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MECHANICAL, PLUMBING, FIRE PROTECTION, & ELECTRICAL NARRATIVE

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OVERVIEW

1.01 DESIGN / BUILD PROPOSAL

- A. This Design/Build Narrative is for Mechanical, Plumbing, Fire Protection and Electrical work.

1.02 PROJECT DESCRIPTION

- A. The project site is located at 810 Vaca Valley Parkway on the south west half of the second floor. The building consists of approximately 96,000 net square feet. Solano County Water Agency (SCWA) will occupy approximately net square feet or % of the building. The project will consist of tenant development of the shell space, see attached Exhibit A – Design Development Plan – D.1, dated: . Existing as part of the shell is central HVAC equipment, main electrical service panel, basic fire alarm panel, plumbing risers with taps for future connections and a basic sprinkler system distributed throughout the floors.
- B. The building is served by central HVAC equipment located in the parking lot at the west end of the building. A cooling tower and pumps provide cooling water to future indoor heat pumps via a condenser water system. A boiler is used to provide hot water injection into the condenser loop for heating. Condenser water piping is distributed throughout the building in the ceiling space. Two (2) filtered supply fans on the roof provide ventilation air to the building. Each fan serves both floors of one wing with ductwork distributed throughout the ceiling space. The HVAC system is controlled by a DDC system with remote access monitoring of the HVAC equipment. Refer to the attached original Mechanical design drawings.
- C. The existing main electrical service, Main Electrical Service Board (MSB), is located in the fire control room on the first floor and is rated 3000A 277/480V 3 Phase 4 Wire. There is a distribution section where there are currently two 400A breakers, one used for Panel HM and one spare, one 200A breaker for Panel HCT, one 225A breaker for Suite 150, one 20A breaker for CT, and one spare 225A breaker. There is capacity to add additional breakers. The MSB has one meter for monitoring total building power usage. Both panelboards have spare breaker and load capacity for the addition of future loads. There is also a 200A 277/480V panelboard, Panel HCT, a 9 KVA transformer, and a 30A 120/208V panelboard, Panel LCT, for mechanical equipment. There are several spare conduits that feed between the electrical rooms on the first and second floors for future expansion. There are no existing panels for power and lighting on the second floor.
- D. There is no building emergency power system. Emergency lighting shall be accomplished with emergency battery back-up ballasts.
- E. The building is developed with fully operational and accessibly compliant restrooms. 3" waste risers for future connections terminate below the floor above the suspended ceiling on the first floor at columns C-14 & E-14. 1 1/4" CW risers penetrate the restroom wall near the center of the building and the east exit stair near column line D, See Plumbing drawings, particularly sheet P-1.
- F. The recent 5-year inspection report of the building's fire protection wet pipe sprinkler systems states there are no deficiencies. All hangers, earthquake bracing, alarms, etc. are up to NFPA requirements.

- G. Refer to attached shell Mechanical, Plumbing, Fire Protection, & Electrical System drawings for specific features and existing development. All documents shall be field verified with no acceptance of additions to the scope of work for failure to do so.

### 1.03 DRAWINGS AND SPECIFICATIONS

- A. The Criteria for design of the work is covered as part of this document. No exceptions to the criteria will be permitted without written authorization.

### 1.04 CODES AND STANDARDS

- A. Systems will be designed in accordance with applicable Local, State, and Federal Codes, Standards and Authorities having jurisdiction, the Underwriters requirements and in accordance with current engineering practices.
- B. The building will be classified as a 'B' occupancy per the 2019 CBC.
- C. Codes – work to comply with but not be limited to
  1. 2019 California Building Code
  2. 2019 California Electrical Code
  3. 2019 California Mechanical Code
  4. 2019 California Fire Code
  5. 2019 California Plumbing Code
  6. 2019 California Energy Code.
  7. NFPA-72 – National Fire Alarm Code
  8. NFPA-101 – Life Safety Code
  9. NFPA-13 – Sprinkler Systems
  10. Applicable requirements of City of Vacaville
- D. Standards
  1. AEIC - Association of Edison Illuminating Companies
  2. AMCA – Air Movement and Control Association International, Inc.
  3. Americans with Disabilities Act
  4. ANSI - American National Standards Institute
  5. ANSI – Safety Code for Mechanical Refrigeration.
  6. Applicable sections of NFPA
  7. ARI – Air Conditioning and Refrigeration Institute.

