



RADIATION PROTECTION PRODUCTS, INC

serving the nation's

lead needs since **1952**

with a full line of radiation

shielding products

Radiation Protection Products, Inc.



RPP®

CORPORATE HEADQUARTERS

Radiation Protection Products, Inc.
1000 Superior Boulevard
Suite 310
Wayzata, MN 55391

Sales and Service: 1-888-RING-RPP (746-4777)

Toll Free Fax: 1-866-554-8445

www.rppinc.com

(Submittals, CAD drawings and specifications available for download)

MANUFACTURING FACILITY

RPP, Inc.
2420 Crutcher Road
Chapel Hill, TN 37034

SATELLITE LOCATION

RPP, Inc.
745 West Baseline Road
Suite 8
Mesa, AZ 85210



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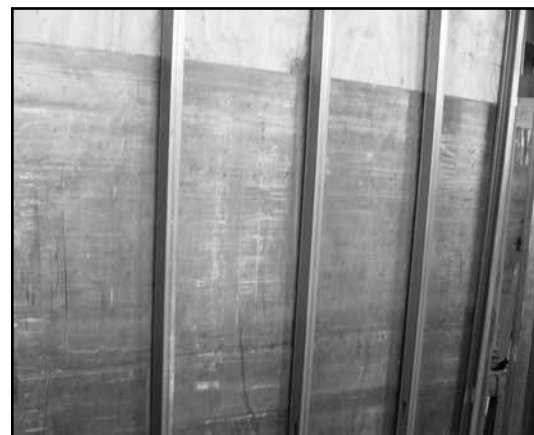
serving the nation's lead needs since 1952 with a full line of radiation shielding products

SHIELDING FOR ALL INDUSTRIES

Radiation Protection Products provides lead shielding for every application and lead shielding products to meet the needs of every industry.

Medical Industry:

- Imaging facilities (x-ray, radiology, fluoroscopy, CT Scan, P.E.T. Scan, etc.)
- Radiation therapy (Linear Accelerator, Cyber-Knife®, Gamma Knife, HDR, Proton Therapy, Brachytherapy, Cobalt, etc.)



Nuclear Industry:

- Interlocking lead brick
- Lead plate
- Lead lined plywood



Industrial Lead:

- Ballast weights
- Lead pouring
- Casks
- Castings



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FULL LINE OF RADIATION SHIELDING PRODUCTS



Lead Lined Sheet Rock Submittal

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



Radiation Protection Products, Inc.
Type: RPP-Lead Lined Drywall

Type RPP-Lead Lined Drywall (5/8 in thick) lead backed gypsum panels (lead having a purity of 99.9% meeting the Federal Specification QQ-L-201f, Grade "C") for use in Design Nos. U301, U305, U404, U411, U415, U419, U423, U424, U435, U438, U445, U465, U469, U493, V438, V439, V477, V478, V479, V490, V498, V499, W410.

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 #35, #39, #40, #49, #102 and #147.

Gypsum Board

Gypsum Board shall meet or exceed ASTM C 1396, CAN/CSA A82.27, Federal Specification SS-L-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 (#35, #39, #40, #49, #102 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.



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ARCHITECTS

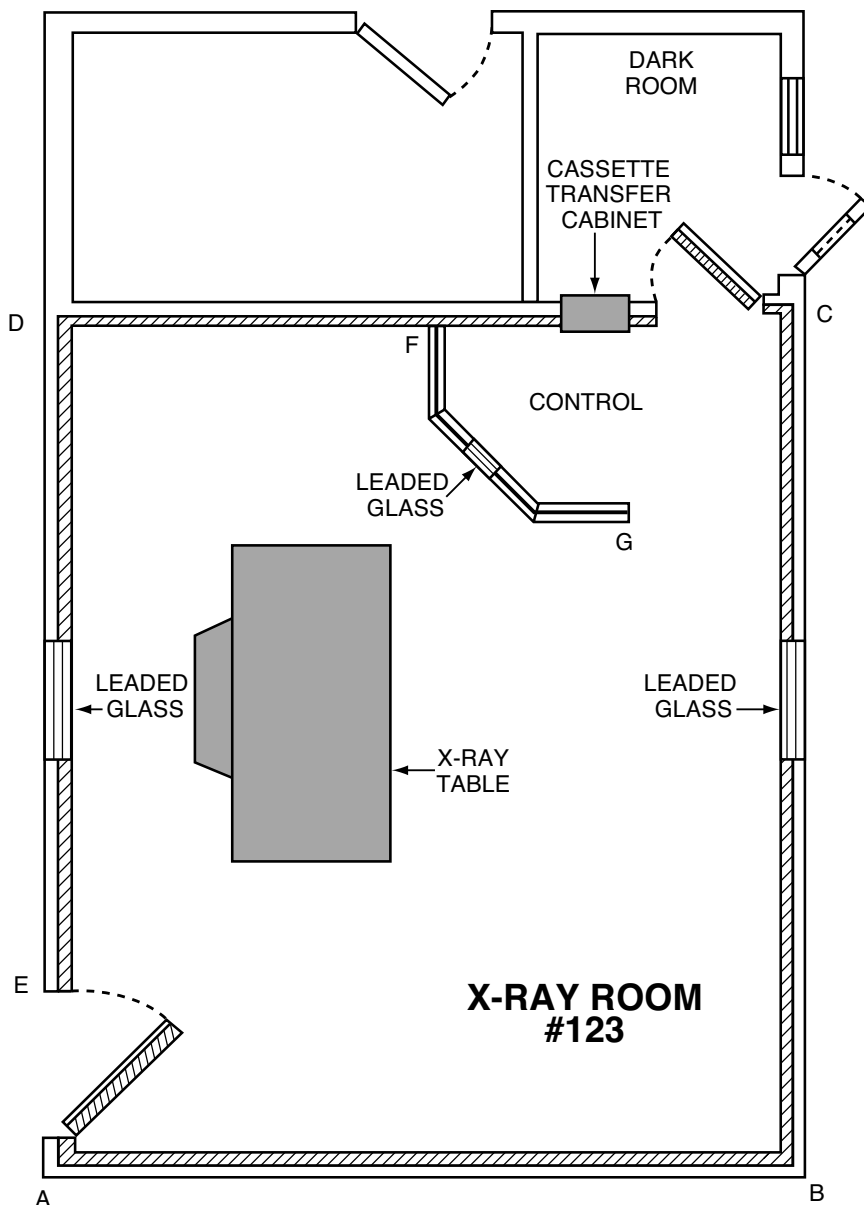
When radiation protection is required, it is extremely important to have the designation for this material documented as clearly as possible on your drawings.

Floor plans specifying lead shielding requirements are the most concise method of designating material desired (see example on right).

To further simplify and clarify your radiation shielding requirements, and to eliminate confusion during installation, lead requirements should be specified in increments of .5mm (1/64") for all practical purposes, with a minimum thickness of .8mm (1/32"). Upon receiving the Physicist report for shielding requirements, always round up to the .5mm thickness.

Consideration should also be given to having only one manufacturer of radiation protection material. This way there is a single firm responsible for any questions that may arise concerning radiation protection.

Radiation Protection Products, Inc., as a manufacturer, has the capabilities to manufacture any and all radiation protection products which may be required. With materials specified "as manufactured by Radiation Protection Products, Inc.," you are assured of the best possible job coordination and that you are dealing with a major producer of radiation shielding material.



RADIATION PROTECTION SCHEDULE X-Ray Room #123



LEAD LINED
PARTITIONS

A-B	_____	MM	_____	Height
B-C	_____	MM	_____	Height
C-F	_____	MM	_____	Height
F-D	_____	MM	_____	Height
D-E	_____	MM	_____	Height
E-A	_____	MM	_____	Height
F-G	_____	MM	_____	Height



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RADIATION SHIELDING LEAD LINED DRYWALL



DRYWALL

Radiation Protection Products uses only Fire Code Sheetrock products. Lead lined Drywall (also referred to as Lead Lined Sheetrock or Lead Lined Gypsum) is supplied with lead lining bonded to 1/2" or 5/8" drywall.

