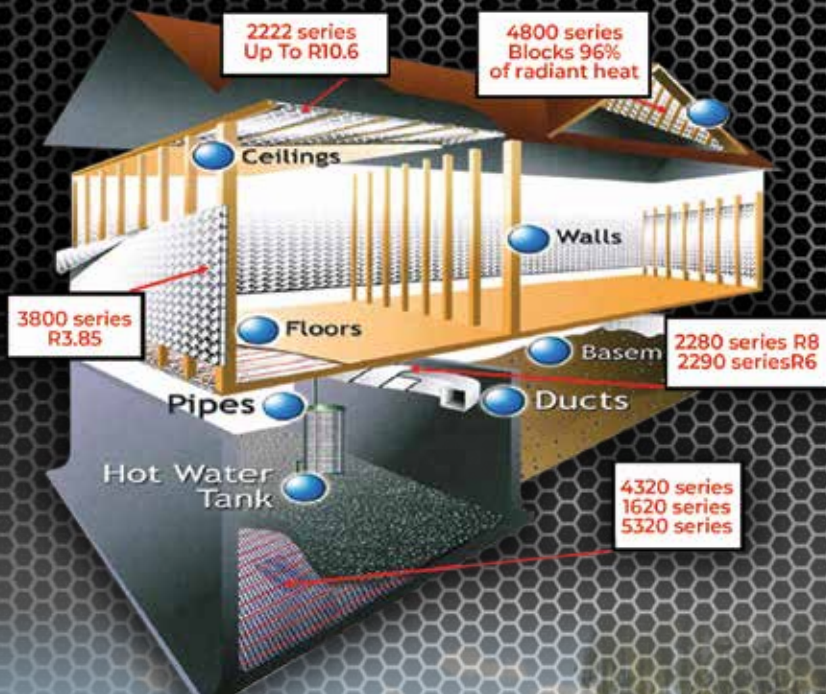


» CoverTech rFOIL



- REFLECTIVE INSULATION TAPES
- RADIANT BARRIER
- CUSTOM BUILDS



» ABOUT WILLOW SPRINGS SRA



A Brief Overview

Founded in 1993 by Dan and Karen Higgins, Willow Springs SRA has grown from a contracting firm into a leading wholesaler and distributor of specialized heating components. Based in North Central Wisconsin, we warehouse over \$1 million in inventory, enabling coast-to-coast shipping to most of the lower 48 states via rep agencies and HVAC, plumbing, and concrete wholesalers.

Our WSD private-label line features products built to our specs by manufacturers and in our own facilities. We're proud of our custom designs, including heat exchangers for x-ray equipment in the metal industry and U.S. Military vehicle production.

With 90% catalog items in stock, we're known as "the go-to guys" for urgent needs. Our experienced sales team delivers up-to-date technical expertise, backed by a shipping department boasting a 98.8% same-day success rate—orders received by 1:00 p.m. CST ship that day.

Physical Address:

N7071 US Highway 45
Wittenberg, WI 54499

Mailing Address:

P.O. Box L
Wittenberg, WI 54499

Phone Number:

715-253-3010

**NATIONWIDE
SHIPPING!**



www.willowsra.com

rFOIL® Reflective Insulation

Covertch rFOIL Contents

Reflective Insulation & Tape Recommendations	4-5
rFoil Big 8.....	6-8
Duct Insulation.....	9-12
Metal & Post Frame Building Insulation 2200 Series....	13-18
Ultra CBF Concrete Barrier Foil	19-21
Concrete Underpad	22-25
NT Radiant Barrier	26-27
Ultra NT Radiant Barrier for SKIFs	28-31
Metal & Post Frame Building 2500 Series.....	32-35
Adhesive Tapes.....	36-37

» Coverttech Reflective Insulation & Tapes

Concrete Underpad

Part Number	Description	Size	Sq. Ft./ Roll	Lit Page
5320-48-125	Reflective/Double Bubble/Poly white	48" x 125'	500 sq. ft.	22-25
4320-48-125	Reflective/Double Bubble/Poly clear	48" x 125'	500 sq. ft.	22-25
4320-72-125	Reflective/Double Bubble/Poly clear	72" x 125'	750 sq. ft.	22-25
4320-96-125	Reflective/Double Bubble/Poly clear	96" x 125'	1000 sq. ft.	22-25

RECOMMENDED TAPE PART# 45313 or 45312

Ultra CBF

Part Number	Description	Size	Sq. Ft./ Roll	Lit Page
1620-48-125	Bubble/Reflective/Bubble	48" x 125'	500 sq. ft.	19-21

RECOMMENDED TAPE PART# 45313 or 45312

Reflective Duct Wrap Insulation for R4.2-R6

Part Number	Description	Size	Sq. Ft./ Roll	Lit Page
2290-48-100	Reflective/Double Bubble/Reflective	48" x 100'	400 sq. ft.	9-12
2290-48-125	Reflective/Double Bubble/Reflective	48" x 125'	500 sq. ft.	9-12

RECOMMENDED TAPE PART# 15113

Reflective Duct Wrap Insulation for R8

Part Number	Description	Size	Sq. Ft./ Roll	Lit Page
2280-48-050	BIG 8 Multi-Layer Duct Wrap Indoor	48" x 50'	200 sq. ft.	6-8
Indoor RECOMMENDED TAPE PART# 15113				
2299-02-050	Duct Spacer Strips for R6 and R8	2" x 50'	N/A	9-12



» Covertech Reflective Insulation & Tapes

Between Joist Insulation

Part Number	Description	Size	Sq. Ft./ Roll	Lit Page
2222-16-125	Reflective/Double Bubble/Reflective	16" x 125'	167 sq. ft.	13-18
2222-18-125	Reflective/Double Bubble/Reflective	18" x 125'	187.5 sq. ft.	13-18
2222-24-125	Reflective/Double Bubble/Reflective	24" x 125'	250 sq. ft.	13-18

RECOMMENDED TAPE PART# 15113

All Between Joist Insulation Products are in Tab 2 format (5/8" – 3/4" tab on both sides)

NT Radiant Barrier Foils

Part Number	Description	Size	Sq. Ft./ Roll	Lit Page
1800-48-125S	Ultra NT/SCIF	48" x 125'	500 sq. ft.	28-32

RECOMMENDED TAPES PART# 15513, 15512 Non-Conductive Adhesive

11701, 11702, 70502, 70503, 70504 Conductive Adhesive

Adhesive Foil Tapes

Part Number	Description	Size	Rolls per Box	Lit Page
15512	Aluminum Tape w/ Kraft Liner	2"x150'	24	36-37
15513	Aluminum Tape w/ Kraft Liner	3"x150'	16	36-37
15113	Premium Metalized High Tack	3"x150'	16	36-37

Linerless Foil Tape

15852	White Poly Tape	2"x150'	24	36-37
15853	White Poly Tape	3"x150'	16	36-37
11701	Conductive Adhesive Tape	1"x54'	9	36-37
11702	Conductive Adhesive Tape	2"x54'	5	36-37
70502	135C Aluminum Foil Tape with Conductive Acrylic Adhesive	2" x 108'	6	36-37
70503	135C Aluminum Foil Tape with Conductive Acrylic Adhesive	3" x 108'	2	36-37
70504	135C Aluminum Foil Tape with Conductive Acrylic Adhesive	4" x 108'	2	36-37



rFOIL® BIG 8



ICC-ES EVALUATED ESR-1236



See ESR -1236 for thermal resistance (R-value) of the assembly or assemblies



Comes Complete with
Spacer Strips

rFOIL® BIG-8 is specially designed to reduce radiant heat gain / loss in all residential and commercial duct applications. rFOIL® also helps control condensation by providing an airtight thermal break around duct work.

rFOIL® BIG-8 Reflective Duct Insulation increases system efficiency, lowers stress on HVAC equipment, and reduces energy usage. The first R-8.0 reflective bubble insulation is now here!



www.willowsra.com

DUCT INSULATION R-8.0 Thermal Value

2280 SERIES

rFOIL® Benefits:

- R-value = 8.0... Improves HVAC system efficiency
- The first R-8.0 without a mineral fiber / fiber glass core... NO ITCH!
- Thermal value unaffected by moisture or humidity
- Will not harbor mold, mildew, or other fungi
- Prevents exterior build-up of condensation
- Saves energy, money, and it's easy to install

rFOIL® Applications:

- Duct insulation
- Suitable for all duct types
- Residential and commercial
- Indoor use
- Meets IECC R-8.0 code requirement



Metalized Radiant Barrier Outer Surface	Heavy-Duty Bubble Thermal Core	Non-Fibrous Materials	Low-Profile Insulation	Meets R-8 and/or R-6 Code Requirements	Full-Length, Printed Code Certification Strip
- Stops 96% of heat radiating into and out of the duct system - Significantly improves efficiency of HVAC system - Reduces energy usage and may lower utility bills	- Impermeable to moisture, and air spaces provide tremendous condensation control - Provides a consistent thermal block around ductwork - Superior tear strength and puncture resistance - Maintains full thermal value due to high compression resistance - Seals duct system from attic dust and fibrous glass particles	- Clean, safe and easy to install - No protective equipment or clothing required - NO ITCH! or exposure to glass fibers - Will not harbor mold, mildew, or other fungi - Will not rot, degrade, compress, or break down over time - Unaffected by humidity (unlike fibrous products) - Seals duct system from attic dust and fibrous glass particles - Improves indoor air quality (when properly sealed)	- High thermal value with less product thickness - Easy to handle and quick to install - Flexible and lightweight - Simple to cut and install around challenging duct configurations	- First reflective bubble (non-fibrous) insulation to achieve R-8.0 (with air space) or R-6.7 (without air space) - Spacer Strips included for R-8.0 code applications	- Allows inspectors to easily identify product and specs - Printed with R-values and ASTM fire ratings - Meets R-6.0 and R-8.0 IECC code requirements

