

FULL LINE OF RADIATION SHIELDING PRODUCTS

Radiation Protection Products (RPP) manufactures and distributes a full line of radiation shielding products. They include Lead Lined Doors (solid core wood, lead lined, and steel strapped), Lead Lined Drywall (otherwise known as Lead Lined Sheetrock or Lead Lined Gypsum Wallboard) and Lead Lined Plywood, Leaded X-ray Glass, Lead Lined Frames for borrowed lites and doors, pass boxes and many other lead products.

Radiation Protection Products uses only the finest quality material and exercises the best quality control possible.

We offer a top quality line of lead shielding products at a competitive price with delivery to satisfy your needs. For additional information concerning RPP's products or services, please contact us toll free at:

888-746-4777 PHONE

866-554-8445 FAX

ALL SHIELDING PRODUCTS PROVIDED MEET THE FOLLOWING SPECIFICATIONS:

Sheet Lead

Sheet Lead shall meet or exceed the Federal Specification QQL-201 F Grade C and ASTM B749-03 Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products, see NCRP reports #33, #35, #49 and #147.

Gypsum Board

Gypsum Board shall meet or exceed ASTM C36 A82.27, USDA SSL 30D Type III Grade X.

Leaded Glass

Leaded Glass shall meet or exceed Federal Specification DD-G-451.

Radiation Protection Products manufactures all lead shielding products in accordance with Lead Industries Hand Book and all NCRP Applicable Reports (#33, #35, #39, #40, #49 and #147) and NBS, HB. #114.

Cassette Transfer Cabinets

Cassette Transfer Cabinets shall meet or exceed MIL-C-3673 (DM).

Wood and Plastic Laminate Doors

All Wood Doors shall meet or exceed the ANSI/NWMA Industry Standard I.S.I.-80, I.S.I.4-80, NCRP Report #49.

TERMS AND CONDITIONS OF SALES

Prices in U.S. Dollars

Prices are in U.S. dollars, F.O.B. factory, Chapel Hill, Tennessee, unless otherwise specified. Prices, specifications, and terms of sales are subject to change without notice. All orders are subject to review prior to acceptance.

Terms

Net 30 days on established accounts with approved credit. Visa/MasterCard.

Credit

New accounts, pending credit approval, may be immediately expedited by enclosing a check, wire transfer or credit card. To facilitate opening of accounts, please forward your bank and four (4) trade references. Tax-exempt or Resale Certificate required if applicable.

Minimum

Minimum invoice of \$500.00. Orders under \$500.00 may require payment by Visa or MasterCard.

Ordering/Purchasing

Your purchase order or contract is requested on all orders. All orders should be confirmed and clearly marked "Confirmation—Do Not Duplicate."

Shipment

Unless detailed shipping instructions are specified on all orders, we reserve the right to choose the method of transportation and to make partial shipments, if necessary.

Packaging/Set Up Charge

Special packaging quoted as extra. Set up charges may be applicable with certain fabrications.

Returns

Return merchandise will be accepted only with prior written authorization. Freight charges must be prepaid.



1000 Superior Boulevard, Suite 310 • Wayzata, MN 55391
1.888.RINGRPP (1.888.746.4777) • TOLL FREE FAX: 1.866.554.8445
www.radiationproducts.com

servicing the nation's lead needs for over 50 years with a full line of radiation shielding products

RADIATION SHIELDING LAMINATED LEADED GLASS

Radiation Protection Products' specially designed Laminated Leaded Glass (X-Ray Glass, Radiation Shielding Glass, Lead Glass) consists of leaded x-ray glass laminated to a piece of clear float. This Laminated Leaded Glass (X-Ray Glass, Radiation Shielding Glass, Lead Glass) design will help meet state specifications requiring both safety properties and lead properties in all windows & vision panels (e.g., door lites, side lites, etc.). Our laminated lead glass is available in 1/16", 3/32" and 1/8" lead equivalencies.