Custom sizes for Lead Lined Drywall are quoted upon request. We also provide lead lining bonded to specialty drywall such as moisture and mold resistant board. Lead Lined Drywall is supplied with 2" strips of the same lead thickness and height and 3/8" diameter lead discs.

Installation information

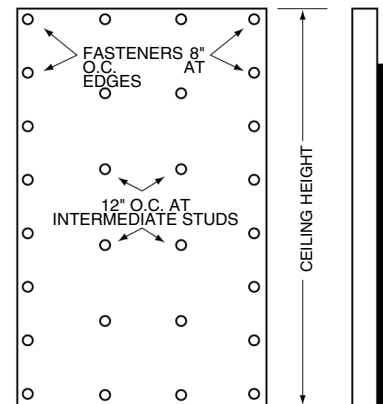
Lead Lined Drywall consists of a single unpierced sheet of lead laminated to the specified thickness of drywall. The bonding is accomplished with a continuous layer of mastic adhesive.

The Lead Lined Drywall should be fastened at a minimum of 8" on center at the edges of each sheet, and at a minimum of 12" on center at the intermediate studs with normal drywall screws. 2" wide strips of sheet lead of the same lead thickness should be applied to each of the joint studs using a standard type of construction adhesive, prior to installing the lead lined Drywall. These strips of sheet lead will provide the necessary 1" overlap with the adjoining sheets. Each fastener will be covered with a lead disc 3/8" in diameter and equal in thickness to the lead laminated to the sheetrock to eliminate the possibility of radiation leakage at the point of fastening. They should be applied using a fast drying construction adhesive.

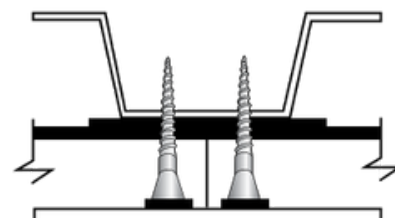
FOR LEAD THICKNESSES THAT EXCEED 1/8" PLEASE REFER TO OUR LEAD LINED PLYWOOD PAGE.

You may also call us directly to determine if layering lead is an option.

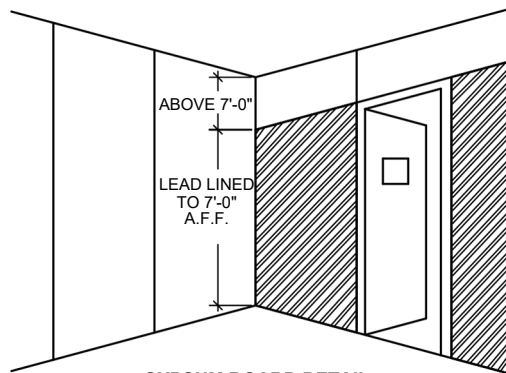
Refer to the drawings here for the typical methods of installing and fastening lead laminated drywall.



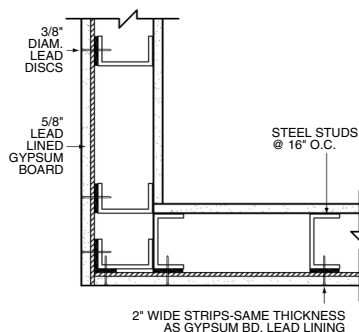
LEAD LINED GYPSUM BOARD
TO HEIGHT INDICATED



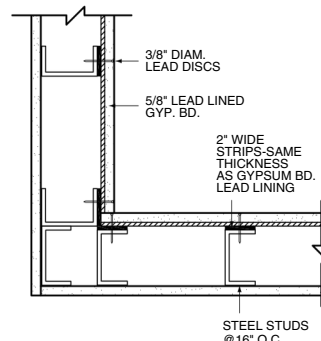
3/8" LEAD DISC



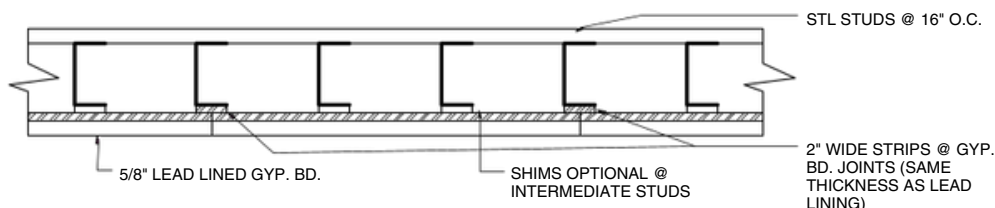
GYPSUM BOARD DETAIL



OUTSIDE CORNER
STEEL STUDS



INSIDE CORNER
STEEL STUDS



WALL DETAIL



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RADIATION SHIELDING

LEAD LINED PLYWOOD & PLASTERBOARD

VENEER PLASTERBOARD

All of these products are available with the same lead requirements and applications as the Lead Lined Drywall (Lead Lined Sheetrock, Lead Lined Gypsum Wallboard).

Lead Lined Plywood

Many types of plywood are available upon request. We can readily offer 5/8" and 3/4" thick fire treated plywood meeting or exceeding the following specifications:

- ASTM D5516
- ASTM D5564
- ASTM E-84

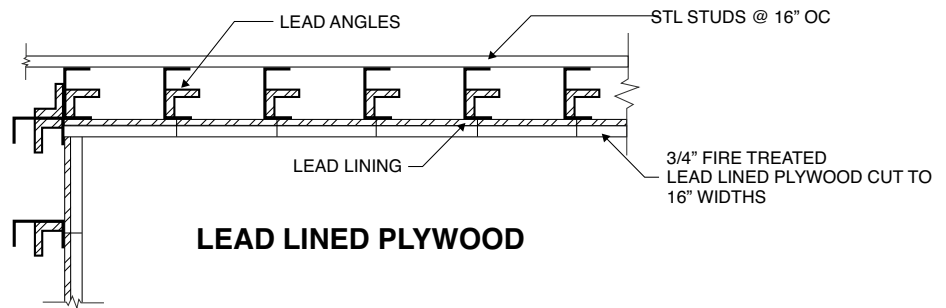
We also offer CDX, Pyro-Guard, HI-ABUSE® and HI-IMPACT® FIRE-SHIELD WALLBOARD, best used with our Lead Angles.

Lead Lined Plywood is typically recommended with heavier lead shielding requirements, usually when the lead shielding exceeds 1/8" thick. Lead Lined Plywood at these thicknesses becomes very heavy to handle in full sheet form (4' x 8'). We recommend having us cut the Lead Lined Plywood into widths that equal your on-center stud dimensions (e.g. 12" or 16"). This will make the Lead Lined Plywood much more manageable for the installer.

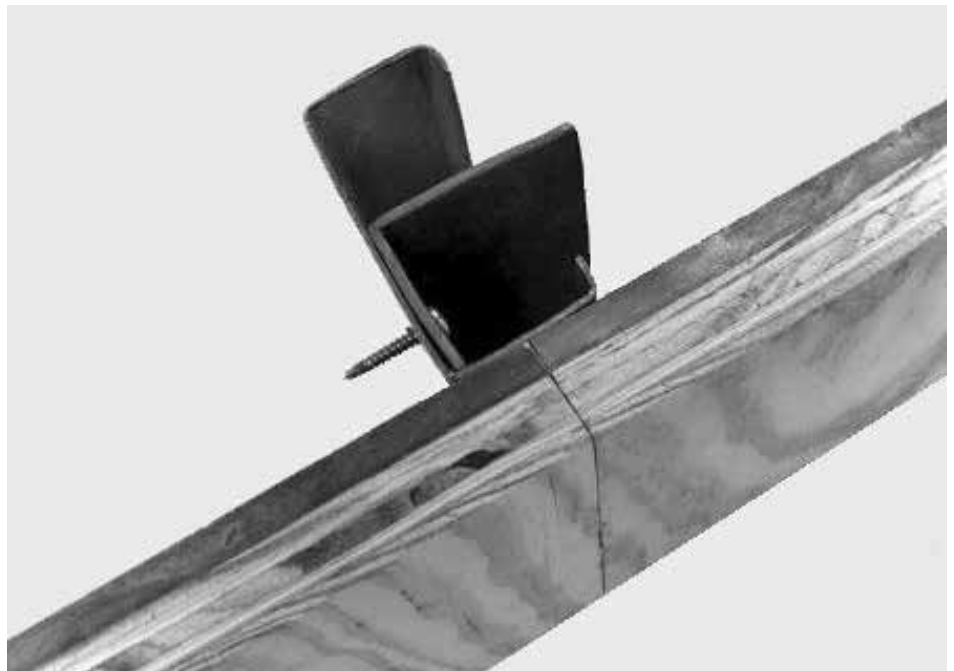
Example:

1 sheet of 3/4" x 4' x 8' plywood with 1/4" lead lining to 7' weighs approx. 505 lbs.

