Flexible Shielding System for Radiation Protection

Holes For Master Slave Manipulators
Leak Shielding Panels Above Windows Supported By Special Water Cans
Structural Member Anchored to Concrete Wall
Lead "Shine" Shield Around Windows
Zinc Bromide Windows
Water Filled Window Support Tanks
Structural Support For Lead And Can Stacks (Unistrut)
Typical Can Stack
5.1 cm (2 in) Thick Wall Of Interlocking Lead Bricks (Graviner)
Loose Water Cans
41 cm (16 in) Of Water

This document was prepared under the sponsorship of the Atomic Energy Commission and/or the National Aeronautics and Space Administration. Neither the United States Government nor any person acting on behalf of the United States Government assumes any liability resulting from the use of the information contained in this document, or warrants that the use of any information, apparatus, method, or process disclosed in this document may not infringe privately owned rights.
A flexible, low-cost shielding system, consisting of water-filled steel cans and lead bricks, is designed to protect against nuclear radiation. The versatile modular construction permits easy modification of the shielding wall thickness in order to attenuate different levels of radioactivity. The overall geometry can also be rearranged to accommodate different enclosure sizes. The portable components (see figure) include water-filled tank sections, zinc bromide windows, a turntable unit, master-slave manipulators, interlocking 5.1 cm (2 in) lead bricks, and the support structure for the assembled shield.

The water-filled cans (24 to a stack) are strapped to a pallet which has a special mounting base. Each row of cans is placed in position to the left or right of the adjacent row, creating the desired horizontal displacement between cracks. The cold-pressed, interlocking lead bricks, made of 4% antimonial lead, are formed into various shapes and sizes to allow for greater flexibility in the shield. The individual bricks vary in weight, but generally can be easily handled and stacked by one man.

Note:
Requests for further information may be directed to:
Technology Information Division
Lawrence Berkeley Laboratory
University of California
Berkeley, California 94720
Reference: B72-10500

Patent status:
No patent action is contemplated by AEC or NASA.

Source: A. Babin
Lawrence Berkeley Laboratory
(LRL-10028)