PRODUCT SIZE

PRODUCT SPECIFICATIONS

Size:

48" x 50' and 48" x 75'

PHYSICAL PROPERTIES	TEST	VALUE
THERMAL RESISTANCE	ASTM C335	R-8.0 with BUBBLE SPACERS
TEMPERATURE RANGE	ASTM C411	-50°F to 180°F
FIRE RATING	ASTM E84-10	CLASS 1 / CLASS A
	CAN/ULC-S102-10	FLAME SPREAD = 15 / SMOKE DEVELOPED = 50
EMISSION	ASTM C1371	0.04
REFLECTIVITY	ASTM E903	0.96
WATER VAPOR PERMEABILITY	ASTM E96	0.029 Perms
RESISTANCE TO FUNGI and BACTERIA	ASTM C1338	DOES NOT PROMOTE GROWTH
BLEEDING and DELAMINATION	ASTM C1224-03	NO BLEEDING or DELAMINATION
PLIABILITY	ASTM C1224-03	NO CRACKING
FIRE RATING - FULL ROOM BURN	NFPA 286	PASSES
TEMPERATURE and HUMIDITY RESISTANCE	ASTM C1258	EVIDENCE of DELAMINATION - NONE
		EVIDENCE of CORROSION - NONE
		LOSS of METALLIZATION - MINIMAL



Comes Complete with
Spacer Strips



Warranty, Specific Applications, and Installation Guides can be found at www.rfoil.com



Division of Balcan Innovations Inc

REFLECTIVE
PRODUCTS

SCAN CODE
FOR MORE
INFORMATION

Feb, 08, 2025

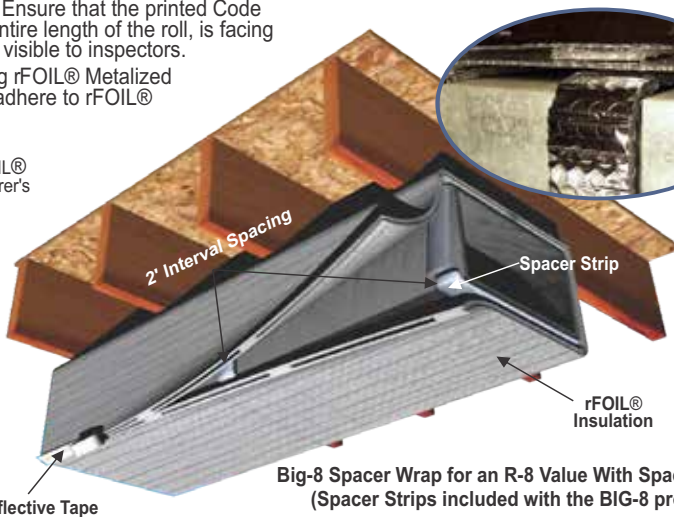


- QUICK, SAFE, AND EASY TO INSTALL
- CLASS 1 / CLASS A FIRE RATING IN ACCORDANCE WITH ASTM E84
- REDUCES HEAT LOSS FROM METAL DUCTS - INCREASED EFFICIENCY!

INSTALLATION METHOD

(ICC-ES Evaluation Report ESR-1236)

- 2" wide spacer strips to be wrapped around the perimeter of the duct (spacers strips are included with the BIG-8 product).
Spacer strips to be installed at 2' intervals.
- Wrap rFOIL® BIG-8 Insulation around the duct with spacers and pull hand-tight (for an R-8 value). Ensure that the printed Code Certification Strip, taped the entire length of the roll, is facing out. This information must be visible to inspectors.
- Tape all seams and joints using rFOIL® Metalized Tape, specially formulated to adhere to rFOIL® Duct Insulation.
 - Item Code 15113 (3" x 150')
 - Use of any tape other than the rFOIL® items above will void the manufacturer's warranty.
- Properly installed, the spacers will provide a consistent airspace around the duct.
- Repeat the above steps for the entire length of the ductwork.



BIG 8™

Big-8 Spacer Wrap for an R-8 Value With Spacer Strips.
(Spacer Strips included with the BIG-8 product)

SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	2280 Series (Available in Various Dimensions)
rFOIL® TAPES	15113 (Premium Metalized)

- Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.





DUCT INSULATION

R-4.2 and R-6.0

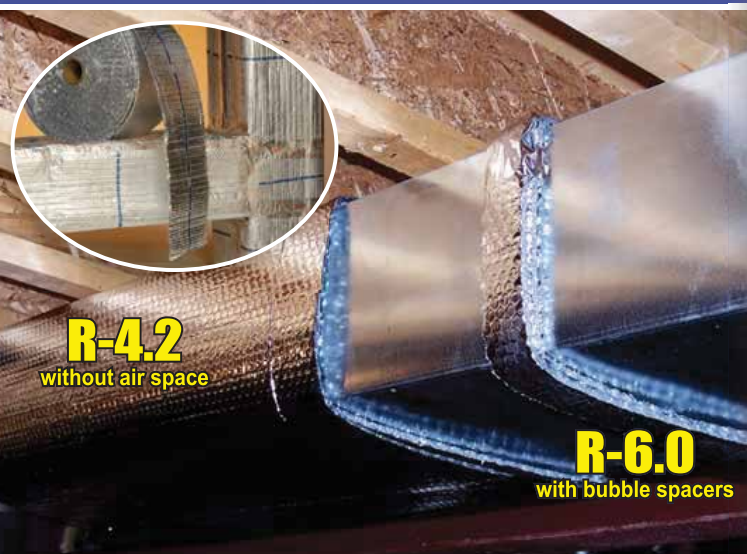
2290 SERIES

rFOIL® Benefits:

- Meets R-4.2 and/or R-6 insulation code requirements
- Achieve R-values with less material thickness
- Clean, safe, environmentally friendly, and NO ITCH!
- Will not harbor mold, mildew, or other fungi
- Greatly improves HVAC system efficiency
- Reduces energy usage and utility bills
- Lowers run-time and increases lifespan of heating and cooling systems
- Impermeable thermal core provides tremendous condensation control
- Easy, clean, and safe to install
- Printed with full-length code certification strip

rFOIL® Applications:

- Duct insulation
- Suitable for all metal ductwork
- Residential and commercial
- Indoor insulation use
- Meets R-4.2 (with no spacers strips) and R-6.0 (with spacer strips) code requirements



rFOIL® Reflective Duct Insulation is a double-layer of polyethylene bubble, bonded to and sandwiched between two highly reflective metalized film surfaces.

rFOIL® is specially designed to reduce radiant heat gain/loss in all residential and commercial duct applications. rFOIL® also helps control condensation by providing an airtight thermal break around duct work.

rFOIL® Reflective Duct Insulation increases system efficiency, lowers stress on HVAC equipment, and reduces energy usage.





DUCT INSULATION

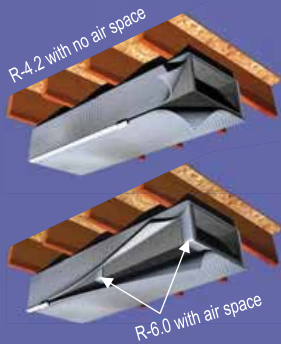
R-4.2 and R-6.0

(2290 Series)

Metalized Radiant Barrier Outer Surface	Heavy-Duty Double Bubble Thermal Core	Non-Fibrous Materials	Low-Profile Insulation	Full-Length, Printed Code Certification Strip
- Stops 96% of heat radiating into and out of the duct system. - Significantly improves efficiency of HVAC system - Reduces energy usage and may lower utility bills	- Air spaces provide tremendous condensation control - Airtight and impermeable to moisture - Provides a consistent thermal block around ductwork - Superior tear strength and puncture resistance - Maintains full thermal value due to high compression resistance - Seals duct system from attic dust and fibrous glass particles	- Clean, safe and easy to install - No protective equipment or clothing required - NO ITCH! from exposure to glass fibers - Will not harbor mold, mildew, or other fungi - Will not rot, degrade, compress, or break down over time - Thermal Value unaffected by humidity (unlike fibrous products) - Seals duct system from attic dust and fibrous glass particles	- High thermal value with less product thickness - Easy to handle and quick to install - Flexible and lightweight - Simple to cut and install around challenging duct configurations	- Allows inspectors to easily identify product and specs - Printed with R-values and ASTM fire ratings - Meets R-4.2 and R-6.0 (with air space) IECC code requirements

PRODUCT SIZES

36" X 50'	48" X 50'
48" X 100'	48" X 125'
60" X 100'	60" X 125'