8. ASHRAE Handbooks.
9. ASME - American Society of Mechanical Engineers
10. ASTM - American Society for Testing and Materials
11. AWWA - American Water Works Association
12. CS - Commercial Standards
13. ICEA – Insulated Cable Engineers Association
14. IEEE – Institute of Electrical and Electronics Engineers
15. IES – Illuminating Engineering Society
16. NEMA – National Electrical Manufacturers Association
17. PDI - Plumbing and Drainage Institute
18. SMACNA Fire and Smoke Damper Installation Guide.
19. SMACNA Guidelines for Seismic Restraints of Mechanical Systems.
20. SMACNA Standards for Duct Construction.
21. UL – Underwriters' Laboratories, Inc.
22. Utility Company's Standards

#### 1.05 REQUIREMENTS

- A. This proposal shall conform to all requirements set forth in the invitation for Bid Documents issued by General Contractor.
- B. All proposals shall include professional design fees, inspection fees and all other costs which are normally associated with the work. Utility connection fees will be paid by the General Contractor.
- C. The successful proposer shall include, as part of his requirements, the preparation of complete working Drawings and Specifications, using Architect's format in AutoCAD 2014, the obtaining of all final approvals necessary to commence the work.
- D. All Drawings, Specifications, equipment and material Shop Drawings will be reviewed by the Architect who will have final authorization regarding adequacy of design and performance of the equipment. All considerations through value engineering will be given to energy efficient designs exceeding minimum 2019 CEC requirements.
- E. Drawings, Specifications and Submittals: Contractor shall prepare Drawings and calculations for design and construction in sufficient detail for local building Department, Owner's and Architect's approval. Such Drawings and Specifications shall be sealed and signed by a California State currently registered mechanical and electrical engineer.

- F. All MEP systems shall be complete in every respect, fully tested, balanced, (by an independent balancing company) calibrated and ready for operation. All shall meet or exceed the requirements of applicable local, State and Federal regulations, including current energy conservation regulations and the criteria specified herein.
- G. Contractor will be required to provide close coordination and cooperation with the Architects, Structural Engineers, Code Consultant and Acoustical Consultant toward the integration of all building components, including the recognition of architectural constraints and special aesthetic requirements. All work unless otherwise noted or directed by Architect shall be concealed or otherwise housed in mechanical/ electrical spaces designated for that purpose.
- H. Furnish equipment ductwork and piping locations and weights as required and when requested for inclusion in the structural design.
- I. Where panels penetrating architectural finishes are required for access to damper controls, valves, cleanouts, etc., the installation of such panels and devices will be restricted to locations permitted as approved by the Architect. Coordinate these locations with Architectural design.
- J. Contractor's engineer shall attend design team meetings during the design phase of the Project as required by the Project Architect.
- K. Material and equipment throughout the Project shall be new, first line, commercial quality, and it is to be identified with the proposal. It shall be installed, supported, isolated in strict accord with manufacturers' instructions and local regulations, seismic restraints, vibration and acoustical isolation, all as required in first class trade practice.
- L. Vibration:
  - 1. Isolation for all vibrating equipment is required as per the ASHRAE standards. The ASHRAE guidelines include items such as spring isolators and inertia bases as well as ancillary items such as flexible piping and electrical connections. The design-build contractor shall provide a certification showing that the proposed isolation meets the appropriate ASHRAE standards. A qualified Acoustical Engineer or Vibration expert must approve all proposed isolation.
  - 2. The acoustical vibration isolation must not compromise seismic code requirements and vice-versa. As such, housed springs should be avoided; instead, unhoused springs with separate seismic snubbers should be used.

#### 1.06 RELATED DOCUMENTS

- A. Provide all labor, materials, and equipment required to complete the work shown on the drawings and specified herein and as reasonably inferable.