1 sheet of 3/4" x 16" x 8' plywood with 1/4" lead lining to 7' weighs approx. 168 lbs.



Just like Lead Lined Drywall, you must account for the shielding of all penetrations, seams and cut outs in the Lead Lined Plywood. If the Lead Lined Plywood is cut to the on-center stud dimensions, Lead Angles of the same lead thickness and height will shield all the joints and fastener penetrations. The cut outs (receptacles, light switches, etc.) will need to have shielding behind them as well to ensure total protection.



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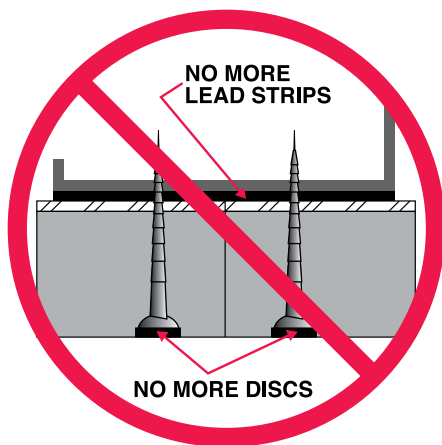
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RADIATION SHIELDING LEAD ANGLES

LEAD ANGLES

Save Money on Labor... "Easy Installation"

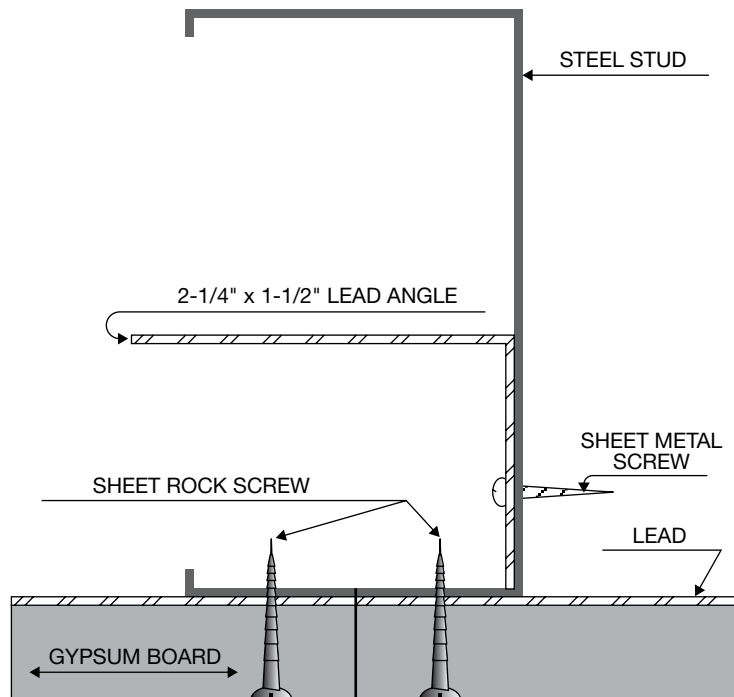
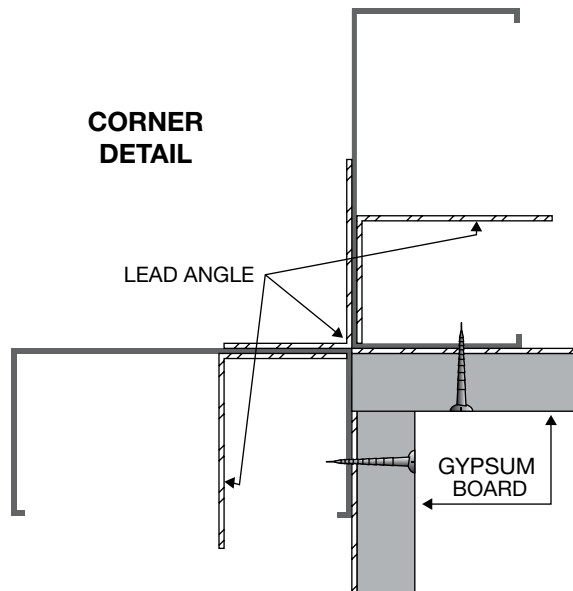
This leak-proof, Lead Angle system provides complete coverage of gamma rays...and eliminates LEAD STRIPS and DISCS for all Lead Lined Drywall and Lead Lined Plywood applications.



Our Leak-Proof Lead Angles are available in all lead requirements and all heights.

Available only at Radiation Protection Products, Inc

CORNER DETAIL



PATENTED



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RADIATION SHIELDING

LEAD LINED PRE-HUNG & CUSTOM DOORS

PRE-HUNG DOORS

Pre-hung Doors might be the answer for that special job. Radiation Protection Products, Inc. can supply you the door, frame, hinges, lockset or latch set and all the accessories in one package.

Radiation Protection Products uses a variety of face panels. We offer Natural Birch, Red Oak and other wood veneers plus plastic laminates. Basic lead thicknesses range from 1/32" to 1/2" in wood doors. Special order doors and door pairs are available as quoted.

Lead Lined Door Options:

- Cut out for leaded glass
- Pre-hung
- Custom wood veneer
- Plastic laminate
- 20 minute fire constructed

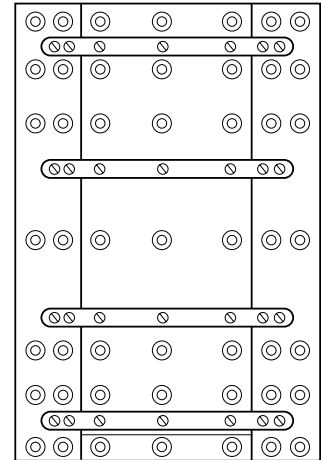
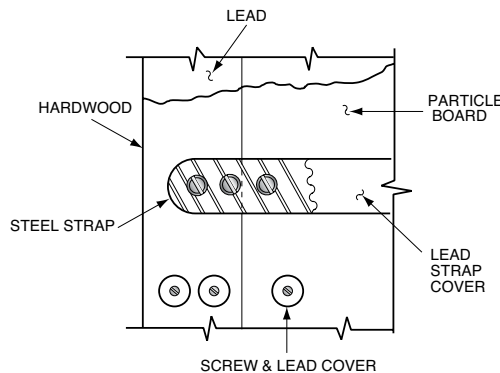
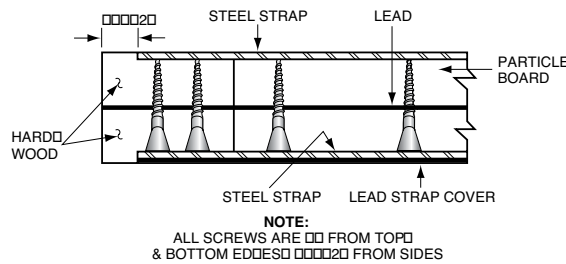
Orders for Doors shall include the following information:

- Width and height (specify 7'0" or 6'8")
- Finish (veneer or plastic laminate)
- Lead thickness
- Any options and locations
- Size and location of leaded glass, W x H
- On double doors, indicate which leaf to receive astragal

Complete specifications/drawings upon request.

FIRE RATED

Radiation Protection Products' fire rated lead lined doors are 20 minute constructed as certified by Intertek.



20 MIN.
FIRE RATED CORE



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RADIATION SHIELDING NEUTRON SHIELDED DOORS

NEUTRON SHIELDED DOORS

We manufacture and install customizable radiation shielding doors (also referred to as neutron doors) to meet all types of shielding requirements. (Linear Accelerators, Gamma Knife, ACCURAY Cyber-Knife®, P.E.T., Proton Therapy, H.D.R., Cobalt, and more.)