PRODUCT SPECIFICATIONS

PHYSICAL PROPERTIES	TEST	VALUE
NOMINAL THICKNESS	—	5/16"
WEIGHT	—	1.25 OZ / SQ. FT.
TEMPERATURE RANGE	ASTM C411	-50°F to 180°F
FIRE RATING	ASTM E84-08	CLASS 1 / CLASS A
	ASTM E84-08	FLAME SPREAD=0 / SMOKE DEVELOPED=20
	CAN/ULC-S102-10	FLAME SPREAD=0 / SMOKE DEVELOPED=10
FIRE RATING - FULL ROOM BURN	NFPA 286	PASSES
THERMAL RESISTANCE (SYSTEM)	ASTM C335	R-4.2 (WITHOUT SPACERS)
		R-6.0 (with BUBBLE SPACERS)
EMISSION	ASTM C1371	0.04
REFLECTIVITY	ASTM E903	0.96
WATER VAPOR PERMEABILITY	ASTM E96	0.02 Perms
RESISTANCE TO FUNGI and BACTERIA	ASTM C1338	DOES NOT PROMOTE GROWTH

Warranty, Specific Applications, and Installation Guides can be found at www.rfoil.com



Division of Balcan Innovations Inc

SCAN CODE
FOR MORE
INFORMATION



Feb, 08, 2025

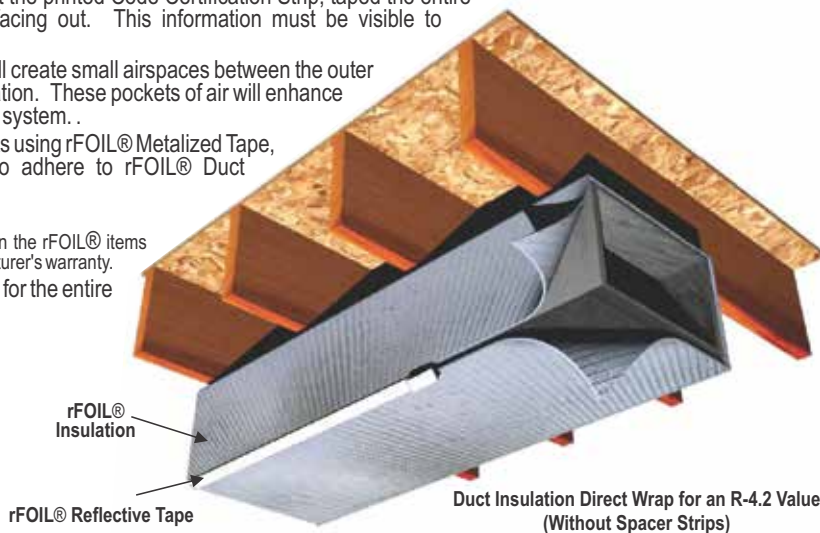


www.willowsra.com

- QUICK, SAFE, AND EASY TO INSTALL
- CLASS 1 / CLASS A FIRE RATING IN ACCORDANCE WITH ASTM E84-09
- REDUCES HEAT LOSS FROM METAL DUCTS - INCREASED EFFICIENCY!

INSTALLATION METHOD

1. This method does not require spacer strips. However, it is recommended that the product be loosely wrapped around the duct (for an R-4.2 value).
2. Determine the exact perimeter around the duct.
3. For optimal performance, wrap the duct with material length that is approximately 5% longer than the actual duct perimeter. Ensure that the printed Code Certification Strip, taped the entire length of the roll, is facing out. This information must be visible to inspectors.
4. Installed loosely, this will create small airspaces between the outer duct wall and the insulation. These pockets of air will enhance the thermal value of the system. .
5. Tape all seams and joints using rFOIL® Metalized Tape, specially formulated to adhere to rFOIL® Duct Insulation.
 - Item Code 15113 (3" x 150')
 - Use of any tape other than the rFOIL® items above will void the manufacturer's warranty.
6. Repeat the above steps for the entire length of the ductwork.



SUGGESTED PRODUCTS FOR THIS APPLICATION

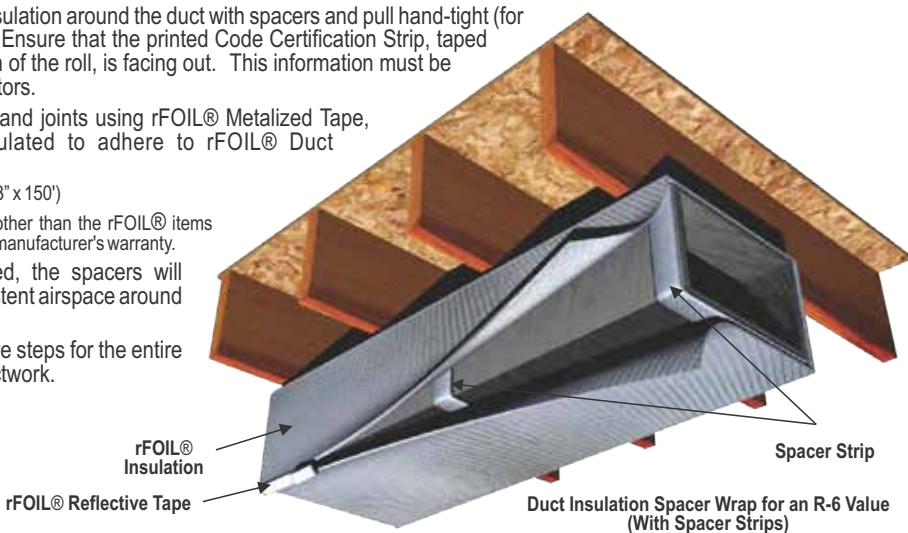
rFOIL® INSULATION PRODUCT	2290 Series (Available in Various Dimensions)
rFOIL® TAPES	15113 (Premium Metalized)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.

- QUICK, SAFE, AND EASY TO INSTALL
- CLASS 1 / CLASS A FIRE RATING IN ACCORDANCE WITH ASTM E84
- REDUCES HEAT LOSS FROM METAL DUCTS - INCREASED EFFICIENCY!

INSTALLATION METHOD

1. Create spacers by attaching 2" wide strips of rFOIL® Duct Insulation (spacers also sold separately). Spacers should be wrapped around the perimeter at approximately 2' intervals.
2. Wrap rFOIL® insulation around the duct with spacers and pull hand-tight (for an R-6 value). Ensure that the printed Code Certification Strip, taped the entire length of the roll, is facing out. This information must be visible to inspectors.
3. Tape all seams and joints using rFOIL® Metalized Tape, specially formulated to adhere to rFOIL® Duct Insulation.
- Item Code 15113 (3" x 150")
- Use of any tape other than the rFOIL® items above will void the manufacturer's warranty.
4. Properly installed, the spacers will provide a consistent airspace around the duct.
5. Repeat the above steps for the entire length of the ductwork.



SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	2290 Series (Available in Various Dimensions)
rFOIL® TAPES	15113 (Premium Metalized)
rFOIL® DUCT INSULATION SPACERS	2299-02-025 (2" x 25') or 2299-02-050 (2" x 50')

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.



METAL & POST FRAME BUILDING INSULATION

2200 SERIES

rFOIL® Benefits:

- Blocks 96% of Radiant Heat Transfer
- Prevents Interior Condensation
- Class 1 / Class A Fire-Rated (ASTM E84)
- Puncture and Tear-Resistant
- Unaffected by Humidity
- Will not Promote Mold and Mildew
- Safe, Non-Toxic, and Non-Carcinogenic
- Easy to Handle and Install
- Various Tab Options

rFOIL® Applications:

- Pre-Engineered Steel Buildings
- Post Frame / Pole Barns
- Agricultural Buildings
- Residential Metal Roofs
- Mini Storage
- Livestock Confinement



rFOIL® reflective Insulation is a layer of polyethylene bubbles bonded to and sandwiched between two radiant barrier metalized film surface sheets.

rFOIL® is specially designed to reduce radiant heat gain/loss in all residential and commercial applications. rFOIL® also helps control condensation by providing an airtight thermal break while reducing the amount of heat transfer.

Adding rFOIL® Reflective Bubble Insulation to your construction project improves the insulation value of the building envelope and significantly increases it's energy efficiency.





METAL & POST FRAME BUILDING INSULATION

(2200 Series)

Reflective Metalized Surface Facing

- Reduces radiant heat gain and loss
- Blocks 96% of radiant heat transfer
- Saves energy use
- Lowers heating / cooling costs
- Improves interior comfort

Multi-Layer Bubble Core

- Provides continuous thermal break
- Lowers risk of interior surface condensation
- Durable and long-lasting
- Superior puncture, tensile, and tear strength
- Will not absorb water or vapor
- Does not harbor moisture or mold
- Clean, safe, no-itch material

Practical Tab/Edge Options

- Various options for all metal building applications
- Simplifies installations
- Improves vapor-sealing efforts

Quick Seam (Adhesive Tape on Tab)

- Saves time and labor
- Ensures a continuous vapor and condensation barrier
- Simplifies and speeds installation

PRODUCT SIZES

- Width: 12", 16", 18", 24", 48" and 72"
- Length: 102' and 125'

PRODUCT OPTIONS

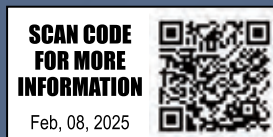
- Single or Double Bubble
- Square Edge, Tab 1 Side, Tab 2 Sides, Quick Seam Adhesive Strip