1/16" Laminated Leaded Glass (X-Ray Glass, Radiation Shielding Glass, Lead Glass)

Radiation Protection Products' 1/16" Laminated Leaded Glass (X-Ray Glass, Radiation Shielding Glass, Lead Glass) will consist of the following:

- Approx 7.0 mm thick leaded x-ray glass
- 1.5 mm thick clear interlayer (lamine)
- 4.0 mm thick clear float

Glass is approximately 1/2" thick.

3/32" Laminated Leaded Glass (X-Ray Glass, Radiation Shielding Glass, Lead Glass)

Radiation Protection Products' 3/32" Laminated Leaded Glass (X-Ray Glass, Radiation Shielding Glass, Lead Glass) will consist of the following:

- Approx 10.0 mm thick leaded x-ray glass
- 1.5 mm thick clear interlayer (lamine)
- 4.0 mm thick clear float

Glass is approximately 5/8" thick.

1/8" Laminated Leaded Glass (X-Ray Glass, Radiation Shielding Glass, Lead Glass)

Radiation Protection Products' 1/8" Laminated Leaded Glass (X-Ray Glass, Radiation Shielding Glass, Lead Glass) will consist of the following:

- Approx 13.0 mm thick leaded x-ray glass
- 1.5 mm thick clear interlayer (lamine)
- 4.0 mm thick clear float

Glass is approximately 3/4" thick.

SAFETY GLAZING CODE

Category II Architectural Laminated Leaded Glass (X-Ray Glass, Radiation Shielding Glass, Lead Glass) meets category I and II requirements of the Consumer Product Safety Commission (CPSC) Federal Standard 16-CFR-1201. Additionally, the product complied with model building code safety standards for human impact performance as found in section 2703 of SBCCI Standard Building Code, and section 5406, Sections 54-2 of ICBO Uniform Building Code.

RADIATION SHIELDING LEADED GLASS

LEADED GLASS

Radiation Protection Products' Leaded Glass (also referred to as X-ray Glass, Radiation Shielding Glass or Lead Glass) is a light amber colored glass, suitable for installation in screens, walls and doors. Our Leaded Glass allows for viewing of the imaging or radiation therapy procedures.

Leaded Glass (also referred to as X-ray Glass, Radiation Shielding Glass or Lead Glass) is available in the following equivalencies: 1.6mm, 2.0mm, 2.5mm, 3.2mm. These lead equivalencies are based on 150kV. Leaded Glass with higher lead equivalencies can be quoted upon request.

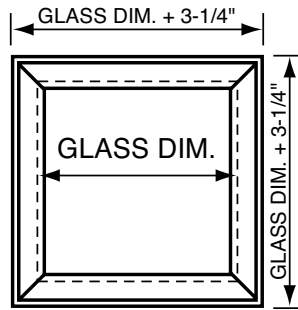
STANDARD SIZES

8" x 10"	48" x 36"
10" x 12"	48" x 40"
12" x 12"	48" x 42"
12" x 16"	48" x 48"
12" x 24"	60" x 36"
12" x 36"	60" x 40"
16" x 24"	60" x 42"
18" x 24"	60" x 48"
24" x 24"	72" x 36"
24" x 48"	72" x 40"
30" x 24"	72" x 42"
30" x 30"	72" x 48"
32" x 40"	84" x 36"
36" x 24"	84" x 40"
36" x 30"	84" x 42"
36" x 36"	96" x 42"
40" x 40"	96" x 48"
40" x 42"	108" x 54" max.
42" x 42"	

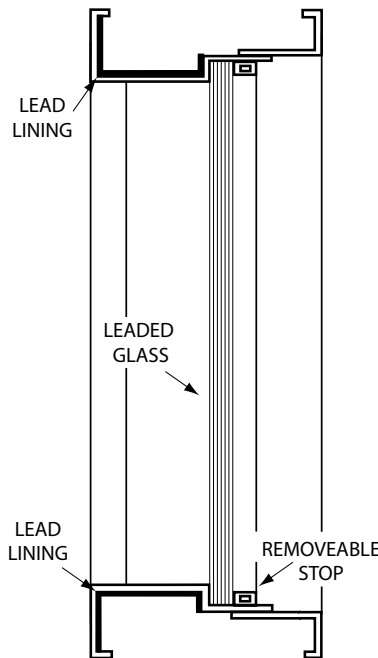
Custom sizes quoted upon request.

