



ECOSYSTEM SOLUTIONS

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All **nationwide** branches are focused on getting our products to the end user as quickly as possible. We offer local delivery, messenger service, next day delivery on nearly all orders. Our top priority is getting customers what they need, when they need it.

Illinois Headquarters

386 Internationale Drive, Suite H
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2933 Whipple Road
Union City, CA 94587

Colorado

7003 E. 47th Avenue Drive
Unit A 1400
Denver, CO 80216

Florida

5300 E Adamo Drive, Suite E
Tampa, FL 33619

2516 NW 19th St, Bldg. O
Pompano Beach, FL 33069

Georgia

1856 Corporate Drive, Suite 125
Norcross, GA 30093

Massachusetts

240 Ballardvale Street, Suite D
Wilmington, MA 01887

Minnesota

2015 Silver Bell Road, Suite 190
Eagan, Minnesota 55122

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801 Penhorn Ave., Units 2 & 3
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3845 Shopton Road, Suite 500
Charlotte, NC 28217

Pennsylvania

171 Rittenhouse Circle
Bristol, PA 19007

Tennessee

5217 Linbar Drive, Suite 304
Nashville, TN 37211

Texas

1800 10th Street, Suite 400
Plano, TX 75074

9210 Highway 6 North, Bldg. B
Houston, TX 77095

Utah

1810 W. Redwood Depot Lane
Suite 8
Salt Lake City, UT 84104

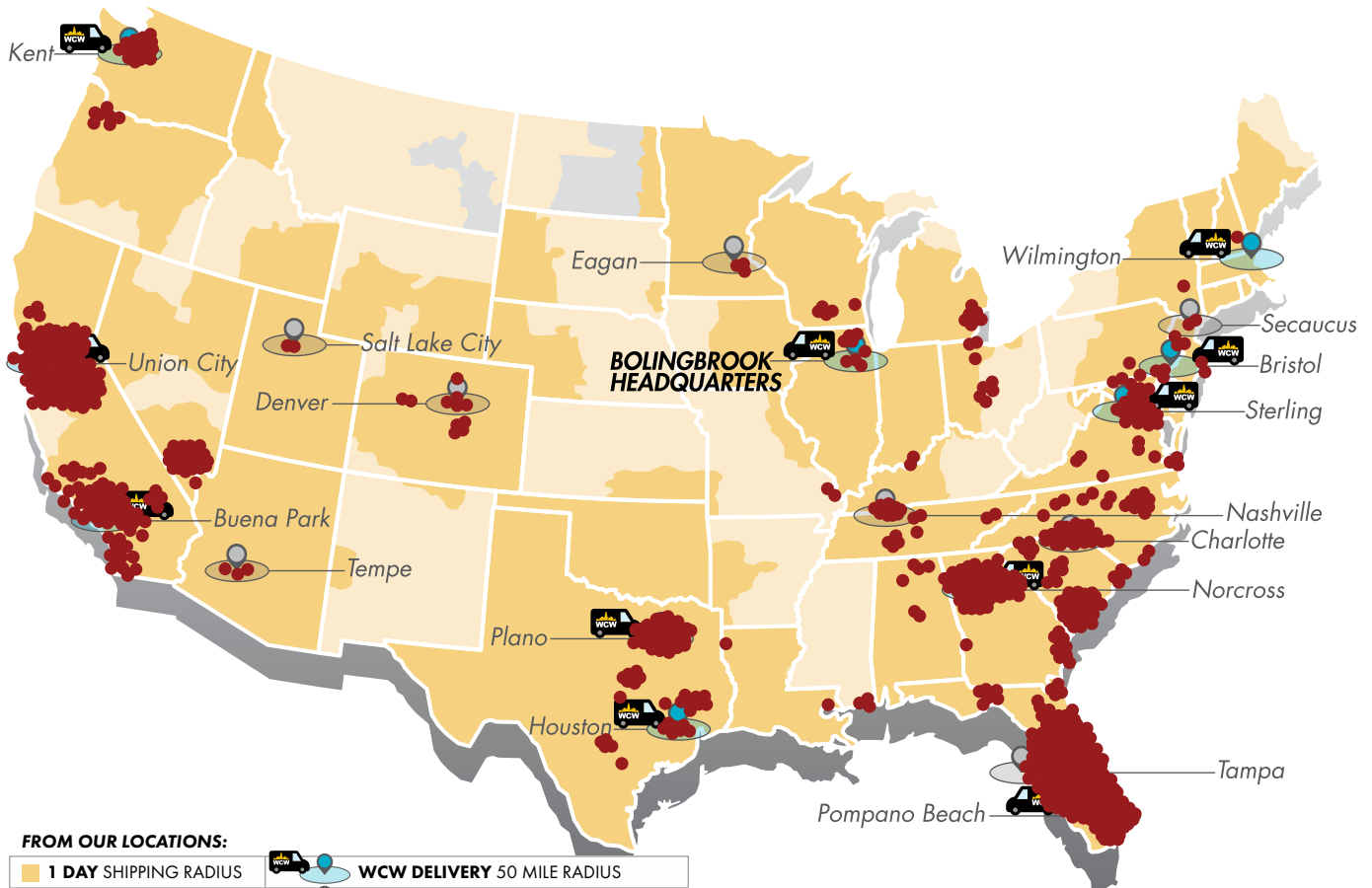
Virginia

45448 E. Severn Way, Suite 110
Sterling, VA 20166

Washington

21246 68th Ave S
Kent, WA 98032

LOCATIONS of **SMARTGUARD DAS** APPROVED and INSTALLED with 2-DAY DELIVERY NATIONWIDE (JULY 2023-JULY 2024)

