



**DEPARTMENT OF CORRECTIONS AND REHABILITATION
CALIFORNIA PRISON HEALTH CARE SERVICES
STATE OF CALIFORNIA**

**STATEMENT OF WORK
RADIOGRAPHIC FLUOROSCOPY SYSTEM**

This is a Statement of Work (SOW), which includes all hardware, software and service requirements for procurement of a Radiographic Fluoroscopy system ("RF System") for California Medical Facility (CMF), a correctional institution within the enterprise of the California Department of Corrections and Rehabilitation (CDCR). Descriptions herein describe the minimum RF System requirements to be provided by Contractor, which if properly configured and installed, shall utilize the source of ionized radiation to obtain diagnostic radiographs and allow the use of digital fluoroscopy in the medical treatment plan for the patient-inmate population at CMF. This RF System shall be utilized by a Registered Technologist in Radiography. Film processing equipment (e.g. chemical film processors and/or Computed Radiography) are not included in this SOW.

Technical Requirements

Technical specifications shall include, but are not limited to, the minimum requirements listed below:

A. Overhead Assembly:

- a. Ceiling-mount with UNISTRUT or equivalent;
- b. Minimum tube angulations ± 180 degrees (detent 0 and 90 degrees);
- c. Minimum tube rotations ± 120 degrees;
- d. Manual override option;
- e. Vertical travel enough to perform weight-bearing knees using chest Bucky;
- f. X-ray Tube:
 - i. Small and large focal spot;
 - ii. Cast rotating anode assembly; and
 - iii. High load capacity.
- g. Tube Collimator:
 - i. Manual and Automatic Collimator;
 - ii. Rectangular shutters;
 - iii. Laser Center Light;
 - iv. Metric and inch scale;

- v. Customer changeable collimator bulb;
- vi. Display SID, angle, and area of collimation;
- vii. Lock release: free movement and restricted;
- viii. Rotation +/-180 degrees or 360 degrees;
- ix. Detent at 90 degrees;
- x. Cross hair centering light; and
- xi. Equipped with Positive Beam Limitation (PBL).

B. Fluoroscopy Table:

- a. Minimum of 500lb weight limit (horizontal position);
- b. Minimum of 300lb weight limit (vertical position);
- c. Minimum size dimensions of 200cm x 70cm;
- d. Minimum +90/-15 degree tilt function (Vertical to Trendelenburg);
- e. 4-way direction floating table top;
- f. Side control buttons and foot controls for movement and exposure;
- g. Anti-collision sensors;
- h. Supports Automatic Exposure Control (AEC);
- i. Oscillating Bucky with grid;
- j. Minimum 10:1 grid for overhead imaging;
- k. Auto remove of Bucky for Fluoroscopy functions;
- l. Accept all film sizes in Bucky;
- m. Cassette size sensor for auto collimation;
- n. Automatic exposure termination;
- o. Compatible for CR cassettes of all sizes;
- p. Fluoroscopy tube mounted under table;
- q. Emergency table stop option;
- r. Patient foot board and side rail hand grips; and
- s. Tableside user interface controls to perform generator, imaging, fluoroscopy parameters and table movement/tilting.

C. Fluoroscopy Image Intensifier and Tower:

- a. X-Ray lead shielding both fixed and flexible lead curtains for scatter radiation;
- b. Distance between table top and tower to be ≥ 19 inches;
- c. Minimum longitudinal movement of 75cm;
- d. Minimum lateral movement of 25cm;
- e. Dose management features;
- f. High megapixel CCD imaging for digital acquisition, high-resolution spot films;
- g. Auto window processing;
- h. Fully motorized Cu filtration based on organ selection;
- i. Last image collimator setting – without radiation;
- j. Rectangular collimation; and
- k. Circular collimation.

D. Exam Room Monitor:

- a. Ceiling-mounted monitors;
- b. LCD monitor flicker-free;
- c. Minimum contrast ration of 400:1; and
- d. Minimum 18 inch monitor size.

E. Vertical Bucky (Chest Stand):

- a. Minimum 10:1 grid;
- b. Lock control – electromagnetic;
- c. Overhead Patient grips;
- d. Motorized oscillating Bucky grid;
- e. Accepts all film sizes;
- f. Automatic collimation to film size;
- g. Automatic exposure termination;
- h. Automatic Exposure Control (AEC);

- i. Cross hair centering light;
- j. Free standing or wall mount;
- k. Minimum rotation tilt of Bucky 0 to +90 degrees; and
- l. Right side cassette insertion point.

F. Generator:

- a. 3-phase generator;
- b. Minimum of 80kW power rating;
- c. Continuous Fluoroscopy option with minimum of 60-120kV and .35-15mA;
- d. Pulsed Fluoroscopy option with minimum of 60-120kV and 10-200mA ;
- e. Minimum pulse width of 1.0 - 10ms;
- f. Minimum of 7.5 frames per second for acquisition;
- g. Pulsed Fluoroscopy option with ≥ 7.5 exposures per second;
- h. ~Overhead tube kV range (40kV-150kV);
- i. ~Fluoroscopy kVp range (40kVp-110kVp);
- j. ~Overhead tube mA range (10 mA – 800 mA);
- k. ~Fluoroscopy mA range (0.2 mA – 4 mA);
- l. ~mAs range (10 mAs – 1000 mAs);
- m. ~Time range - (.00125 – 6 seconds); and
- n. Tube arch protection.