ROUGH OPENING DIMENSIONS

	Add to Glass size	
	Width	Height
H M Tele	+1" (3cm)	+1" (3cm)



X-RAY ROOM SIDE



LEAD LINED
STEEL TELESCOPIC
FRAME

RADIATION SHIELDING LAMINATED LEADED GLASS

Radiation Protection Products' specially designed Laminated Leaded Glass (also referred to as X-Ray Glass, Radiation Shielding Glass or Lead Glass) consists of 1/16" leaded glass laminated to a piece of clear float. This leaded glass design will help meet state specifications requiring both safety properties and lead properties in all vision panels (e.g., door lites, side lites, etc.).

1/16" Laminated Leaded Glass (1.6mm to 2.0mm)

Radiation Protection Products' 1/16" LAMINATED LEADED GLASS will consist of the following:

- Approx 7.0mm thick leaded glass
 - 1.5mm thick clear interlayer (lamine)
 - 4.0mm thick clear float
- Glass is approximately 1/2" thick

SAFETY GLAZING CODE

Category II Architectural safety x-ray glass meets category I and II requirements of the Consumer Product Safety Commission (CPSC) Federal Standard 16-CFR-1201. Additionally, the product complied with model building code safety standards for human impact performance as found in section 2703 of SBCCI Standard Building Code, and section 5406, Sections 54-2 of ICBO Uniform Building Code.



1000 Superior Boulevard, Suite 310 • Wayzata, MN 55391
1.888.RINGRPP (1.888.746.4777) • TOLL FREE FAX: 1.866.554.8445
www.radiationproducts.com

serving the nation's lead needs for over 60 years with a full line of radiation shielding products

RADIATION SHIELDING X-RAY PROTECTIVE GLASS

Glass Code: RWB46

Application: High lead/barium content glass for x-ray protection.

RWB46 provides a high quality, transparent, protective shield against x-ray radiation in medical, technical and research applications. Its high content of lead and barium gives optimum shielding against radiation energies generated by equipment operating in the range 100-300 kV.

Applications for RWB46 include:

- Viewing windows and insulating glazing for X-ray rooms
- Screens for medical diagnostics.
- Protection windows in laboratories.
- Lenses for safety goggles
- Airport security X-ray screens
- Can be laminated to meet safety requirements.



Minimum Lead Equivalence in mm at stated X-Ray Potential

Thickness Range (mm)	100 kV	110 kV	150 kV	200 kV	250 kV	300 kV
5.0–7.0	1.7	1.7	1.6	1.4	1.3	1.3
7.0–8.5	2.3	2.3	2.0	1.8	1.8	1.8
8.5–10.0	2.8	2.8	2.5	2.2	2.2	2.2
11.0–13.0	3.6	3.6	3.2	2.8	2.7	2.8

These values were determined by the Health Protection Agency – an independent body – using procedures that satisfy both BS 4031 and JIS Z4501 requirements. In addition, these lead equivalence results satisfy the requirements of JIS R3701 – 1990 within the range of 0 to 300 kV.

RWB46 is supplied as polished plates up to a maximum size of 2000 x 1000 mm. Smaller sizes can be cut to customer requirements and all cut edges are ground with safety chamfers. Different thickness' are available within the ranges listed and can be quoted upon request.