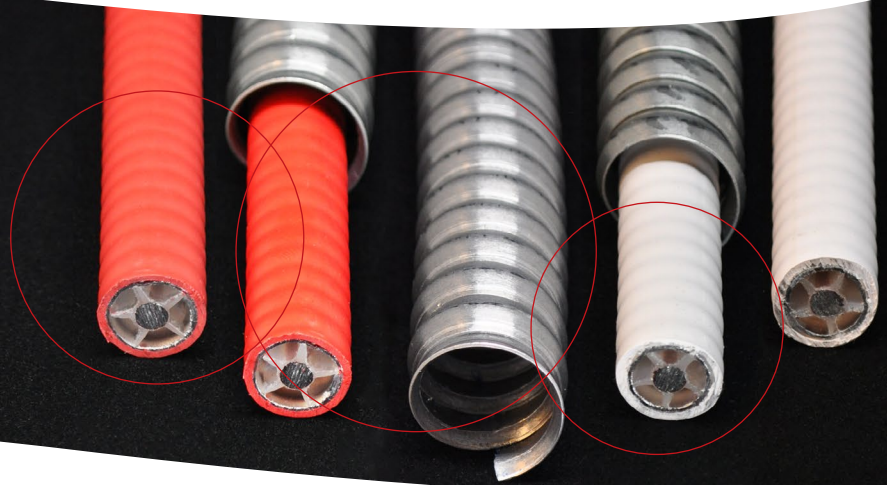


FROM OUR LOCATIONS:

1 DAY SHIPPING RADIUS	WCW DELIVERY 50 MILE RADIUS
2 DAY SHIPPING RADIUS	MESSENGER DELIVERY 50 MILE RADIUS

• LOCATIONS OF **SMARTGUARD DAS** APPROVED & INSTALLED NATIONWIDE

This is the first offering of it's kind in the industry and available **exclusively from Windy City Wire!**



PARTNERS



RFS Technologies is a worldwide leading provider of innovative wireless and broadcast infrastructure products and solutions.



ADRF is the leading Original Equipment Manufacturer (OEM) of in-building wireless solutions that ensure reliable connectivity in venues of any size, shape and location.



Westell Technologies, Inc. is a leading provider of high-performance network infrastructure solutions.



Microlab products, from **RFI Industries** are known worldwide for their superior performance and are considered the gold standard in RF and Microwave distribution systems.



JMA Wireless is an American company accelerating revolutionary changes in mobile connectivity with products that enable faster, more reliable and secure networks for consumers and businesses.



ROHN® has been the world leader in tower design and tower manufacturing for more than six decades.



Galtronics is one of the very few antenna companies in the world with design capabilities in three key markets: DAS and Small Cell, Networking and Mobile.



Comprod is a market leader in designing and manufacturing RF Antennas, Filtering Systems and In-Building Solutions

