



Designation: C1572/C1572M – 17

Standard Guide for Dry Lead Glass and Oil-Filled Lead Glass Radiation Shielding Window Components for Remotely Operated Facilities¹

This standard is issued under the fixed designation C1572/C1572M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 Intent:

1.1.1 The intent of this standard is to provide guidance for the design, fabrication, quality assurance, inspection, testing, packaging, shipping, installation, and maintenance of radiation shielding window components. These window components include wall liner embedments, dry lead glass radiation shielding window assemblies, oil-filled lead glass radiation shielding window assemblies, shielding wall plugs, barrier shields, view ports, and the installation/extraction table/device required for the installation and removal of the window components.

1.2 Applicability:

1.2.1 This standard is intended for those persons who are tasked with the planning, design, procurement, fabrication, installation, and operation of the radiation shielding window components that may be used in the operation of hot cells, high level caves, mini-cells, canyon facilities, and very high level radiation areas.

1.2.2 This standard applies to radiation shielding window assemblies used in normal concrete walls, high-density concrete walls, steel walls and lead walls.

1.2.3 The values stated in SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard. Common nomenclature for specifying some terms; specifically shielding, uses a combination of metric units and inch-pound units.

1.2.4 This standard identifies the special information required by the Manufacturer for the design of window components. **Table A1.1** shows a sample list of the radiation source spectra and geometry information, typically required for shielding analysis. **Table A2.1** shows a detailed sample list of specific data typically required to determine the physical size,

glass types, and viewing characteristics of the shielding window, or view port. **Annex A3** shows general window configuration sketches. Blank copies of **Table A1.2** and **Table A2.1** are found in the respective Annexes for the Owner–Operator’s use.

1.2.5 This standard is intended to be generic and to apply to a wide range of configurations and types of lead glass radiation shielding window components used in hot cells. It does not address glovebox, water, X-ray glass, or zinc bromide windows.

1.2.6 Supplementary information on viewing systems in hot cells may be found in Guides **C1533** and **C1661**.

1.3 Caveats:

1.3.1 Consideration shall be given when preparing the shielding window designs for the safety related issues discussed in the Hazard Sources and Failure Modes, Section **11**; such as dielectric discharge, over-pressurization, radiation exposure, contamination, and overturning of the installation/extraction table/device.

1.3.2 In many cases, the use of the word “shall” has been purposely used in lieu of “should” to stress the importance of the statements that have been made in this standard.

1.3.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health and environmental practices and determine the applicability of regulatory requirements prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *Industry and National Consensus Standards—*Nationally recognized industry and consensus standards which may be applicable in whole or in part to the design, fabrication, quality assurance, inspection, testing, packaging, shipping,

¹ This guide is under the jurisdiction of ASTM Committee **C26** on Nuclear Fuel Cycle and is the direct responsibility of Subcommittee **C26.14** on Remote Systems.

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