1000 Superior Boulevard, Suite 310 • Wayzata, MN 55391
1.888.RINGRPP (1.888.746.4777) • TOLL FREE FAX: 1.866.554.8445
www.radiationproducts.com

servicing the nation's lead needs for over **50** years with a full line of radiation shielding products

RADIATION SHIELDING X-RAY PROTECTIVE GLASS

Glass Code: RWB46

Optical Properties		
Refractive Index	Nd	1,757
Abbe Value	vd	29.7
Transmittance in % for 5mm Path	315 nm	Nil
Transmittance in % for 5mm Path	350 nm	.05

Heavy Metal Content	
Lead (pb)	48 %
Barium (Ba)	15 %

Mechanical / Electrical Properties		
Density (minimum)	G/cm ³	4.8
Knoop Hardness	Kg/mm ₂	440
Youngs Modulus	N/mm ₂ x 10 ³	62.7
Poissons Ratio		0.23
Brewster Coefficient		0.88
Dielectric Constant		11.0

Thermal Properties		
Exp. Coefficient (20-300° C)	x10 ⁻⁷ /°C	81.8
Annealing Temperature	10 ¹³ Poise	558
Softening Temperature	10 ^{7.6} Poise	685

Nuclear Radiation Shielding Glass

A Complete range of high quality nuclear radiation shielding glasses is manufactured for incorporation into a variety of shielding viewing systems including:

- Maintenance free solid glass windows
- Liquid filled windows
- Composite windows comprising glass blocks and liquids

Nuclear radiation shielding glasses are optical glasses of the highest quality, available in a range of stabilized and un-stabilized forms.



1000 Superior Boulevard, Suite 310 • Wayzata, MN 55391
1.888.RINGRPP (1.888.746.4777) • TOLL FREE FAX: 1.866.554.8445
www.radiationproducts.com

servicing the nation's lead needs for over 50 years with a full line of radiation shielding products

IMPORTANT NOTICE!!

INTRODUCTION

The shielding characteristics of "x-ray glass" are achieved by using a glass composition that is high in lead and barium. This makes the glass, when compared to float glass, more sensitive to chemical reactions from acidic, alkaline substances or water vapor. Glass should not be exposed to acid gases, humidity and strong temperature fluctuations combined with humidity.

INSTALLATION OF RADIATION SHIELDING GLASS

Radiation shielding glass cannot be used for exterior applications.

- When installing, care should be taken that the sealing agents do not contain any acid or alkaline substances (e.g. acetic acid, ammonia).
- Labels may cause staining on the glass surface due to the reaction of the adhesive.
- It is advisable to wear cotton gloves when handling the glass to avoid leaving fingerprints.

CLEANING RECOMMENDATIONS FOR RADIATION SHIELDING GLASS

General cleaning advice:

- Do not use harsh abrasive cleaning chemicals or materials - these could abrade the surface and leave scratch marks, which cannot be removed.
- Never allow any liquid cleaning material to dry on the glass surface - this will leave 'water marks' on the glass surface that will be very difficult to remove.
- Use only mild detergents.

Depending on the type of cleaning to be made, the following recommendations are given:

- General cleaning for the removal of dust film etc. - use a soft cotton cloth together with isopropyl alcohol and clean in a smooth circular motion.
- Cleaning of difficult stains - use a mild detergent diluted with water to the manufacturer's recommendations and clean with a soft cotton cloth. Dry the surfaces immediately after cleaning with a dry cotton cloth, and using a further soft cotton cloth, clean with isopropyl alcohol as in section.
- The following are acceptable methods for cleansing radiation shielding glass: water, non-abrasive cleansing agents, spirits and hydrous emulsion of cerium oxide (polishing grade).



APPROVED DISTRIBUTOR FOR CORNING Med-X™ GLASS

1000 Superior Boulevard, Suite 310 • Wayzata, MN 55391
1.888.RINGRPP (1.888.746.4777) • TOLL FREE FAX: 1.866.554.8445
www.radiationproducts.com • RPPSALES@RPPINC.COM

The information contained on our website, submittals, specifications, etc... is offered for assistance in specifying products and materials from Radiation Protection Products, Inc. It is not intended to be complete and Radiation Protection Products, Inc. does not assume any responsibility for the adequacy of the submittals/specifications for a particular application. These submittals/specifications are subject to change without notice and without incurring obligation. Actual performance may vary in specific applications. An appropriate and qualified design professional/structural engineer must verify suitability of products for use in a particular application, as well as review final submittals/specifications. Radiation Protection Products, Inc.