PRODUCT SPECIFICATIONS



PHYSICAL PROPERTIES	TEST	2220 SERIES (Double)	2210 SERIES (Single)
NOMINAL THICKNESS	—	5/16"	3/16"
FIRE RATING	ASTM E84-08 / ASTM E2599-08	CLASS 1 / CLASS A	
	ASTM E84-08	FLAME SPREAD=0	FLAME SPREAD=0
		SMOKE DEVELOP=20	SMOKE DEVELOP=20
FIRE RATING - FULL ROOM BURN	NFPA 286	PASSES	
EMISSIVITY	ASTM C1371-04A	0.04	
REFLECTIVITY	ASTM E903	0.96	
WATER VAPOR PERMEABILITY	ASTM E96	0.02 Perms	0.04 Perms
RESISTANCE TO FUNGI and	ASTM C1149	DOES NOT PROMOTE GROWTH	
PLIABILITY	ASTM C1224-03	NO CRACKING	
BLEEDING and DELAMINATION	ASTM C1224-03	NO BLEEDING or DELAMINATION	
CORROSIVENESS	ASTM D3310-00	PASSES	

Warranty, Specific Applications, and Installation Guides can be found at www.rfoil.com



INSTALLATION SHEET

WALL: R-14.4 for 2"x4" or R-21 for 2"x6" Framing
(In-Between Joist Over Existing Insulation in a 2"x4" or 2"x6" Stud Wall)

- HELPS TO REDUCE BASEMENT DAMPNES, AND INCREASES COMFORT
- REDUCES HEAT LOSS TO THE SURROUNDING ENVIRONMENT
- EXCELLENT VAPOR AND RADON BARRIER
- UNAFFECTED BY MOISTURE AND HUMIDITY
- QUICK AND EASY TO INSTALL - ADDS R-VALUE

INSTALLATION METHOD

1. Install R-13 batt insulation (for 2"x4" framing) or R-19 Batt insulation (for 2"x6" framing) unfaced (as per manufacturer's specifications).
2. Place the first corner edge of the rFOIL® insulation in an upper corner of the stud cavity. Staple the product to the side of the stud (creating a 3/4" tab on the product and compressing it into the fiberglass). The edge of the product should be flush with the forward corner of the stud.
2. Staple the rFOIL® insulation along the staple tabs and affix to the studs. Repeat on opposite stud.
3. Seal all edges with rFOIL® tape to ensure a continuous insulation and vapor barrier.
4. Install drywall as per the usual method. The recessed insulation material will create the necessary airspace require for reflective insulation.



SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	2222 Series
rFOIL® TAPES	15072 or 15073 (Metalized)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.

RADIANT HEATING BETWEEN JOISTS: R-13

(In-Between Floor Joists with Drywall Installed to the Underside)

- EFFECTIVELY DIRECTS HEAT BACK INTO THE LIVING SPACE
- QUICK AND EASY TO INSTALL, AND ADDS R-VALUE
- INCREASES EFFICIENCY OF RADIANT HEATING SYSTEMS
- CAN BLOCK UP TO 96% OF RADIANT HEAT

INSTALLATION METHOD

1. Using 16" wide reflective insulation with staple tabs, insert the material between joists, 2"-4" below heating coils.
2. Using regular staples, affix the insulation by stapling the tabs into the sides of the joists.
3. Using rFOIL™ reflective tape, seal all seams created by the wood butting up against the insulation.
4. Install drywall to the underside of the joists, creating two reflective air spaces.



SUGGESTED PRODUCTS FOR THIS APPLICATION:

rFOIL™ INSULATION PRODUCT	2220 and/or 2222 Series (Available in Various Dimensions)
rFOIL™ TAPE	15013 or 15012 (Reflective)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL™ Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL™ Reflective Insulation products and rFOIL™ makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL™ Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL™ Reflective Insulation products near and around electrical wiring and devices.

RADIANT HEATING UNDER JOISTS: R-21

(Both Under and In-Between Floor Joists)

- EFFECTIVELY DIRECTS HEAT BACK INTO THE LIVING SPACE
- QUICK AND EASY TO INSTALL, AND ADDS R-VALUE
- INCREASES EFFICIENCY OF RADIANT HEATING SYSTEMS
- CAN BLOCK UP TO 96% OF RADIANT HEAT

INSTALLATION METHOD

1. Using 16" wide reflective insulation with staple tabs, insert the material between joists, 2"-4" below heating coils.
2. Using regular staples, affix the insulation by stapling the tabs into the sides of the joists.
3. Using rFOIL™ reflective tape, seal all seams created by the wood butting up against the insulation.
4. Unroll and staple 48" wide reflective insulation to the bottom of floor joists.
5. Tape all joints and seal around the perimeter with rFOIL™ reflective tape.



SUGGESTED PRODUCTS FOR THIS APPLICATION:

rFOIL™ INSULATION PRODUCT	2220 and/or 2222 Series (Available in Various Dimensions)
rFOIL™ TAPE	15013 or 15012 (Reflective)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL™ Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL™ Reflective Insulation products and rFOIL™ makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL™ Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL™ Reflective Insulation products near and around electrical wiring and devices.

- HELPS TO REDUCE BASEMENT DAMPNESS, AND INCREASES COMFORT
- REDUCES HEAT LOSS TO THE SURROUNDING ENVIRONMENT
- EXCELLENT VAPOR AND RADON BARRIER
- UNAFFECTED BY MOISTURE AND HUMIDITY
- QUICK AND EASY TO INSTALL - ADDS R-VALUE

INSTALLATION METHOD

1. Install R-13 batt insulation (for 2"x4" framing) or R-19 Batt insulation (for 2"x6" framing) unfaced (as per manufacturer's specifications).
2. Place the first corner edge of the rFOIL® insulation in an upper corner of the stud cavity. Staple the product to the side of the stud (creating a 3/4" tab on the product and compressing it into the fiberglass). The edge of the product should be flush with the forward corner of the stud.
2. Staple the rFOIL® insulation along the staple tabs and affix to the studs. Repeat on opposite stud.
3. Seal all edges with rFOIL® tape to ensure a continuous insulation and vapor barrier.
4. Install drywall as per the usual method. The recessed insulation material will create the necessary airspace require for reflective insulation.



SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	2222 Series
rFOIL® TAPES	15072 or 15073 (Metalized)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.



ULTRA CBF Concrete Barrier Foil

1620 SERIES

rFOIL® Benefits:

- Reduces Radiant Heat Loss Making Floors Warmer and more Comfortable
- Multi-Layer Vapor and Radon Barrier (14.2 mil)
- Cost-Effective Alternative to Rigid Foam Insulation
- Improves Efficiency of In-Floor Radiant Heating Systems
- Saves Energy Usage and Utility Costs
- Easy to Form around Obstructions and Conforms Easily to Uneven Grades
- Installs Easily Over any Grade
- Withstands Job Site Traffic

rFOIL® Applications:

- Insulating Under Concrete Slabs
- In-Floor Radiant Heating
- Beneath Concrete Over-Pours
- Edge-Slabs and Expansion Joints
- Outside Foundation Walls
- Snow Melt Systems
- Under Carpet



Ultra CBF is an outstanding reflective insulation and puncture-resistant vapor barrier. Ultra CBF is composed of a single layer of highly reflective metalized film surface, laminated between two layers of ultra-strong polyethylene bubble (up to 140 psi).

Ultra CBF is the ultimate under-slab insulation. It provides exceptional thermal value and a strong, permanent vapor and radon barrier. Ultra CBF typically costs less than 2" rigid PE board insulation. Ultra CBF is easier to handle, cut, and install than rigid foam insulation, yet has nearly six times the compression strength.





ULTRA CBF

Concrete Barrier Foil

(1620 Series)

Reflective Metalized Film Sheet Inner Layer

- Reduces Radiant Heat Loss
- Redirects Radiant Heat Energy Back to Living Area
- Saves Energy Usage and Lowers Heating Costs
- Extends Life of Heating System
- Faster Reaction Time for Radiant Floor Heating

Multi-Layer Vapor and Radon Barrier (14.2 mil)

- Provides Continuous Thermal Break below the Slab
- Keeps underground moisture away from slab
- Durable and Long-Lasting Polyethylene
- Superior Puncture Resistance and Tear Strength
- Outstanding Vapor and Radon Barrier
- Can also Insulate the Edge-Slab and Outside of Foundation

Lightweight, Flexible Materials

- Just Unroll, Overlap, and Tape the Seams
- Easy to Cut and Configure around Obstructions
- Ideal for Edge-Slab Insulation and Expansion Joint (Easily Folds Upward at Perimeter Footing)

MORE BENEFITS

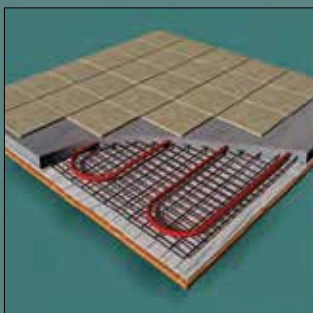
- Strongly Bonded to Resist Delamination
- Will not deteriorate over time
- Sealed Seams Provide a Consistent Insulation
- Metalized Radiant Barrier Permanently Protected from Corrosive Ground Elements, such as Lime and Soil Alkaline

PRODUCT SIZES

48" x 125'

16" x 125'

