

BIO-MEDICAL ENGINEERING SECTION

Addu Equatorial Hospital

Technical Specification for Lead-Free Lightweight Radiation Protective Aprons (Vest and Skirt) QTY – 5 Set

1. General Requirements

- Lead-free radiation protection garment suitable for use during diagnostic and interventional X-ray procedures, including Cath Lab and C-arm procedures.
- The garment shall consist of a **front protective vest and matching protective skirt** designed to provide comprehensive radiation protection.
- The design shall provide comfortable fit, ease of movement, and adequate coverage during prolonged clinical use.

2. Radiation Protection

- Shall be manufactured using a **lead-free / non-lead radiation-attenuating material**.
- The radiation protection material shall provide effective attenuation against scattered diagnostic X-ray radiation.
- Radiation attenuation shall be stated in **lead-equivalent (Pb) thickness** by the manufacturer.
- Minimum required protection: **0.50 mm Pb equivalent at the front and 0.25 mm Pb equivalent at the rear**, or equivalent protection as specified by the manufacturer.
- The manufacturer shall provide radiation **attenuation/test certification** for the protective material.

3. Vest Design

- Wrap-around design providing extended coverage of the torso.
- Shall provide comprehensive protection to the chest and abdominal regions.
- Shall incorporate **extended thyroid/neck protection** or an integrated thyroid protection section.
- Shall provide enhanced protection to the **axillary/underarm region**.
- Adjustable fastening system shall be provided to ensure secure and comfortable fitting.
- The vest shall allow adequate freedom of movement during clinical procedures.

4. Skirt Design

- Matching protective skirt designed to provide protection to the **pelvic and gonadal regions**.
- The skirt shall provide adequate overlap with the protective vest to minimize gaps between the upper and lower garments.
- Adjustable fastening shall be provided for secure fitting.
- The skirt shall allow comfortable movement during standing, walking, and clinical procedures.

5. Enhanced Protection Features

- The garment shall provide extended **thyroid gland protection**.

- Shall provide enhanced protection to the **axillary lymph-node region**.
- Shall provide comprehensive protection to the **gonad/pelvic region**.
- Where incorporated in the proposed design, an integrated **lumbar support** system should be provided to reduce back strain.

6. Material and Construction

- Lead-free, environmentally friendly radiation-attenuating material.
- Outer fabric shall be durable, lightweight, flexible, and suitable for repeated clinical use.
- Protective material shall be securely enclosed within the outer protective fabric.
- The garment shall have smooth edges and a durable finish suitable for hospital use.

7. Required Size Chart

Size	Max Chest	Vest Length	Max Skirt Waist	Max Skirt Hip	Max Skirt Length	Max Height
Medium(M)	44"	25"	38"	44"	21"	5'8"
Medium(F)	38"	22"	34"	42"	22"	5'4"
Large(M)	46"	26"	40"	46"	22"	6'0"

8. Quantity Reference

- **Female - Vest and Skirt Medium Size: 2 Quantities**
- **Male - Vest and skirt Medium Size: 2 Quantities**
- **Male - Vest and skirt Large Size: 1 Quantities**

Total = 5 Set (Vest 5 and Skirt 5)

9. Documentation

- Manufacturer's Authorization letter
- **Radiation attenuation / lead-equivalence test certificate.**
- Instructions for use, cleaning, inspection, and storage.
- Warranty details.
- Manufacturer's recommended storage and handling requirements.

10. Compliance

- The offered product shall comply with applicable international standards for radiation protective clothing (**ISO, CE or FDA**)
- The bidder shall submit relevant compliance certificates and test reports along with the quotation.