RADIATION PROTECTION MATERIALS

“WHEN PROTECTION IS REQUIRED,
THERE IS NO SUBSTITUTE FOR SKILL AND EXPERIENCE”

RAY-BAR ENGINEERING CORPORATION
www.raybar.com
TOLL FREE: (800) 567-XRAY (9729)
RAY-BAR

BROAD SCOPE
RADIATION PROTECTION
RAY-BAR ENGINEERING CORPORATION is a leading manufacturer of Radiation Protection Materials supplying primarily the United States including Alaska and Hawaii for over 65 years. Maintaining perhaps the largest inventory of shielding materials in the U.S. allows RAY-BAR a continuing reputation of prompt deliveries for all our products worldwide. Our knowledge of custom requirements is continually kept in tune by the installation of our products on literally thousands of projects by our own crews. “WHEN PROTECTION IS REQUIRED, THERE IS NO SUBSTITUTE FOR SKILL AND EXPERIENCE.”

RADIATION PROTECTION MATERIALS

LEAD BACKED MATERIALS
Lead backed gypsum wallboard, drywall, plywood and shielding panels.

LEAD LINED MATERIALS
Lead lined solid core doors and control screens, barriers, and view windows with radiation protection glazing, and lead lining of hollow metal frames. Most products also available as fire-rated.

SHEET LEAD
Sheet lead in all commercial thicknesses for backing at wall penetrations, lead at floors and miscellaneous shielding.

UA-USES, APPLICATIONS

NEW AND RETROFIT
- Hospitals
- Clinics
- Imaging Centers
- Medical Office Buildings
- Radiation Therapy/Oncology
- Industrial X-Ray Rooms NDT
- Medical Suites
- Medical Schools
- Individual Doctors Offices
- University Medical Centers
- Cancer Centers
- Nuclear Applications
- CT Scanners
- Angiography / Cath Labs
- Radiology / Fluoroscopic / X-Ray
- Linear Accelerators / Simulators
- Tomo Therapy / Gamma Camera
- PET Scanners
- Uptake Injection Rooms
- Hot Labs
- Cyclotron
- Proton Beam Room
- Nuclear Medicine Rooms

RAY-BAR LEAD BACKED DRYWALL DETAILS
RAY-BAR Lead Backed Drywall is furnished as 1/2” and 5/8” Fire Code gypsum board, with lead meeting Federal Specification QQL2011, Grade C, factory laminated to the backside. Also available, RAY-BAR fire-rated Lead Backed 5/8” gypsum board (RB-LBG), labeled as U.L. classified to U.S. and Canadian safety standards for fire-resistance for 1 hour and 2 hour fire-rated partition requirements. (See complete Classification marking for additional information). Contact RAY-BAR for current fire-rated lead lined partition designs.

RAY-BAR LEAD LINED DOORS & FRAME LINING
RAY-BAR Lead Lined Solid Core Doors are manufactured to national wood working standards, constructed with the finest core, edging and a large variety of natural wood or plastic laminate face veneers available. Door frames are lead lined with the same lead thickness as lead in doors.

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RAY-BAR TELESCOPIC VIEW WINDOW
RAY-BAR Lead Lined Telescopic Steel View Windows are manufactured for ease of installation in rough opening after wallboard is installed, with over 30 standard sizes “good in stock”. Available with X-Ray protective lead glass, or RAY-BAR labeled X-Ray Safety Glass for impact resistance, standard 2.1 mm lead equivalency single layer. Higher lead equivalencies available upon request. It is also available in clear Pb Lead acrylic in 0.3mm, 0.5mm, 0.8mm, 1.0mm, 1.5mm and 2.0mm lead equivalencies.

RAY-BAR LEAD LINED CONTROL SCREENS
RAY-BAR Lead Lined Control Screens are manufactured of similar construction to RAY-BAR Lead Lined Doors, and are available in single or multiple sections to meet varied layout applications. Screens are available with a large variety of natural wood and plastic laminate face veneers.

RAY-BAR NEUTRON SHIELDED DOOR
RAY-BAR has been manufacturing lead lined and/or borated polyethylene neutron shielded doors to customer specifications for high energy gamma and neutron shielding applications for over thirty years. These doors are fabricated to suit each individual project requirement as sliding or hinged doors in new and retrofit applications in compliance with the requirements of NCRP report #51 for radiation oncology linear accelerators.

RAY-BAR INDUSTRIAL LEAD LINED DOORS
RAY-BAR industrial Type lead lined doors are custom manufactured to meet heavier lead requirements associated with X-ray or Non Destructive Testing (NDT) rooms and can be furnished with complete top hung industrial capacity type sliding track, guides and hardware.

RAY-BAR X-RAY LEAD GLASS
RAY-BAR X-Ray Lead Glass provides a clear view and a standard radiation protection from 1.8mm and up to 3.7mm. Available good in stock for immediate shipment in sizes ranging from 6” x 6” to 48” x 96” for medical imaging, nuclear medicine, radiation therapy and Industrial X-Ray applications.

RAY-BAR X-RAY SAFETY GLASS
RAY-BAR X-Ray Safety Glass is for use in applications needing both a radiation protection and a safety requirement and is permanently labeled meeting ANSI Z97.1 and CPSC 16 CFR 1201 CAT II requirements for impact resistance and is available for prompt delivery. • This glass is not tempered, fire-rated or impact proof / shatter proof.

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RAY-BAR ENGINEERING CORPORATION

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TS-TECHNICAL SUPPORT

SUGGESTED SPECIFICATION

LEAD LINED GYPSUM WALLBOARD

Lead lined gypsum wallboard shall be as manufactured by RAY-BAR ENGINEERING CORPORATION, and shall be a thick type "X" fire code drywall, factory laminated with unpierced ___# sheet lead to ____" high, unless otherwise noted. U.L. classified and labeled for fire-resistance where required for one hour and two hour lead lined partition designs.