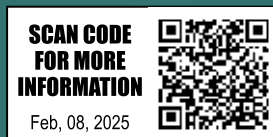
Available in Square Edge



PRODUCT SPECIFICATIONS

PHYSICAL PROPERTIES	TEST	VALUE
NOMINAL THICKNESS	—	5/16"
WEIGHT	—	1.16 OZ / SQ. FT.
TEMPERATURE RANGE	ASTM C411	-50°F to 180°F
EMISSIVITY	ASTM C1371-04A	43%
REFLECTIVITY	ASTM E903	57%
COMPRESSION STRENGTH	ASTM D751	140 PSI
TENSILE STRENGTH	CAN/CGSB - 51.33-M89	21.13 lbs / sq. in.
DEFLECTION	ASTM 1621	<10% under 0.5 PSI
PUNCTURE RESISTANCE	—	85 lbs / sq. in.
WATER VAPOR PERMEABILITY	ASTM E96	0.02 Perms
RESISTANCE TO FUNGI and BACTERIA	ASTM C1149	DOES NOT PROMOTE GROWTH
LINEAR SHRINKAGE	—	NONE
FLEXIBILITY	CAN/CGSB - 51.33-M89	NO CRACKING

Warranty, Specific Applications, and Installation Guides can be found at www.rfoil.com

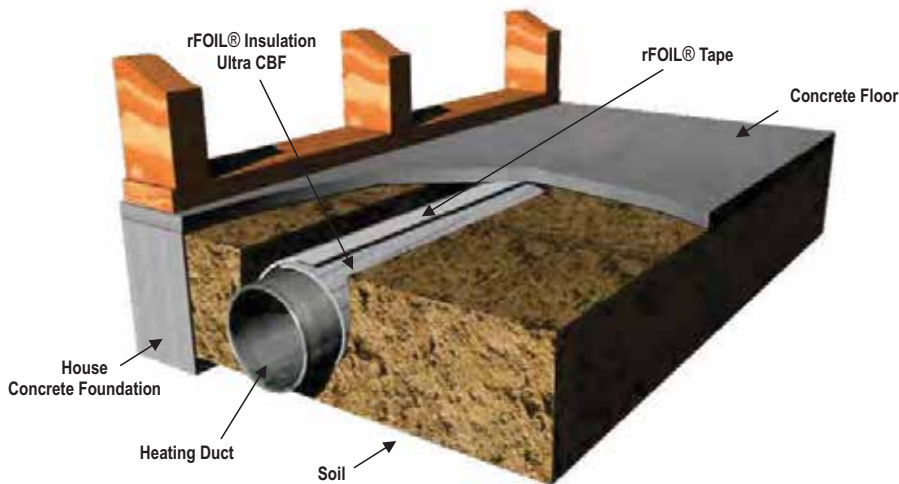


www.willowsra.com

- UNAFFECTED BY MOISTURE AND HUMIDITY
- QUICK AND EASY TO INSTALL, AND ADDS R-VALUE
- REDUCES HEAT LOSS, AND HEAT GAIN ALL YEAR ROUND
- CAN BLOCK SIGNIFICANT AMOUNTS OF RADIANT HEAT TRANSFER

INSTALLATION METHOD

1. Unroll rFOIL® Ultra CBF and position it at the bottom of the duct cavity or trench.
2. Lay duct work directly on to insulation material.
3. Wrap insulation around the duct until it is fully enclosed. Seal the joint with 3" rFOIL® white poly tape.
4. Fill the duct trench with soil, or install floor decking as usual.



SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	1620 Series (Available in Various Dimensions)
rFOIL® TAPES	15853 or 15582 (White Poly)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.



CONCRETE UNDERPAD

4320 SERIES



rFOIL® Benefits:

- Reduces Radiant Heat Loss through Floors
- High-Strength, Multi-Layer, Vapor and Radon Barrier
- Cost-Effective Alternative to Rigid Foam Insulation
- Improves Efficiency of In-Floor Radiant Heating Systems
- Reduces Slab Reaction Time at System Startup
- Saves Energy Usage and Utility Costs
- Easy to Form around Obstructions
- Installs Easily Over any Grade
- Withstands Job Site Traffic

rFOIL® Applications:

- Insulating Under Concrete Slabs
- Beneath Concrete Over-Pours
- Edge-Slabs and Expansion Joints



rFOIL® Standard Concrete Underpad is an outstanding reflective insulation and puncture-resistant vapor barrier. It is composed of a double layer of high-strength polyethylene bubbles sandwiched between a layer of highly reflective metalized film and a clear polyethylene sheet.

rFOIL® Standard Concrete Underpad provides exceptional thermal value and a strong, permanent vapor and radon barrier. It is a cost-effective alternative to rigid foam insulation, and is always installed with the clear side facing upwards.



www.willowsra.com



CONCRETE UNDERPAD

(4320 Series)

Reflective Metalized Film Facing (installed facing down)

- Reduces Radiant Heat Loss
- Redirects Radiant Heat Energy Back to Living Area
- Saves Energy Usage and Lowers Heating Costs
- Extends Life of Heating System
- Faster Reaction Time for Radiant Floor Heating

Clear Polyethylene Facing

- Unaffected by Lime and other Corrosive Chemicals often Found in Concrete.

Multi-Layer Bubble Core (8.4 mil)

- Provides Continuous Thermal Break below the Slab
- Keeps underground moisture away from slab
- Durable and Long-Lasting Polyethylene
- Strong Puncture Resistance and Tear Strength
- Outstanding Vapor and Radon Barrier
- Can also Insulate the Edge-Slab and Outside of Foundation

Lightweight, Flexible Materials

- Just Unroll, Overlap, and Tape the Seams
- Easy to Cut and Configure around Obstructions
- Ideal for Edge-Slab Insulation and Expansion Joint (Easily Folds Upward at Perimeter Footing)

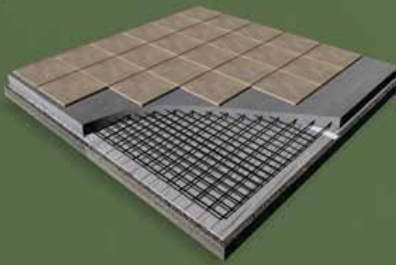
MORE BENEFITS

- Warmer, More Comfortable Floors
- Conforms Easily to Uneven Grades
- Strongly Bonded to Resist Delamination
- Sealed Seams Provide a Consistent Insulation

PRODUCT SIZES

48" x 125' 72" x 125' 96" x 125'

Available in Square Edge



PRODUCT SPECIFICATIONS

PHYSICAL PROPERTIES	TEST	VALUE
NOMINAL THICKNESS	—	5/16"
EMISSIVITY	ASTM C1371-04A	0.04
REFLECTIVITY	ASTM E903	0.96
WATER VAPOR PERMEABILITY	ASTM E96	0.42 Perms
RESISTANCE TO FUNGI and BACTERIA	ASTM C1149	DOES NOT PROMOTE GROWTH
PLIABILITY	ASTM C1224-03	NO CRACKING
BLEEDING and DELAMINATION	ASTM C1224-03	NO BLEEDING or DELAMINATION
CORROSIVENESS	ASTM D3310-00	PASSES
COMPRESSION	—	70 PSI

Warranty, Specific Applications, and Installation Guides can be found at www.rfoil.com



REFLECTIVE
PRODUCTS

Division of Balcan Innovations Inc

SCAN CODE
FOR MORE
INFORMATION



Feb, 08, 2025

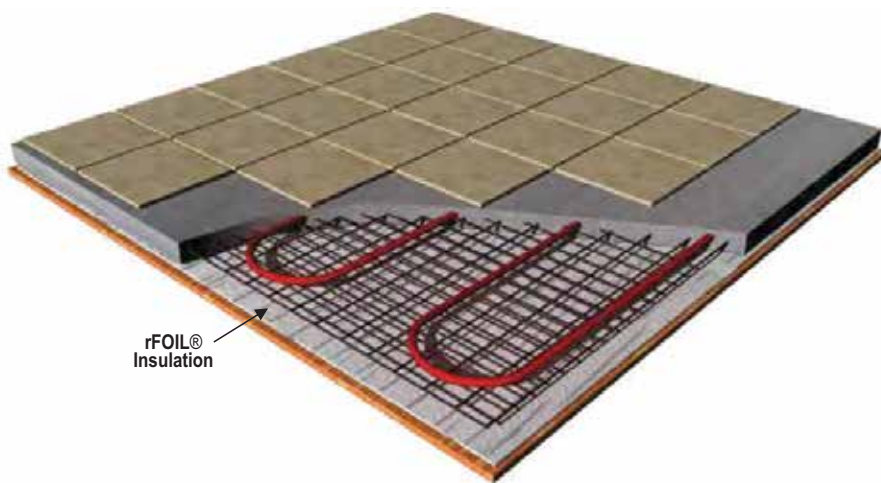


www.willowsra.com

- DIRECTS HEAT UP - TOWARDS THE LIVING SPACE
- INCREASES EFFICIENCY OF RADIANT HEATING SYSTEMS
- EXCELLENT VAPOR AND RADON BARRIER
- QUICK AND EASY TO INSTALL - REDUCES LABOUR COSTS

INSTALLATION METHOD

1. Unroll rFOIL® insulation onto floor (clear poly side up, if applicable).
2. Butt the seams and seal all joints with rFOIL® white poly tape.
3. Install radiant heating system as per manufacturer's instructions.
4. Proceed with concrete pour as usual - ensuring a thickness of at least 3".