Most common types of radiation shielding door systems:

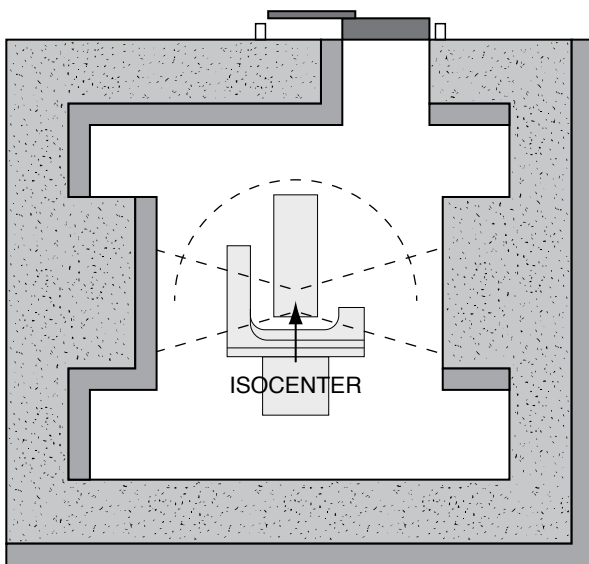
- Linear Accelerator Maze Neutron Doors
- Linear Accelerator Direct Shielded Neutron Doors

- ACCURAY Cyber-Knife® Radiation Shielding Doors
- H.D.R. Radiation Shielding Doors

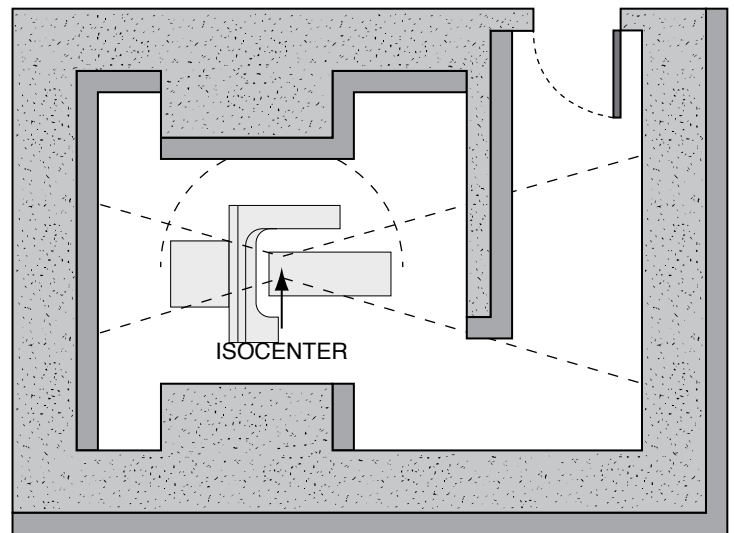
Designed for:

- Safety: multiple safety devices and back up safety devices offered with all radiation shielding doors.
- Convenience: all radiation shielding doors, and the installation thereof, are completed with the utmost attention to the client's and patient's convenience.
- Versatility: every RPP radiation shielding door (neutron door) is completely customizable to meet the client's exact requirements.
- Upgradeability: all radiation shielding doors can be manufactured to offer extra door space and additional strength to easily accommodate an upgrade with minimal cost to the client.
- Patient Throughput: RPP Strives to achieve maximum patient throughput without sacrificing safety.
- Longevity: RPP's custom designed radiation therapy door frames are designed to achieve superior longevity. Our unique gusset/dowel system used in conjunction with the bent steel reinforcement, ensures a perfect marriage between both hinges, even after years of heavy usage.

DIRECT SHIELD DESIGN



MAZE DESIGN



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RADIATION SHIELDING SLIDING NEUTRON DOORS

SLIDING DOOR SYSTEM

RPP's sliding radiation shielding doors (neutron doors) are constructed with 1/4" thick A-36 steel face plates. A-36 steel flat bars are used for the stiles and the reinforcement inside the door. Flat bar thicknesses for the stiles and reinforcement are dictated by the core of the door. The core of the door will consist of the shielding requirements (typically lead and borated polyethylene) as determined by a licensed physicist. We can also design the door with extra space inside for future upgrades which may require more shielding. The radiation shielding door (neutron door) finish is completed in the factory with a paint grade primer. RPP offers safety features for the door such as motion sensors, pressure sensitive tape, and battery backup.

I-Beams are used in conjunction with trolleys that suspend the door. For new construction, concrete embedments are used for support. For retrofits, steel beams and steel columns are used.



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RADIATION SHIELDING SWINGING NEUTRON DOORS

SWING DOOR SYSTEM

RPP's swing radiation shielding doors (neutron doors) are constructed with $\frac{1}{4}$ " thick A-36 steel face plates. A-36 steel flat bars are used for the stiles and the reinforcement inside the door. Flat bar thicknesses for the stiles and reinforcement are dictated by the core of the door. The core of the door will consist of the shielding requirements (typically lead and borated polyethylene) as determined by a licensed physicist. We can also design the door with extra space inside for future upgrades which may require more shielding. The door finish is completed in the factory with a paint grade primer. RPP offers safety features for radiation shielding doors (neutron doors) such as motion sensors, pressure sensitive tape, and battery backup.

Our RPP designed frames for neutron swing door systems are constructed with $\frac{1}{4}$ " thick A-36 steel. Five gussets at $\frac{1}{4}$ " thick and five pieces of bent flat bar steel at $\frac{1}{2}$ " thick are welded to the jambs. This reinforcement ensures longevity for the radiation shielding door (neutron door) and prevents misalignment between each of the hinges. The gussets have a dowel system to allow the concrete to set securely to the frame when poured. This RPP designed framing system is the most durable available.

RPP's automatic openers for radiation shielding doors (neutron doors) are the most reliable and well-built in the industry. Our vendor's vast experience of what works, and what does not, is based upon years of field experience. The 1502 series electric operators are specifically designed to eliminate the problems that other manufacturers have had with their designs. The units are built with the very best industrial components on the market today. Specific issues like output shaft failure, limit switch sensitivity, torque output, torque output control, operator mechanical drive protection, and door inertia control are all diminished or eliminated by design. The electric operators require a 120 VAC power source that we convert to 90 VDC. The advantage of DC is that we can better control the operation of the door operator. RPP will make final adjustments to the door but all conduit work and electrical work will be completed by others.

RPP's radiation shielding doors (neutron doors) and door frames are customizable to meet both your new construction requirements and your retrofit requirements.

For frames set in concrete, the frames will be shipped to the job site with detailed specifications to be installed by an independent contractor. Retrofit frames will be installed by RPP.



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RADIATION SHIELDING

NEUTRON DOOR SAFETY FEATURES

Listed below are the optional safety features available for both our swing and sliding radiation shielding doors (neutron doors).

SWING RADIATION SHIELDING DOOR SYSTEM SAFETY OPTIONS:

Presence Sensor

The presence sensor can be mounted inside the vault – just beyond the door path – to detect any motion, whether by an object or by a person, and immediately send a signal to the door operator and stop the door from opening or closing. A presence sensor can be mounted on the control room side, on the header of the frame, thus safeguarding both patients and technicians.

Safety Edge

Typically applied to the face of the strike side jamb, the safety edge is pressure sensitive and will detect any pressure that exceeds 8psi. Upon detection of pressure, the safety edge will send an immediate signal to the operator to stop, or stop and reverse the door.

SLIDING RADIATION SHIELDING DOOR SYSTEM SAFETY OPTIONS:

Battery Back-up

RPP's battery back-up system will automatically open the door any time there is a power failure. It will slowly open the door for an adjustable length of time. After the power is restored, the system will automatically return to normal operation. The battery backup

system is supplied with a monitored trickle charging system to keep the battery backup power supply fully charged.

Presence Sensor (light curtain)

RPP utilizes a light curtain presence sensing safety device on both sides of the sliding door. The light curtain presence sensors are mounted in the vault recess inches from the top of the slider door. This feature will send a signal to the operator upon sensing any motion that will stop or stop and reverse the slider door.