VIEWING WINDOWS

RAY-BAR lead lined telescopic steel view windows shall be as manufactured by RAY-BAR ENGINEERING CORPORATION. _____" x _____" with (or without) voice passage. Lead lining shall be the same as lead specified in wall where window is located.

LEAD GLASS

RAY-BAR X-Ray lead glass 5/16" thick, equivalent to 2.1mm (5/64" thick) sheet lead, shall be installed in single or multiple layers as required to equal lead value as specified for wall or partition where located. Utilize RAY-BAR labeled X-Ray Safety Glass where impact resistance is required.

RAY-BAR SHEET LEAD

All sheet lead is manufactured per Federal Spec. QQL201f, Grade C.

THICKNESS, WEIGHTS AND STOCK SIZES

<table>
<thead>
<tr>
<th>THICKNESS</th>
<th>DECIMAL EQUIVALENT</th>
<th>mm. EQUIVALENT</th>
<th>LBS. PER SQ. FT. APPROXIMATELY</th>
<th>STD. ROLL SIZES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/64&quot;</td>
<td>.0156&quot;</td>
<td>0.3969mm</td>
<td>1#</td>
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<tr>
<td>1/32&quot;</td>
<td>.0312&quot;</td>
<td>0.7937mm</td>
<td>2#</td>
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<tr>
<td>5/128&quot;</td>
<td>.0625&quot;</td>
<td>1.5906mm</td>
<td>2-1/2#</td>
<td>8 x 20'</td>
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<tr>
<td>3/64&quot;</td>
<td>.0937&quot;</td>
<td>2.4468mm</td>
<td>3#</td>
<td>8 x 20'</td>
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<tr>
<td>1/16&quot;</td>
<td>.1250&quot;</td>
<td>3.1750mm</td>
<td>4#</td>
<td>8 x 20'</td>
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<tr>
<td>1/8&quot;</td>
<td>.2500&quot;</td>
<td>6.3500mm</td>
<td>5#</td>
<td>8 x 20'</td>
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<tr>
<td>3/32&quot;</td>
<td>.3750&quot;</td>
<td>9.5250mm</td>
<td>6#</td>
<td>8 x 20'</td>
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<td>.7500&quot;</td>
<td>19.0500mm</td>
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<tr>
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<td>1.50&quot;</td>
<td>38.1000mm</td>
<td>9#</td>
<td>8 x 20'</td>
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<tr>
<td>1/2&quot;</td>
<td>2.00&quot;</td>
<td>50.8000mm</td>
<td>12#</td>
<td>8 x 20'</td>
</tr>
</tbody>
</table>

RAY-BAR X-Ray Lead Glass

Thickness: 5/16"+
Lead Equiv. (mm) nominal: 2.1
Lead Equiv. (in) nominal: .078+
Lbs. lead equiv./R²: (min): 5.0+
Wt.—lbs. glass/R²: (min): 4.0+
Thickness tolerance: ± 0.060
Refractive index: 1.76
Light transmission: 85%
Strain point (°C): 523
Softening temp (°C): 673°

• Also available in RAY-BAR labeled X-Ray Safety Glass for impact resistance, security, higher shielding ratings or in Special laminated products.

STOCK SIZES

8" x 8"                   24" x 24"     40" x 40"
8" x 10"                  24" x 30"     40" x 48"
10" x 10"                 24" x 36"     40" x 60"
10" x 12"                 24" x 48"     40" x 72"
12" x 12"                 24" x 60"     40" x 84"
12" x 16"                 24" x 72"     40" x 96"
12" x 24"                 30" x 30"     42" x 42"
12" x 36"                 30" x 36"     42" x 48"
12" x 48"                 30" x 48"     42" x 60"
16" x 16"                 30" x 60"     40" x 72"
16" x 24"                 30" x 72"     42" x 84"
16" x 36"                 36" x 36"     42" x 96"
16" x 48"                 36" x 48"     48" x 60"
18" x 18"                 36" x 60"     48" x 72"
18" x 24"                 36" x 72"     48" x 84"
18" x 36"                 36" x 84"     48" x 96"
18" x 48"                 36" x 96"     48" x 96"

• Also available in circular discs to your specified diameter.

CC-CODE ACCEPTABILITY, CERTIFICATION

All RAY-BAR sheet lead meets Fed. Spec. QQL-201f, Grade C.
All RAY-BAR Gypsum wall board meets Classification ASTM C 36.
All RAY-BAR labeled X-Ray Safety Glass meets ANSI Z97.1 and 16 CFR 1201 CAT II requirements for impact resistance. All materials and radiation shielding systems meet the requirements of the National Council of Radiation Protection (NCRP) Report #49 and #147. All calculations for lead requirements should be determined by a health physicist currently recognized by the state in which the project occurs.

THESE MATERIALS ARE FOR MEDICAL OR INDUSTRIAL USE ONLY. THESE MATERIALS ARE NOT TO BE UTILIZED IN RESIDENTIAL APPLICATIONS.

AC-AVAILABILITY, COST

Because of our extensive inventory we are typically able to ship stock sizes within 3 days from receipt of order.

OTHER PRODUCTS

• Special Lead Parts for X-Ray Equipment Manufacturers
• Lead Shot • Lead Wire • Lead Brick
• Custom Portable Lead Shields
• Lead Tube • Lead Rod • Lead Wool
• Lead Isotope Containers/Barriers
• Specialty Shielding Materials

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