SUGGESTED PRODUCTS FOR THIS APPLICATION

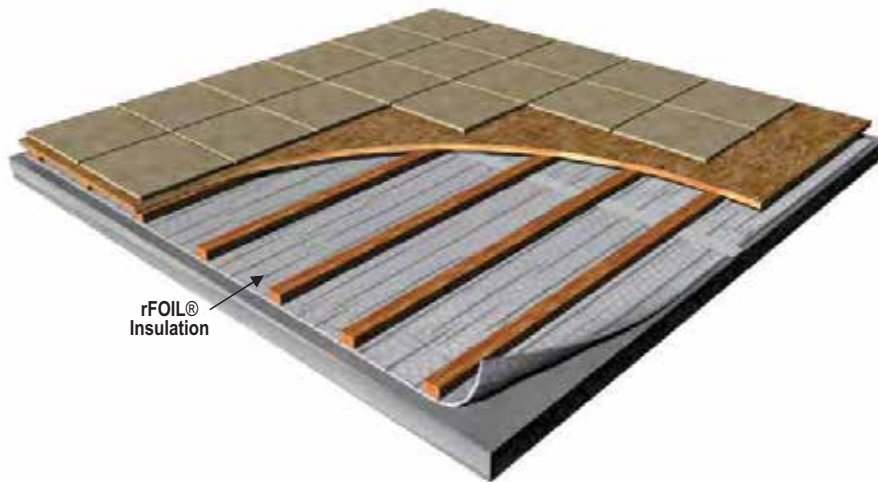
rFOIL® INSULATION PRODUCT	1620 or 4320 Series (Available in Various Dimensions)
rFOIL® TAPES	15853 or 15582 (White Poly)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.

- HELPS TO REDUCE BASEMENT DAMPNES AND COLD FLOORS
- REDUCES HEAT LOSS TO THE GROUND BELOW
- EXCELLENT VAPOR AND RADON BARRIER
- QUICK AND EASY TO INSTALL - INCREASES COMFORT LEVEL

INSTALLATION METHOD

1. Unroll rFOIL® insulation onto floor (clear poly side up, if applicable).
2. Butt the seams and seal all joints with rFOIL® reflective tape.
3. Install wood strapping at regular intervals to provide necessary airspace.
4. Lay down plywood sub-floor as per usual method.



SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	1620 or 4320 Series (Available in Various Dimensions)
rFOIL® TAPES	15853 or 15582 (White Poly)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.



NT RADIANT BARRIER

4800 SERIES

rFOIL® Benefits:

- Blocks 96% of Radiant Heat Transfer
- Lowers Summer Attic Temperatures
- Helps Attics Retain Heat in Winter
- Class 1 / Class A Fire Rating
- Easy to Unroll, Cut, and Install
- Safe, Clean, Non-Toxic, No Itch
- Enhances Performance of Installed Fiber Insulation
- Perforated for Breathability
- Reduces Heating and Cooling Costs
- Lowers Energy Usage and Utility Bills

rFOIL® Applications:

- Attics
 - Warm Climates: Near Roof*
 - Cold Climates: Atop mass floor insulation*
- Over drop-ceiling tiles
- Roof Decking Attachment (facing attic)



rFOIL® NT (No-Tear) Radiant Barrier is available in a solid or perforated sheet composed of a single layer of woven polyethylene, bonded to and sandwiched between two highly reflective radiant barrier metalized film surfaces.

rFOIL® NT (No-Tear) Radiant Barrier will dramatically reduce summer attic temperatures, making it easier and less expensive to cool your home and reduce the workload on heating and cooling equipment.

rFOIL® also helps reduce winter heating costs by helping existing fiber insulation hold heat and lower energy usage.



www.willowsra.com



NT RADIANT BARRIER

(4800 Series)

Inner Layer of Woven Polyethylene

- Outstanding tear strength and puncture resistance
- Allows for a permanent bond to the metalized film layers
- Allows firm hold when stapled

Reflective Radiant Barrier Facings

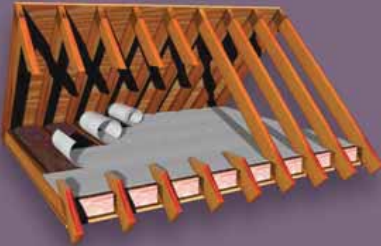
- Reduces radiant heat gain and loss
- Redirects radiant heat energy back to living area
- Saves energy usage and lowers heating costs
- Extends life of heating and cooling systems
- Helps lower attic temperatures by up to 40°F
- Improves effectiveness of fiber/mass insulations
- Helps attic floor insulation retain heat

Lightweight, Flexible Materials

- Easy to unroll, cut to fit, and install
- Lightweight - 500 square feet weighs only 15 lbs.
- Easily cut to fit around obstructions

PRODUCT SIZES

48" x 125' and 48" x 250'



PRODUCT SPECIFICATIONS

Physical Properties	Test	4800P Perforated	4800S Solid
FIRE RATING	ASTM E84-09	CLASS 1 / CLASS A	
EMISSIONITY	ASTM C1371-04A	0.04	0.04
REFLECTIVITY		0.96	0.96
WATER VAPOR TRANSMISSION	ASTM E96-05	8.53 Perms	0.027 Perms
CORROSIVENESS	ASTM D3310-00	PASSES	PASSES
BLEEDING and DELAMINATION	ASTM C1313-05	NO BLEEDING or DELAMINATION	
PLIABILITY	ASTM C1313-05	NO CRACKING	
GROWTH OF FUNGI	ASTM C1338-08	DOES NOT PROMOTE GROWTH	
TENSILE STRENGTH	ASTM D2261	LENGTH: 27.34 lbs	
		WIDTH: 16.31 lbs	

TESTING

The photos on the right show two hot boxes; one insulated with fiberglass only and the other with fiberglass and an added rFOIL® Radiant Barrier layer. As you can see, the RIGHT box is 61.7° hotter than the LEFT box.

The rFOIL® Radiant Barrier is reflecting a tremendous amount of the radiant heat outward which keeps the home cooler during the summer.

In the winter months, the rFOIL® Radiant Barrier will work just as well to reduce heat loss. It works by reflecting heat back into the home for the HVAC system to re-circulate (heat that would have otherwise escaped through the fiberglass insulation).



LEFT Heat Test Box



RIGHT Heat Test Box

Warranty, Specific Applications, and Installation Guides can be found at www.rfoil.com



REFLECTIVE PRODUCTS

Division of Balcan Innovations Inc

SCAN CODE FOR MORE INFORMATION

March 2025





ULTRA NT RADIANT BARRIER for SCIFs

1800 SERIES



rFOIL® Benefits:

- Minimum Shielding Effectiveness (100MHz – 10GHz): 85 dB (Solid) & 67 dB (Perforated)
- Wider Frequency Test Results Available
- Highly reflective radiant barrier surface
- Reflects 97% of Radiant Heat
- Performance unaffected by moisture
- Reduces heating & cooling energy consumption
- Easy to unroll and install

rFOIL® Applications:

- Ideal for Sensitive Compartmented Information Facilities (SCIFs)
- Secured Government and High Security Facilities
- Superior shielding security for data centers and server farms



rFOIL® Ultra NT Radiant Barrier is a heavy duty radiant barrier sheet made up of a single layer of woven polyethylene material bonded to and sandwiched between two highly reflective aluminum surfaces.

rFOIL® Ultra NT Radiant Barrier is designed to be used in Sensitive Compartmented Information Facilities (SCIFs) as designated in Department of State & Intelligence Community Directives. rFOIL® Ultra NT Radiant Barrier is the widely approved, CTTA recognized, countermeasure used by the US Government for security sensitive and/or classified infrastructure.



www.willowsra.com



ULTRA NT RADIANT BARRIER for SCIFs

(1800 Series)

Inner Layer of Woven Polyethylene

- Outstanding tear strength and puncture resistance
- Allows for a permanent bond of foil layers
- Allows firm hold when stapled

The ICS TEMPEST Countermeasure

- Meets ICD 705 technical requirements
- CTTA recommended and proven TEMPEST countermeasure
- Meets all architectural shielding guidelines best practices for SCIFs
- Fully compliant with Buy American Act. Supporting US National Security for over 25 years

Lightweight, Flexible Materials

- Easy to unroll, cut to fit and install
- Lightweight - 500 square feet weighs approximately 20 lbs.
- Easily cut to fit around obstructions

PRODUCT SIZE

48" x 125' or 48" x 250'
(Solid & Perforated Aluminum Surface)



SHIELDING EFFECTIVENESS TEST

Test Standard:
IEEE-299 / ASTM D4935

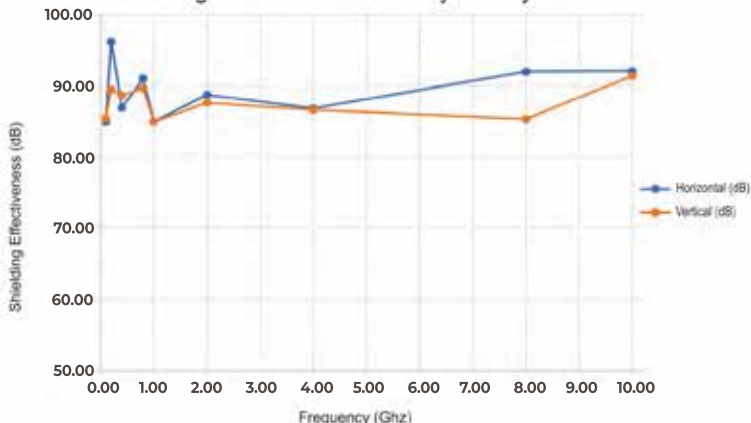
Test results for
Ultra NT Radiant Barrier
1800-Series
(SOLID product)

The architectural specifications for any particular job shall override the information presented on this Technical Data Sheet with regards to the appropriate products to use and the appropriate installation method to use for that particular job.