G. Control Panel and Central Processing Unit (Digital Fluoroscopy):

- a. Anatomical control program with morphology settings;
 - i. PA, Lat, Oblique, and Decubitus view settings
- b. Manual technique option for mA, time, and kVp;
- c. Auto kV/mA control during Fluoroscopy;
- d. mA, kVp, time, mAs display;
- e. Focal spot size choices;
- f. AEC settings – auto and manual override;

- g. Tube warm-up notification system;
- h. Receptor choice settings;
 - i. Wall Bucky, table-top, table Bucky, Fluoroscopy
- i. Program choices are available in plain English;
- j. Error message display available in plain English;
- k. Support display of total dosage and Fluoroscopy time;
- l. Ability to film digital spots at the console;
- m. Ability to send digital images via DICOM from the console;
- n. Ability to manipulate and store digital dataset at the console;
- o. DICOM 3.0 compliant;
- p. IHE (Integrating the Healthcare Enterprise) compliant-scheduled workflow option;
- q. Support 10/100 MB Ethernet connection;
- r. DICOM service class:
 - i. DICOM send (C-Store, C-Find);
 - ii. DICOM Query/Retrieve (C-Find, C-Move);
 - iii. DICOM Modality Work List;
 - iv. Storage Commit (C-Store);
 - v. DICOM Print; and
 - vi. Basic gray scale print management.
- s. Ability to set custom AE Title;
- t. Ability to perform a C-Echo;
- u. Ability to print full size or magnified sizes images;
- v. Ability to annotate freely on image;
- w. Ability to reset image to as acquired;
- x. Support window and level image;
- y. Support magnify and pan the image;
- z. Ability to crop the image;
- aa. Ability to perform measurements on the image;
- bb. Ability to invert the image;

- cc. Ability to record DICOM cine run and send cine run via DICOM connection;
- dd. Ability to assign DICOM modality code to either RF or XA;
- ee. Ability to send selected images and series to printer or PACS via DICOM;
- ff. MPPS (Modality Performed Procedure Step) compliant with ability to send User ID or code in message, technical factors, images taken, images deleted and AE Title in place of station name or computer name; and
- gg. Minimum hard space to store ~10,000 images.

H. Accessories:

- a. Cross table cassette and grid holder.

Service and Support

Along with all hardware and software system requirements listed above, Bidder's quote must also include all service repairs and preventive maintenance to maintain the optimal level of performance for the RF System. The service and maintenance requirements listed within "Service and Support" shall apply to all core and peripheral components of the RF System (e.g. software, hardware, etc.). Contractor's Services shall include, but not limited to, all of the following:

- A. Five (5) year term for Service and Maintenance of the RF System;
- B. Scheduled maintenance for all components of the RF System (e.g. software, hardware, etc.) according to the requirements listed by the Original Equipment Manufacturer (OEM);
- C. CDCR requires that Contractor perform annual calibration of the x-ray tube in accordance to CDCR policy and CA State regulations;
- D. For all equipment and peripheral devices that are offline or out of order, Service Repair (SR) examinations shall be required by Contractor within 24-hours of the initial SR call request. This shall require an on-site visit to the institution;
- E. Contractor shall have a permanent service team located in the State of California;
- F. Common replacements parts are to be stocked by Contractor to allow 24-hour response to common repairs;
- G. Contractor shall provide telephone number(s) that are active and staffed twenty-four (24) hours a day, 365 days per year for SR calls initiated by CDCR staff; and
- H. Contractor shall provide proof of a Quality Assurance (QA) program for tracking and auditing all SR calls initiated by CDCR staff.

Training

The purpose of this section is to understand the supplemental vendor Training Program fees throughout and after this procurement. The training audience shall include Radiographic Technologists and supporting imaging staff at CMF. CDCR seeks the costs of onsite training that follows the initial equipment install, in addition to the supplemental training required during

major equipment component upgrades. Other training options that may be considered include distance learning, Computer-Based Training, and/or web meetings. Propose quotes above the minimum requirements (i.e., training options) shall be at Bidder's expense.

Contractor training programs include the following minimum requirements:

- A. Imaging staff onsite training of the RF System and all components following the initial installation and acceptance testing;
- B. Imaging staff onsite training of the RF System and all components following integration to Radiology Information System (RIS) and Picture Archival Communication System (PACS); and
- C. Any training associated with proprietary Service Repair call systems, if applicable.

Installation and Implementation

The purpose of this section is to understand the costs associated with services required for turnkey installation and implementation of the Contractor's RF System. Elements of these services include, but are not limited to, Contractor project management, functional, and technical content expertise.

Bidder shall delineate the role for each employee(s) project function including the service and itemized costs included within Bidder's quote. Bidders shall also include cost response whether the services are provided by Contractor's staff or outsourced to third party vendors (i.e., subcontractor). Installation and implementation services shall include, but are not limited to, all of the following minimum requirements:

- A. Specific number of certified service representatives to ensure a turnkey installation, which includes physicist inspection/testing;
- B. Complete removal of existing Radiographic Fluoroscopy system and proper disposition of all components as required by State of California and Federal regulations;
- C. Timeline and submission of pre-install report on the assessment of correctional facilities and infrastructure to identify the RF System location;
- D. Acceptance testing of the RF System and all components signed-off by CMF representative and Contractor; and
- E. Following initial install, a minimum one (1) year warranty of equipment (including all parts), which covers all hardware and software components and service maintenance is required.
 - In addition, Bidder is required to provide five (5) year service and maintenance of the system following installation warranty period (i.e., see page 6, item A).