Safety Edge

The slider door will typically have two safety edges applied on both sides of the front door style. Detecting any pressure beyond 8psi, the safety edges will send a signal to the operator to stop or stop and reverse the door.

SAFE SWINGING POWER DOOR OPERATING SPEEDS

(Time to open or close measured in seconds per ANSI A156.10 Standard)

DOOR WIDTH (Inches)	DOOR WEIGHT (LBS)						
	1,000	2,500	5,000	7,500	10,000	12,500	15,000
36"	6 SEC.	10 SEC.	14 SEC.	17 SEC.	19 SEC.	22 SEC.	24 SEC.
42"	7 SEC.	11 SEC.	16 SEC.	20 SEC.	23 SEC.	25 SEC.	28 SEC.
48"	8 SEC.	13 SEC.	18 SEC.	22 SEC.	26 SEC.	29 SEC.	32 SEC.
54"	9 SEC.	15 SEC.	19 SEC.	24 SEC.	29 SEC.	32 SEC.	36 SEC.
60"	10 SEC.	16 SEC.	23 SEC.	28 SEC.	32 SEC.	36 SEC.	39 SEC.

FORMULA (For door width and height other than those listed above, use the formula below.)

TIME TO OPEN OR CLOSE = (DOOR WIDTH IN INCHES x (√ DOOR WEIGHT IN LBS.) ÷ 188

WARNING

This door operator should operate the door at a speed not faster than the above. Any attempt to operate at a faster speed will cause premature wear and damage to the operator and void any warranty. Also, liability may occur to anyone operating the door faster than recommended if injuries occur as a result.



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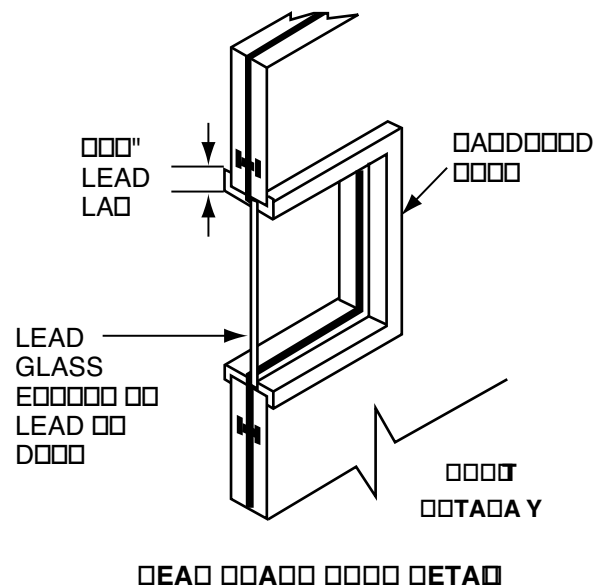
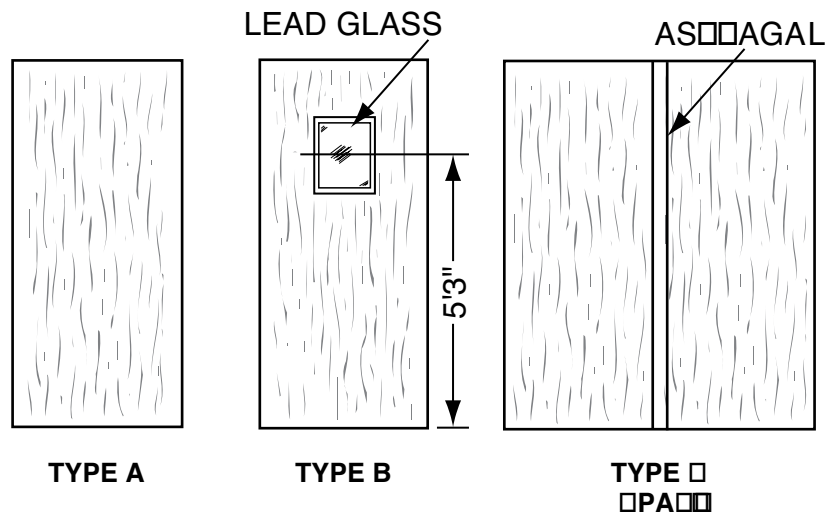
RADIATION SHIELDING

LEAD LINED SOLID CORE WOOD DOORS

Radiation Protection Products' Lead Lined Doors are manufactured using only the finest materials and workmanship available. With constant quality control and ongoing inspection, you are assured of receiving the strongest and most functional Lead Lined Doors possible.

Radiation Protection Products' Lead Lined Doors are constructed using a single layer of sheet lead in the center of the door. Wood cores are laminated under hydraulic pressure on each side of the lead.

Radiation Protection Products' will manufacture Lead Lined Doors to your specifications with leaded glass windows and options as listed. We also supply steel braced, lead lined, hollow metal door frames.



LEAD GLASS must be a minimum of 6" (15cm) from edge of door!



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RADIATION SHIELDING

LEAD LINED SOLID CORE WOOD DOORS (CONT.)

LEAD LINED DOOR ORDERING INFORMATION

Orders for Lead Lined Doors should include the following information:

- Exact width and height
- Swing (see swing selector below)
- Lead thickness
- Any options and locations
- Size and location of leaded glass, W x H
- Bevel (i.e. 1/8" in 2", 3°)
- On double doors, indicate which leaf to receive astragal
- Fire rating (Intertek 20 min.)
- Finish (Veneer or Plastic Laminate)
- Light proof seals

On Pre-hung Doors, include the following additional information:

- Wall thickness
- Hinges and number
- Pivots
- Lock set or latch set
- Size of leaded glass (lead lined glass)
- Swing (see swing selector above)
- Type of frame (i.e. standard hollow metal)
- Lead thickness

Stock sizes: 2'0" x 7'0", 2'6" x 7'0", 3'0" x 7'0", 3'6" x 7'0", 4'0" x 7'0"

Options: Cutout for Leaded Glass, Pre-Hung, Custom Wood Veneer, Plastic Laminate and 20 min. Fire Constructed.

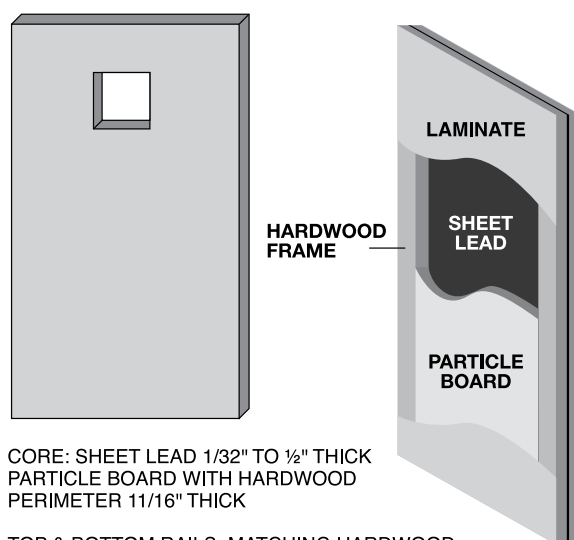
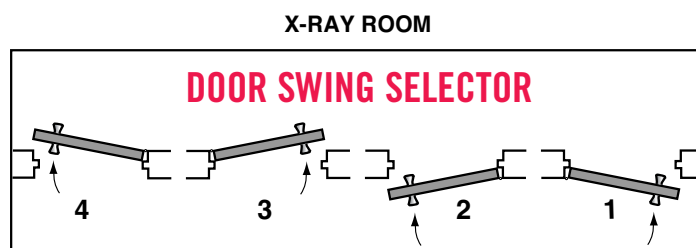
Note: Radiation Protection Products uses 1-1/2 pair Heavy Duty Ball Bearing Steel Hinges. Custom doors quoted upon receipt of specifications.

Radiation Protection Products can supply any type of Plastic Laminate Face Panels, as well as Face Panels of Natural Birch, Red Oak and other wood veneers.

Lead thickness from 1/32" to 1/2" in Wood Doors.