PRODUCT SPECIFICATIONS

PHYSICAL PROPERTIES	TEST	1800 (Solid)	1800 (Perforated)
EMISSION	ASTM C1371-04A		0.03
REFLECTIVITY	—		0.97
CORROSIVENESS	ASTM D3310-00		PASSES
FIRE RATING	ASTM E84-10		CLASS 1 / CLASS A
	ASTM E84-10		FLAME SPREAD=0 / SMOKE DEVELOPED=20
BLEEDING and DELAMINATION	ASTM C1224-03		NO BLEEDING or DELAMINATION
PLIABILITY	ASTM C1224-03		NO CRACKING
WATER VAPOR PERMEABILITY	ASTM E96-05	0.01 Perms	2.69 Perms
RESISTANCE TO FUNGI	ASTM C1338-08		PASSES
THICKNESS	—		11.5 mil
TENSILE STRENGTH	ASTM D2261		LENGTH: 14.93 lbs
TEAR RESISTANCE			WIDTH: 15.13 lbs
SHIELDING EFFECTIVENESS	IEEE-299-2006	Min (100Mhz-10Ghz): 85 dB	Min (100Mhz-10Ghz): 67 dB

Shielding Effectiveness Summary Polarity Results



Warranty, Applications and Technical Data Sheets can be found at www.rfoil.com



REFLECTIVE
PRODUCTS

Division of Balcan Innovations Inc

SCAN CODE
FOR MORE
INFORMATION

September 02, 2025





INSTALLATION SHEET

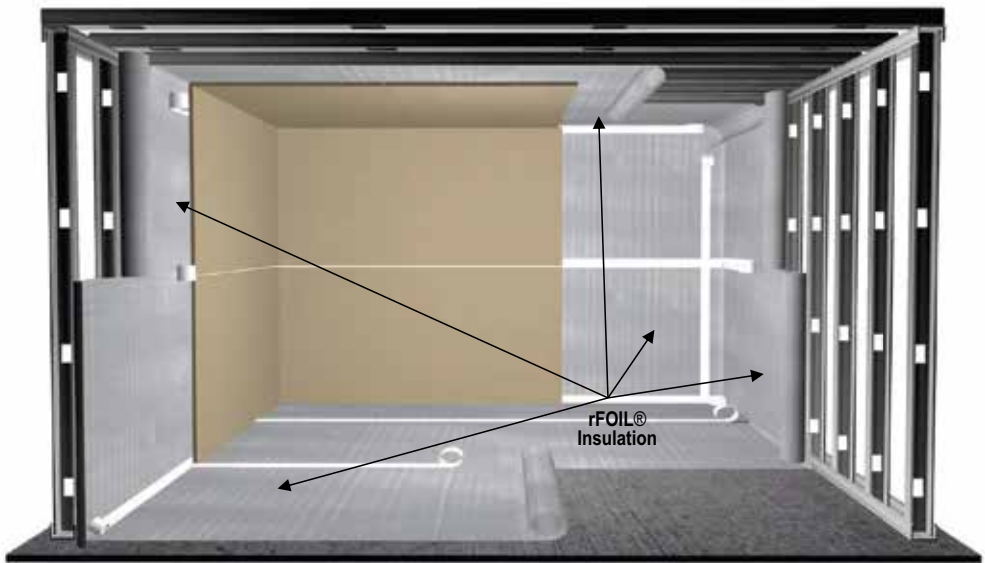
ULTRA NT RADIANT BARRIER for SCIFs
1800 Series



- GREATLY INCREASES RF ATTENUATION FOR SCIFs
- MEETS ALL REQUIREMENTS OF THE ARCHITECTURAL GUIDELINES BEST PRACTICES FOR SCIFs
- REFLECTS 97% OF RADIANT HEAT
- PERFORMANCE UNAFFECTED BY MOISTURE
- LOWERS ENERGY USAGE

Page 1 of 2

* The following installation guidelines are for informational purposes only and are not intended to supersede any architectural specifications. The architectural specifications for each individual project shall supersede the information presented on this installation sheet with regards to the appropriate products to use and the appropriate installation method to use for that particular project.



SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	1800 Ultra NT Series (Solid and Perforated)
rFOIL® TAPES	11702/3, 70502/3/4/6 (Conductive Adhesive) and 15512/3 (Non-conductive Adhesive)

- Check architectural specification for proper installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific construction applications. They are not intended to illustrate proper construction methods (which is determined by the SCIF engineer/designer and accrediting official). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- This rFOIL® Reflective Insulation product is not intended for use in exterior applications.
- Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.





INSTALLATION SHEET

ULTRA NT RADIANT BARRIER for SCIFs
1800 Series



Page 2 of 2

1) Measure all walls, ceilings and floors for the area(s) that require RF transmission shielding. Cut the Ultra NT Radiant Barrier to the appropriate lengths, allowing for the additional length necessary to accommodate the overlap as specified.

2) Attachment methods vary depending on framing type and project requirements. rFOIL Ultra NT products may be attached to wood, metal, concrete, or drywall in the manner defined by the architectural specification. This may include, but not limited to, staples, fasteners, adhesives, and/or tape as directed by the architectural specification in compliance with accredit requirements.

Please Note: It is imperative that no adhesive be applied between the overlapping layer of rFOIL Ultra NT Radiant Barrier for SCIFs to assure intimate contact.

3) At all joints, overlap or properly fold Ultra NT as directed, using the recommended foil tape as defined by the architectural specifications. The approved tapes for a particular project are determined by the engineer, SCIF designer, and/or SSO in accordance with the project's directives and standards.



- 4) · Grounding can usually be achieved with 10 ohm grounding connections no more than every 20' along the shielded perimeter.
- Grounding should connect to a ground bar located within the SCIF **or** with an isolated ground.
- Bonding to building steel that is in turn grounded to a point within the SCIF perimeter *may* also be acceptable.
- Additional grounding guidance is often necessary and project specific. Consult the CTTA if additional guidance is required.

SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	1800 Ultra NT Series (Solid and Perforated)
rFOIL® TAPES	11702/3, 70502/3/4/6 (Conductive Adhesive) and 15512/3 (Non-conductive Adhesive)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific construction applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.





METAL & POST FRAME BUILDING INSULATION

2500 SERIES

**R-6.0
WALLS**



**R-10
CEILINGS**



rFOIL® Benefits:

- Blocks 96% of Radiant Heat Transfer
- Prevents Interior Condensation
- Class 1 / Class A Fire-Rated (ASTM E84)
- Puncture and Tear-Resistant
- Unaffected by Humidity
- Will not Promote Mold and Mildew
- Safe, Non-Toxic, and Non-Carcinogenic
- Easy to Handle and Install
- Various Tab Options
- UV-Resistant

rFOIL® Applications:

- Pre-Engineered Steel Buildings
- Post Frame / Pole Barns
- Agricultural Buildings
- Residential Metal Roofs
- Mini Storage
- Livestock Confinement



rFOIL® reflective Insulation is a layer of polyethylene bubbles bonded to and sandwiched between a radiant barrier metalized film surface and a white polyethylene sheet.

rFOIL® is specially designed to reduce radiant heat gain/loss in all residential and commercial applications. rFOIL® also helps control condensation by providing an airtight thermal break while reducing the amount of heat transfer.

Adding rFOIL® Reflective Bubble Insulation to your construction project improves the insulation value of the building envelope and significantly increases its energy efficiency.



www.willowsra.com



METAL & POST FRAME BUILDING INSULATION

(2500 Series)

Reflective Metalized Surface Facing

- Reduces radiant heat gain and loss
- Blocks 96% of radiant heat transfer
- Saves energy use
- Lowers heating / cooling costs
- Improves interior comfort

Multi-Layer Bubble Core

- Provides continuous thermal break
- Lowers risk of interior surface condensation
- Durable and long-lasting
- Superior puncture, tensile, and tear strength
- Will not absorb water or vapor
- Does not harbor moisture or mold
- Clean, safe, no-itch material

White Interior Facing Option

- Brightens building interior
- Attractive appearance
- Easy to clean
- UV Protected

Practical Tab/Edge Options

- Various options for all metal building applications
- Simplifies installations
- Improves vapor-sealing efforts

Quick Seam (Adhesive Tape on Tab)

- Saves time and labor
- Ensures a continuous vapor and condensation barrier
- Simplifies and speeds installation

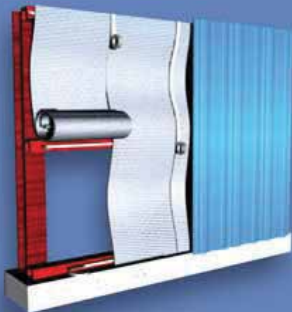
PRODUCT SIZES

- Width: 12", 16", 18", 24", 48" and 72"
- Length: 102' and 125'

PRODUCT OPTIONS

- Single or Double Bubble
- Square Edge, Tab 1 Side, Tab 2 Sides, Quick Seam Adhesive Strip

