design review, provide design clarification as-needed during functional testing, and performance of OCx responsibilities.

Deliverables and Delivery Dates

* 50%, 100% design development plans and specifications
* Full set of permitted construction drawings and specifications
* Title24 documentation
* ROM cost estimate
* RFI and Submittal Responses

Anticipated delivery dates for the project are shown below:

* 50% design [MONTH/DAY/YEAR]
* 100% design [MONTH/DAY/YEAR]
* Permit submittal to [NAME/MONTH/DAY/YEAR]
* Construction start [MONTH/DAY/YEAR]

Commissioning Requirements

* Conduct Operational Commissioning (OCx) activities consistent with requirements defined in [EXHIBIT #], “Operational Commissioning Performance Specifications.”
* At a minimum, OCx activities shall include:
  + Prefunctional testing and startup
  + Functional performance testing
  + Training of system operators
  + Monitoring and reporting of system performance against standards approved during the design phase of the project
  + Determining the root cause of any performance issues and identification of corrective actions
  + Performance of required corrective actions
* Complete and sign necessary Title 24 commissioning compliance forms.

Project Scope

The Design-Build team shall be responsible for compiling a complete project design package that meets the performance parameters outlined for each energy efficiency measure included in the scope. None of the performance targets or requirements in the RFP are intended to supersede any applicable federal, state, or local codes that apply. It shall be the Design-Build team’s responsibility to design a project that meets all applicable codes and meets the performance standards in the RFP, or to notify [CAMPUS] team representatives if the requirements laid out herein conflict with code-mandated requirements.

General Requirements

[INCLUDE REQUIREMENTS THAT PERTAIN TO ALL MEASURES IN THE PROJECT. EXAMPLES MAY INCLUDE COMPATIBILITY WITH EXISTING SYSTEMS, COMMUNICATION STANDARDS AND PROTOCOLS, AND CONSTRUCTION STANDARDS]

* [EXAMPLE] Control hardware shall communicate via Open BACnet protocols, preferably BACNet IP or BACNet MS/TP. Other communication protocols will be considered per the design team’s recommendation if significant up-front or operational cost savings could be achieved.
* [EXAMPLE Pneumatic lines and distributed equipment shall be abandoned in place unless such hardware interferes with installation of new DDC controls. Mechanical room equipment for pneumatic system shall be removed from site if needed per code requirements.
* [EXAMPLE] Design team shall specify requirements for demolition, hauling, and recycling (as-needed) of existing equipment as specified by code, unless specified below that said equipment will be abandoned in place.

EEM-1: [INSERT MEASURE NAME]

### Project Description

[PROVIDE HIGH-LEVEL DESCRIPTION OF MEASURE]

### Key Details and Performance Requirements

[INCLUDE TECHNICAL AND PERFORMANCE REQUIREMENTS FOR EEM HERE. CONSIDER INCLUDING REQUIREMENTS COVERING THE FOLOWING:]

* [EXAMPLE: EQUIPMENT TYPE]
* [EXAMPLE: MEASURE-SPECIFIC PERFORMANCE REQUIREMENTS]
* [EXAMPLE: REFERENCES TO STANDARDS]
* [EXAMPLE: OPERATING REQUIREMENTS]
* [EXAMPLE: DATA, MONITORING, AND REPORTING REQUIREMENTS]
* [EXAMPLE: MANUFACTURER PREFERENCES]
* [EXAMPLE: EXCLUSIONS]

EEM-2: [INSERT MEASURE NAME]

### Project Description

[PROVIDE HIGH-LEVEL DESCRIPTION OF MEASURE]

### Key Details and Performance Requirements

[INCLUDE TECHNICAL AND PERFORMANCE REQUIREMENTS FOR EEM HERE. CONSIDER INCLUDING REQUIREMENTS COVERING THE FOLOWING:]

* [EXAMPLE: EQUIPMENT TYPE]
* [EXAMPLE: MEASURE-SPECIFIC PERFORMANCE REQUIREMENTS]
* [EXAMPLE: REFERENCES TO STANDARDS]
* [EXAMPLE: OPERATING REQUIREMENTS]
* [EXAMPLE: DATA, MONITORING, AND REPORTING REQUIREMENTS]
* [EXAMPLE: MANUFACTURER PREFERENCES]
* [EXAMPLE: EXCLUSIONS]

EEM-3: [INSERT MEASURE NAME]

### Project Description

[PROVIDE HIGH-LEVEL DESCRIPTION OF MEASURE]

### Key Details and Performance Requirements

[INCLUDE TECHNICAL AND PERFORMANCE REQUIREMENTS FOR EEM HERE. CONSIDER INCLUDING REQUIREMENTS COVERING THE FOLOWING:]

* [EXAMPLE: EQUIPMENT TYPE]
* [EXAMPLE: MEASURE-SPECIFIC PERFORMANCE REQUIREMENTS]
* [EXAMPLE: REFERENCES TO STANDARDS]
* [EXAMPLE: OPERATING REQUIREMENTS]
* [EXAMPLE: DATA, MONITORING, AND REPORTING REQUIREMENTS]
* [EXAMPLE: MANUFACTURER PREFERENCES]
* [EXAMPLE: EXCLUSIONS]