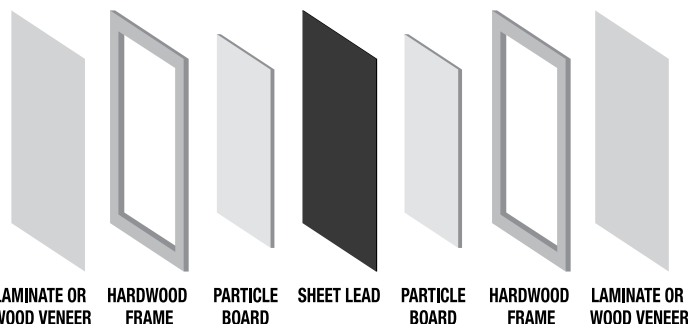
All Lead Lined Doors are manufactured in accordance with N.W.M.A. Industry Standard Special Construction Wood Flush Doors #I.S.I.4-80.

NOTE: All Radiation Protection Products' Doors are custom made, non-cancellable and non-returnable.



CORE: SHEET LEAD 1/32" TO 1/2" THICK
PARTICLE BOARD WITH HARDWOOD PERIMETER 11/16" THICK

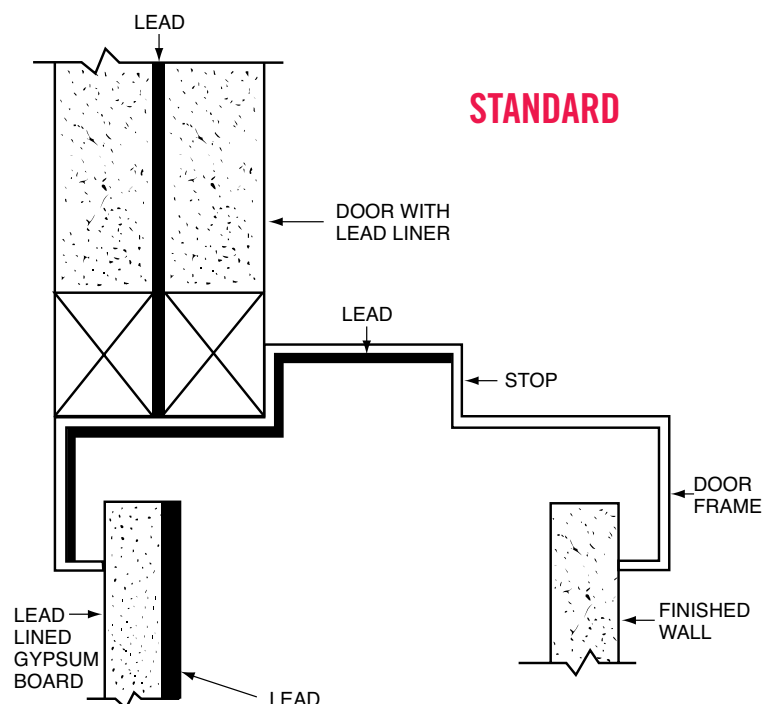
TOP & BOTTOM RAILS: MATCHING HARDWOOD
STILES: MATCHING HARDWOOD
VENEER: HIGH PRESSURE PLASTIC LAMINATE OR WOOD VENEER



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RADIATION SHIELDING LEAD LINED DOOR FRAMES

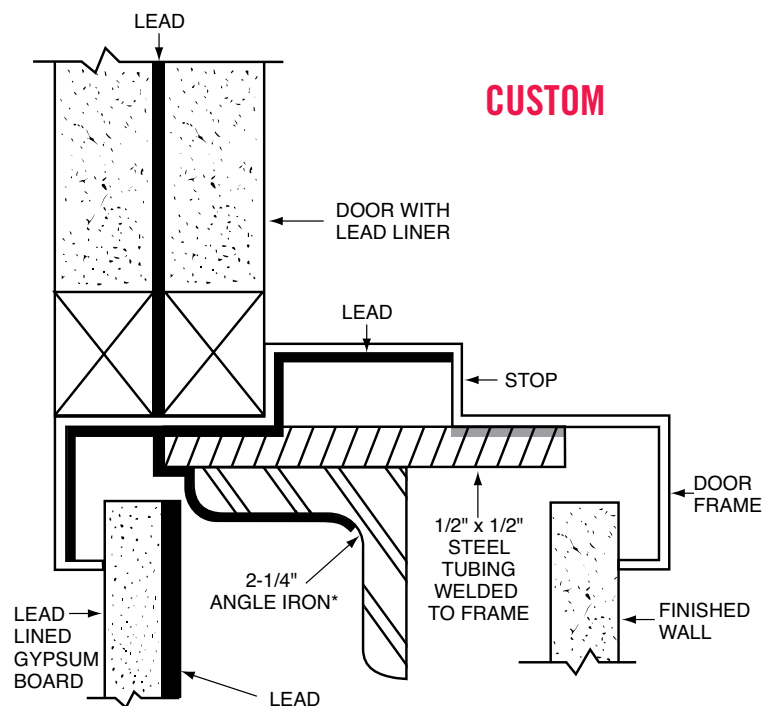


STANDARD LEAD LINED DOOR FRAMES

Radiation Protection Products' Standard Lead Lined Door Frames consist of 16-gauge steel, a 2" face, and a 5-7/8" jamb depth. They are set up and welded and can accommodate up to 1/2" thick lead lining. Our Lead Lined Door Frames are shipped with steel stud anchors that can be attached to the door frame either by welding or with steel fasteners if the lead lining does not exceed 3/32" thick.

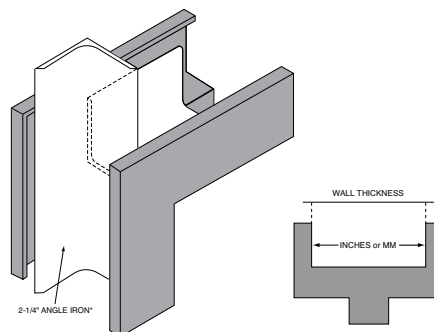
We require the use of an Angle Iron for added support on Lead Lined Door Frames that require 1/8" thick lead or higher. These Angle Irons can be spot welded to the steel stud or pre-drilled and bolted to the steel stud.

*We do offer angle irons on our lead lined door frames that are below 1/8" thick lead if requested.



CUSTOM LEAD LINED DOOR FRAMES

We can supply knock down, slip and other lead lined frames upon request. Our Lead Lined Frames can also be equipped with the type of anchors necessary for any given situation (wood stud anchors, masonry strap anchors, etc.). Although our standard Lead Lined Door Frames consist of 16-gauge steel, we offer frames at 14-gauge and 12-gauge as well.



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RADIATION SHIELDING

LEAD LINED VIEW WINDOW FRAMES

VIEW WINDOW FRAMES

NOTE: Don't cut a lead lined frame opening until frame is at job site!

Steel Telescopic Lead Lined

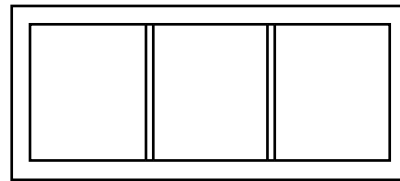
Standard Steel Telescopic Lead Lined Frames match our Hollow Metal Door Frames. These can be manufactured to accept any thickness of Lead Glass or Lead Acrylic. Standard Lead Lined Steel Telescopic Frames can be steel braced for maximum strength.

The adjustable Lead Lined Steel Telescopic Frames adjust to wall thicknesses of 4-1/4" to 6". Our Lead Lined Steel Telescopic Frames can be supplied with optional voice transmission.