PRODUCT SPECIFICATIONS



PHYSICAL PROPERTIES	TEST	2520 SERIES (Double)	2510 SERIES (Single)
NOMINAL THICKNESS	—	5/16"	3/16"
FIRE RATING	ASTM E84-08 / ASTM E2599-08	CLASS 1 / CLASS A	
	ASTM E84-08	FLAME SPREAD=0	FLAME SPREAD=0
		SMOKE DEVELOP=15	SMOKE DEVELOP=10
UV TESTING	ASTM G155	90+% RETAINED RETENTION after 4000 hours	
FIRE RATING - FULL ROOM BURN	NFPA 286	PASSES	
EMISSION	ASTM C1371-04A	0.04	
REFLECTIVITY	ASTM E903	0.96	
WATER VAPOR PERMEABILITY	ASTM E96	0.12 Perms	0.01 Perms
RESISTANCE TO FUNGI and BACTERIA	ASTM C1149	DOES NOT PROMOTE GROWTH	
PLIABILITY	ASTM C1224-03	NO CRACKING	
BLEEDING and DELAMINATION	ASTM C1224-03	NO BLEEDING or DELAMINATION	
CORROSIVENESS	ASTM D3310-00	PASSES	

Warranty, Specific Applications, and Installation Guides can be found at www.rfoil.com



REFLECTIVE
PRODUCTS

Division of Salcan Innovations Inc

SCAN CODE
FOR MORE
INFORMATION



Feb, 08, 2025

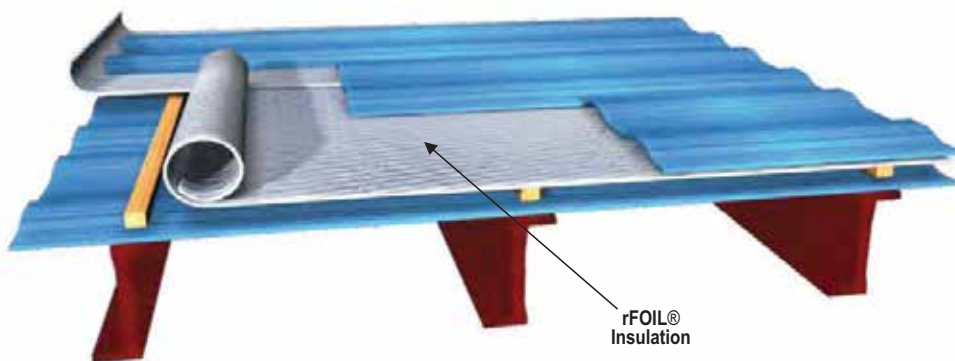


www.willowsra.com

- IDEAL RE-ROOF SOLUTION FOR METAL BUILDING APPLICATIONS
- DRAMATICALLY IMPROVES THERMAL VALUE OF METAL ROOFING SYSTEM
- REDUCES HEAT GAIN AND LOSS THROUGHOUT THE YEAR
- LOWERS THE RISK OF INTERIOR CEILING CONDENSATION

INSTALLATION METHOD

1. For easier installation, measure your roof dimensions and pre-cut the insulation as needed. Pre-cutting the material is easier, safer, and saves time.
2. Attach desired furring material onto the existing metal roof (slats, hat channels, etc).
3. Starting at the gable, unroll the first row of insulation from the ridge to eave, atop the installed furring material.
4. Make sure the reflective side of the insulation faces the open airspace created by the furring.
5. Install the first metal roofing panel over the insulation, and attach to the furring material as needed.
6. Unroll the next row of insulation directly beside the first. Secure the seams with rFOIL® Tape.
7. Continue installing insulation and metal panels until the roofing is complete.



SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	2200, 2500 or 2600 Series (Reflective side MUST face the furring airspace)
rFOIL® TAPES	for reflective side application 15072 or 15073 for poly side application 15852 or 15853

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.

- IDEAL INSULATION FOR METAL FRAME BUILDING APPLICATIONS
- QUICK AND EASY TO INSTALL, AND ADDS R-VALUE
- REDUCES HEAT LOSS AND HEAT GAIN ALL YEAR ROUND
- WILL BLOCK UP TO 96% OF RADIANT HEAT TRANSFER

INSTALLATION METHOD

1. Install 1"x 2" furring strips on the inside and perpendicular to the girts on 24" centers.
2. Unroll the rFOIL® Insulation parallel to the furring strips.
3. Staple the edges of the rFOIL® Insulation to the center of the furring strips. (Staple rFOIL® product at approximately 4" intervals down the center and into the furring strip)
4. Seal seams with rFOIL® reflective tape.

Builder's Notes:

- If a white interior finish is desired, rFOIL® poly reflective insulation may be used. Install as per usual method, however with poly-white side facing interior.
- Use rFOIL® white poly tape to seal all seams and butt joints.
- When rFOIL® insulation comes in direct contact with ACQ lumber, it may discolour. This will not affect the overall insulation value of rFOIL® insulation.



SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	2200, 2500 or 2600 Series (Available in Various Dimensions)
rFOIL® TAPES	for reflective side application 15072 or 15073 for poly side application 15852 or 15853

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL® Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.



ADHESIVE TAPES

15000 & 11000 SERIES

Aluminum Foil



Aluminum with
Conductive
Adhesive



NEW

Poly White



Metalized Foil



rFOIL® Benefits:

- Economical
- Quick and easy to install
- Approved vapor barrier
- Available in a variety of sizes to suit your needs

Recommended For:

- All rFOIL® Insulation products and related applications
- Maintaining a vapor barrier and constant insulator
- New aluminum conductive tape for use on SCIF's and government facilities

Seals:

- Seams
- Gaps
- Tab sections
- Rips
- Tears



rFOIL® Adhesive Tapes are available in four varieties:

Aluminum, Aluminum with a Conductive Adhesive, White Poly and Metalized Foil.

All rFOIL® tapes provide an excellent vapor barrier seal and are specifically designed for use with all rFOIL® Insulation Products.

Acrylic pressure sensitive adhesive combines superior quick-stick at normal temperatures, with excellent low temperature performance below freezing.





Adhesive Tapes

(15000 and 11000 Series)

FEATURES

BENEFITS

Metalized Foil & Aluminum Tapes

- Soft, Metalized Foil / Aluminum Foil
- Pressure Sensitive Acrylic Adhesive

- Conforms to irregular surfaces
- Maintains reflective / radiant barrier
- Adheres well to rFOIL®, sheet metal, and more!
- Effective in hot and cold climates
- Forms strong bond for long life adhesion

White Poly Tape

- Polypropylene Material
- Acrylic Adhesive

- Durable to withstand installation
- Adheres to any polyethylene or related material
- Conforms to foil or poly to give the seamless look
- Will adhere to poly or aluminum faced rFOIL®
- Adheres in all four seasons
- Will seal seams effectively for many years

APPLICATIONS

rFOIL TAPE PRODUCT CODES		rFOIL SURFACE APPLICATIONS	rFOIL INSULATION PRODUCTS TO BE USED WITH
15072 and 15073	Standard Metalized Foil	Used on rFOIL Products with a Metalized Surface	rFOIL (2200, 2500, 2600 and 4800) Series
15113	Premium Metalized Foil	For use on rFOIL Duct Insulation Products	rFOIL (2260, 2280 and 2290) Series
15512 and 15513	Aluminum Foil	Used on rFOIL Products with an Aluminum Surface	rFOIL (1800) Series (for SCIF Applications)
15852 and 15853	White Poly	Used on rFOIL Products with a Poly Surface	rFOIL (1620, 2500, 2600, 4320 and 4700) Series
11702	Aluminum with Conductive Adhesive	Used on rFOIL Products with an Aluminum Surface	rFOIL (1800) Series (for SCIF Applications)

PRODUCT SPECIFICATIONS

Product Code Numbers:	15072 (2" x 180") 15073 (3" x 180") Length may vary between 150'-180'	15113 (3" x 150')	15512 (2" x 150') 15513 (3" x 150')	11702 (2" x 54')	15852 (2" x 150') 15853 (3" x 150')
Physical Properties	STANDARD METALIZED FOIL	PREMIUM METALIZED FOIL	ALUMINUM FOIL	ALUMINUM with a CONDUCTIVE ADHESIVE	WHITE POLY
THICKNESS	3.0 MILS (0.003")	3.2 MILS (0.0032")	2.8 MILS (0.0028")	3.2 MILS (0.0032")	2.0 MILS (0.002")
PEEL ADHESION	30 oz. / in.	60 oz. / in.	46 oz. / in. width	35 oz. / in.	22.0 oz. / in.
BACKING	Polypropylene (BOPP)	Polypropylene (BOPP)	Aluminum Foil	Aluminum Shielding Effectiveness (69db)	White Polypropylene (BOPP)
ELONGATION	130%	130%	4%	5%	—
TENSILE STRENGTH	20 lbs. / in.	20 lbs. / in.	15 lbs. / in.	20 lbs. / in.	20 lbs. / in.
TEMPERATURE RESISTANCE	-40°C to 85°C	-40°C to 85°C	-40°C to 121°C	-40°C to 130°C	-30°C to 120°C
ADHESIVE	Acrylic	Acrylic	Acrylic	Acrylic Conductive	Acrylic
FIRE CLASSIFICATION	UL723	UL723	UL723	UL510	—

All tape specifications and sizes are subject to change without notice

Warranty, Specific Applications, and Installation Guides can be found at www.rfoil.com



REFLECTIVE
PRODUCTS

Division of Balcan Innovations Inc

SCAN CODE
FOR MORE
INFORMATION

Feb, 08, 2025





Willow Springs, SRA

Physical Address:

N7071 US Highway 45
Wittenberg, WI 54499

Mailing Address:

P.O. Box L
Wittenberg, WI 54499

Office: 715-253-3010

Fax: 715-253-2009

www.willowsra.com