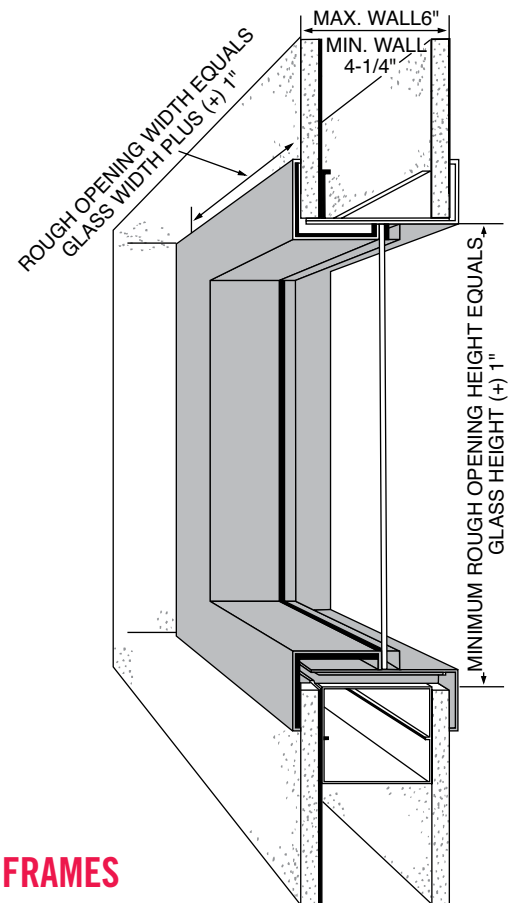
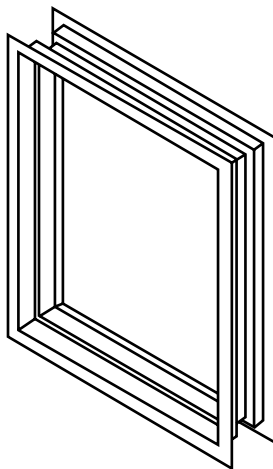
ORDERING INFORMATION

- Lead glass size-width and height
- Lead glass thickness
- Baffled voice passage (optional)
- Wall thickness

This information is the same for all lead lined frames ordered.



MULLION FRAME



STEEL TELESCOPIC FRAMES



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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.

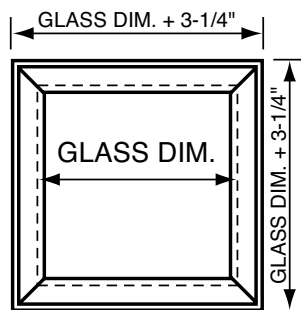
STANDARD SIZES

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"	

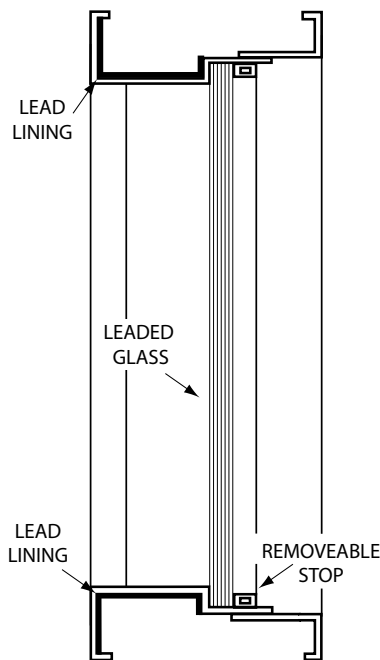
Custom sizes quoted upon request.

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.



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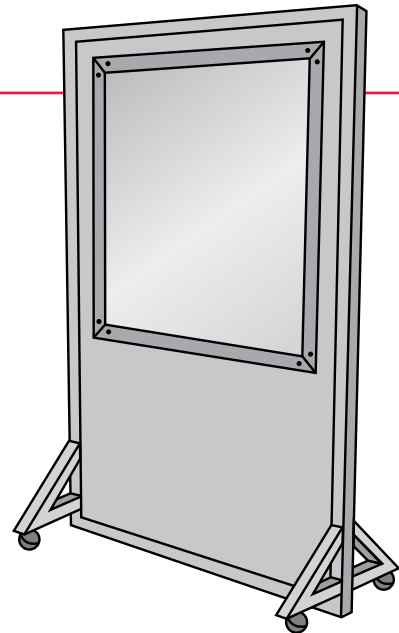
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RADIATION SHIELDING GLASS X-RAY BARRIERS

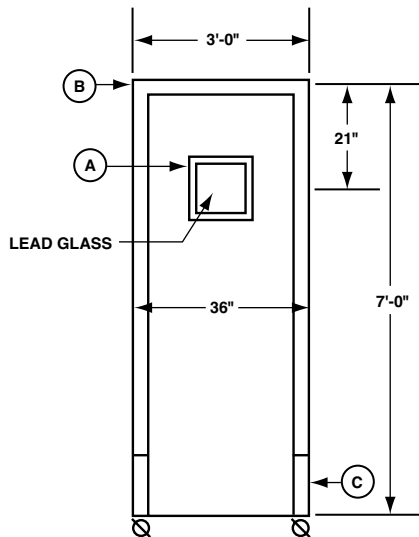
MOBILE X-RAY BARRIERS

- 16 gauge steel frame for strength
- Heavy duty casters
- Made from hardwood with birch and oak faces, can be stained or painted per request
- Also available with Wilsonart® laminate for a contemporary look with low maintenance

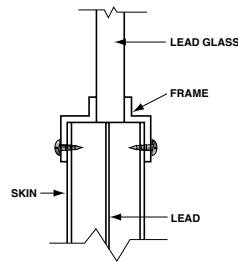
- Window frames are made from hardwood to match finish
- Available with our standard Leaded Glass or our newly designed Laminated Leaded Glass
- Leaded Glass Sizes:
12" x 12" to 24" x 36" (3' x 7')
Screen
12" x 12" to 36" x 36" (4' x 7')
Screen



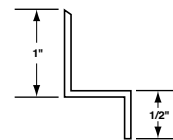
For full specs please visit our website.



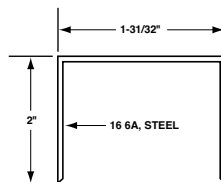
FULL BARRIER DETAIL



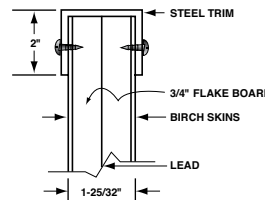
**(A) DETAIL 1
VIEW WINDOW**



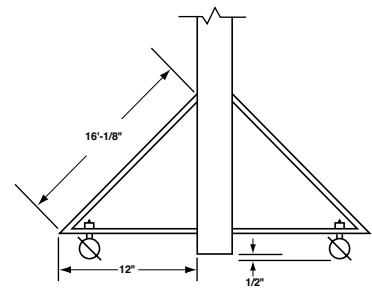
**(A) DETAIL 2
WOOD OR METAL FRAME**



**(B) DETAIL 1
STEEL TRIM**



**(B) DETAIL 2
SIDE VIEW**



**(C) DETAIL
SWIVEL CASTERS**



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PURE LEAD PRODUCTS

SHEET LEAD



Radiation Protection Products uses only the purest lead available for our Sheet Lead and Lead Bricks. Absolutely no refining takes place at our facility, making us one of the cleanest, most environmentally friendly radiation shielding providers in the industry, providing you with the highest quality sheet lead available.



If you have any questions about the Sheet Lead we can provide, please contact Radiation Protection Products.

NOMINAL SHEET LEAD SIZES AND WEIGHTS*

Actual Thickness	Pounds Per Sq. Ft.	App. Thickness in Inches	
		Decimal	Fraction
	1	.0156	1/64 - .5mm
	1 1/2	.0234	3/128
	2	.0312	1/32
	2 1/2	.0391	5/128 - 1.0 mm
	3	.0468	3/64
	3 1/2	.0547	7/128
	4	.0625	1/16 - 1.58mm
	5	.0781	5/64 - 2.1mm
	6	.0937	3/32 - 2.5mm
	7 1/2	.1250	1/8
	10	.1563	5/32
	12	.1875	3/16
	14	.2188	7/32
	15	.2500	1/4
	20	.3333	1/3
	24	.4000	2/5
	30	.5000	1/2
	40	.6667	2/3
	60	1.000	1

**The weights given apply to common lead only. Other types of lead, such as antimonial or hard lead, weigh slightly less for a given thickness.*



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STANDARD AND INTERLOCKING LEAD BRICKS

Exclusively developed for shielding of high energy x-rays:

- Nuclear lead shielding
- P.E.T. (Positron Emission Tomography) shielding
- Gamma knife rooms
- HDR rooms
- Linear accelerator shielding
- Standard lead bricks: All sizes available

INTERLOCKING LEAD BRICKS

Radiation Protection Products' interlocking lead bricks are tongue and grooved. Available in various thickness, heights and lengths:

- 1" x 4" x 12"
- 1 1/2" x 4" x 12"
- 2" x 4" x 8"
- 2 1/2" x 4" x 12"

Shown (on right): Interlocking 2" x 4" x 8"

LEAD BRICK – SPECIFICATIONS

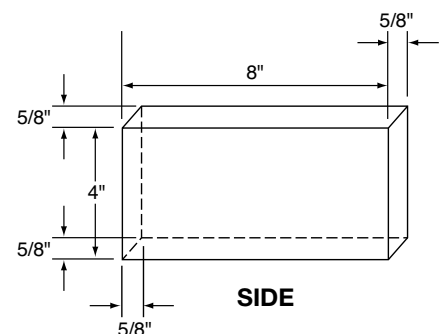
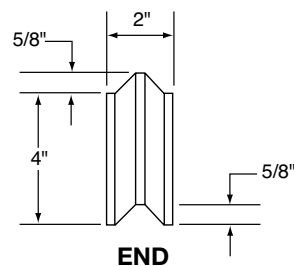
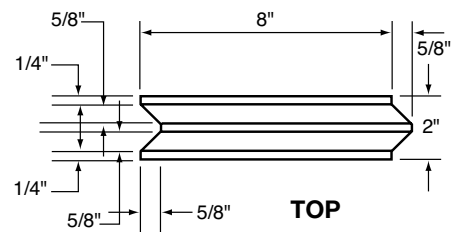
Lead Bricks (standard) shall:

Meet or exceed the federal specification
QQL-201-F

Grade C, see NCRP #49, #33, #35

Lead Bricks (interlocking) shall:

Meet or exceed the federal specification
QQL-171 Grade C.



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PURE LEAD PRODUCTS

LEAD PIGS, LEAD CASTINGS & LEAD PLATES



Radiation Protection Products uses only the purest lead available for our Lead Pigs and Lead Ingots, Custom Lead Fabrications/Castings and our Lead Plates. Absolutely no refining takes place at our facility, making us one of the cleanest, most environmentally friendly radiation shielding providers in the industry. This allows us to provide the best lead pigs and lead ingots in the market.

LEAD PIGS



Our lead pigs and lead ingots are available in any size and specification. Contact Radiation Protection Products for more information.

CUSTOM LEAD FABRICATIONS/CASTINGS

Our industry experience can provide you with all your lead lined or lead poured needs.

With over 50 years experience in:

- Nuclear casks
- Keels
- Castweights
- Storage containers
- Ballasts

Other types of lead, such as antimonial or hard lead are available. Contact Radiation Protection Products for more information.

LEAD PLATE

Any custom size lead plate is available upon request. Contact Radiation Protection Products for more information.



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PARTIAL LIST OF JOBS FURNISHED BY RPP

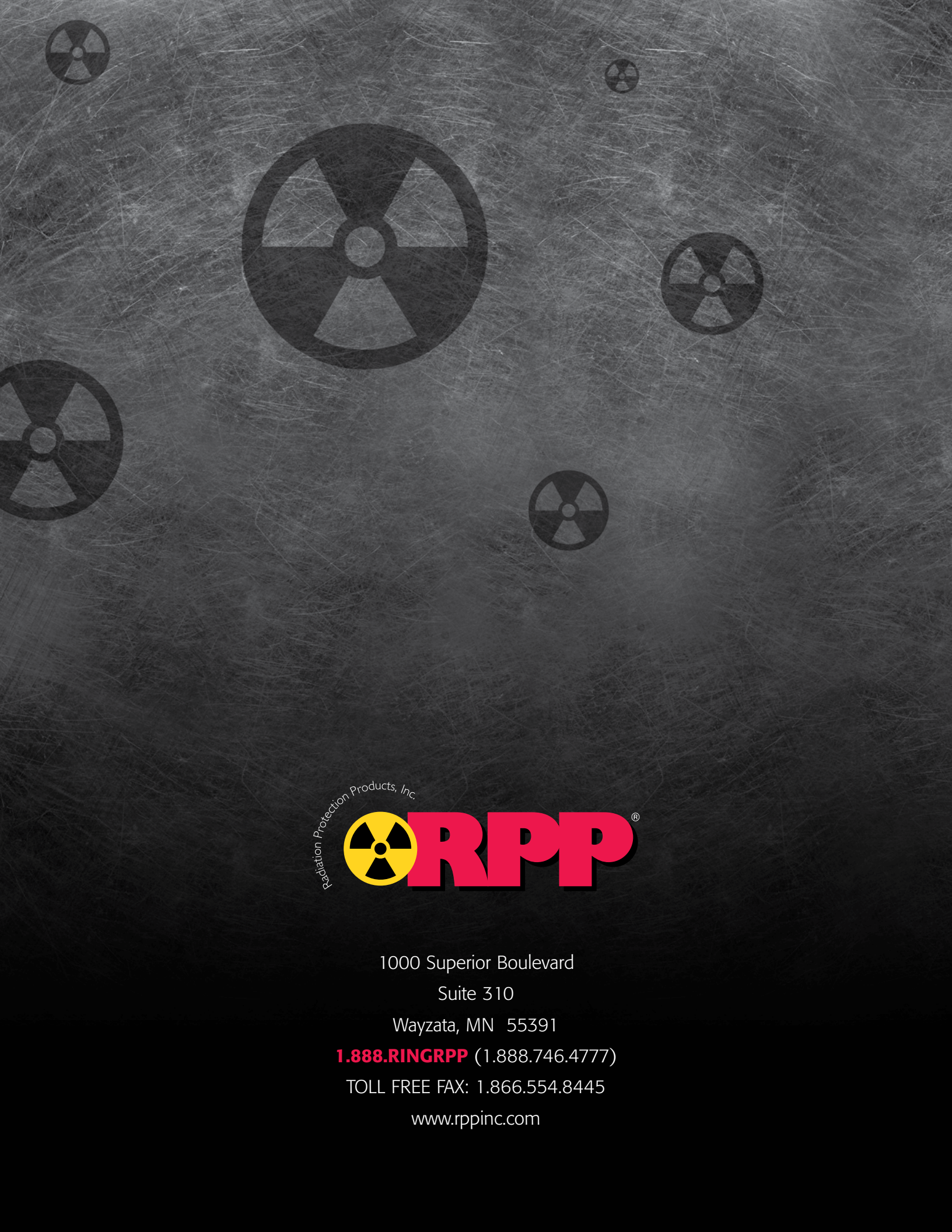


JOB	LOCATION	CONTRACTOR
Bay Care Med Center	Green Bay, WI	M.A. Mortenson Co.
Montgomery General Hospital	Olney, MD	H.B.E. Co.
Cleveland Clinic	Wooster, OH	Marshall Erdman
Fort Defiance Health Care	Fort Defiance, AZ	Border Glass & Aluminum Empire Lath & Plaster Flintco Construction
Elmdorf Air Force Base.....	Anchorage, AK	M.A. Mortenson
Mayo Clinic	Rochester, MN	Mulachy Drywall
Mayo Clinic	Rochester, MN	M.A. Mortenson
Mayo Clinic	Rochester, MN	Weis Builders
Hazardous Devices School	Redstone Arsenal, AL	
Travis Air Force Base	Travis AFB, CA	Newberg-Brinderson
Montefiore Medical Center	Bronx, NY	Nastasi & Associates Turner Construction
V.A. Medical Hospital	Minneapolis, MN	M.A. Mortenson Co.
Regional Medical Center	Fayetteville, AR	VVP America Inc. dba Binswanger Glass
GE Test Cells	Waukesha, WI	Olympic Wall Systems
Cessna Airlines	Wichita, KS	
Northwest Airlines	Minneapolis, MN	
Phillips Medical Systems	Scarborough, OH	
Syncor	Hicksville, NY	
U.S.I.E. Base	Sand Island, HI	Paglia Engineering
Smith Hospital	Valdosta, GA	Brasfield & Gorri
V.A. Hospital	Ann Arbor, MI	P.J. Dick
McMinnville Community Hospital	McMinnville, OR	McDevitt Street Bovis
Mary Washington Hospital	Fredricksburg, VA	Centex Rodgers



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