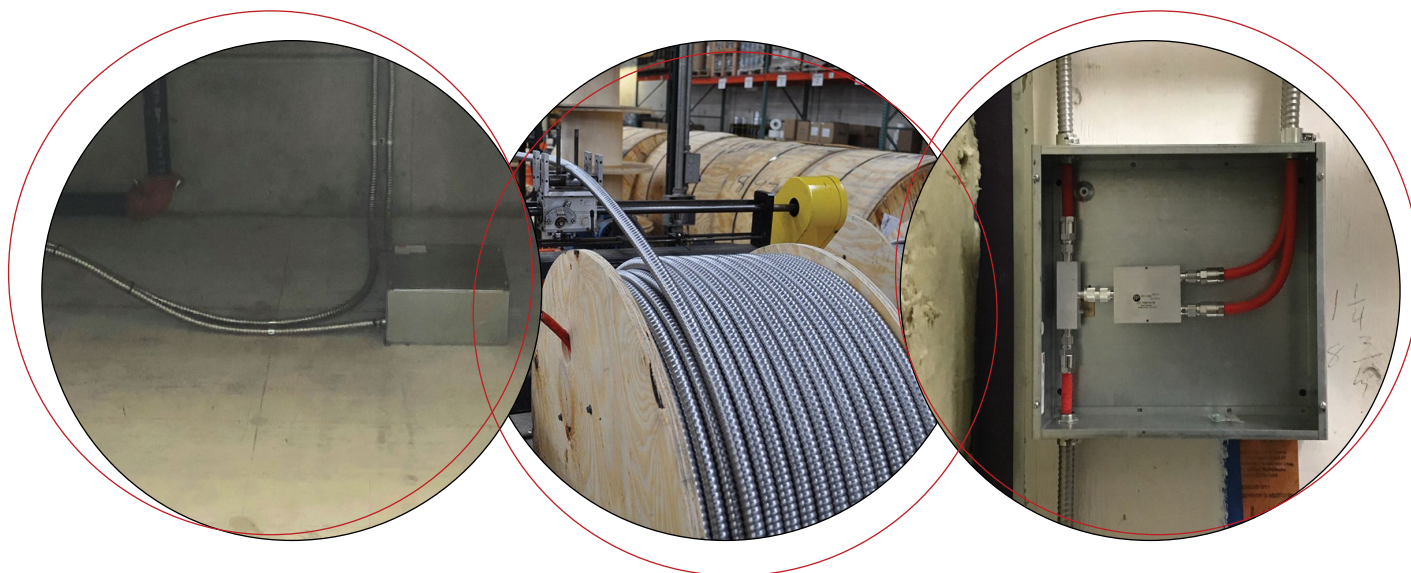
Contact your Windy City Wire Rep today to coordinate training!

THE DESIGN, INSTALLATION AND ACCEPTANCE PROCESS



1	Contact AHJ and Radio Authority	Garther requirement including: frequency list, code base they follow, any additional requirements
2	Site Survey and Baseline Testing	Initial survey of floor plans, equipment locations, impairments
3	Preliminary Design	RF link budgets, initial antenna and cable layouts, initial bill of materials for quote
4	Statement of Work	Project requirements are clearly defined
5	RF Survey	Perform Signal Strength Measurements once structure is closed in
6	Update Design	Revise preliminary design and BOM based on results
7	Pre-Construction Survey	Instaler walk-thru to validate cable routes and equipment locations
8	Final Design	Design is done using iBwave, think AutoCAD for RF systems
9	Order Equipment	Order equipment following AHJ approval
10	Installation	Install cables, antennas and active equipment
11	Commissioning	Verify RF performance; set system gains; test
12	Retransmit Agreement	Apply for retransmit agreement with the radio authority/license holder
13	System Acceptance	Verify RF coverage performance, AHJ inspection and permit sign-off

PART NUMBER	DESCRIPTION	COLOR
PLENUM		
WCW-ICA12-50JPLLR	½" ClearFill® Line Plenum-Rated Air-Dielectric Coaxial Cable (AL)	Red
WCW-ICA12-50JPLLW	½" ClearFill® Line Plenum-Rated Air-Dielectric Coaxial Cable (AL)	White
SMARTGUARD CABLE		
SG-ICA12-50JPLLR	½" ClearFill® Line Plenum-Rated Air-Dielectric Coaxial Cable (AL) Smart GUARD ™	Red
SG-ICA12-50JPLLW	½" ClearFill® Line Plenum-Rated Air-Dielectric Coaxial Cable (AL) Smart GUARD ™	White
GAR-DB75IC	¾" Zinc Plated Steel Saddle Connector with Insulated Throat for Smart GUARD ™	
UNDERGROUND/OUTDOOR CABLE		
WCW-LCF12-50J	½" CELLFLEX® Low-Loss Foam-Dielectric Coaxial Cable (Outdoor)	Black
CONNECTORS /TOOLS		
WCW-43M-LCF12-D01	4.3-10 Male Straight Connector for ½" Coaxial Cable, OMNI FIT™ Premium, Polymer Claw, Compression Sealing	
WCW-NF-LCF12-C02-6	N Female Connector for ½" Coaxial Cable, OMNI FIT™ Standard, Extended Frequency Range	
WCW-NM-LCF12-C02-6	N Male Connector for ½" Coaxial Cable, OMNI FIT™ Standard, Extended Frequency Range	
WCW-TRIM-ICA12-C02	Automated Trimming Tool, ICA & LCF 12 OMNI FIT™ Standard, Trim Series C02	
WCW-NF-LCF12-D01	N Female Connector for ½" Coaxial Cable, OMNI FIT™ Premium, Straight, Polymer Claw, Compression Sealing	
WCW-NM-LCF12-D01	N Male Connector for ½" Coaxial Cable, OMNI FIT™ Premium, Straight, Polymer Claw, Compression Sealing	
WCW-TRIM-LCF12-D01-A	Automated Trimming Tool, LCF 12 OMNI FIT™ Premium, Trim Series D01	



PART NUMBER SG-ICA12-50JPLLR



PAGE 2

ATTENUATION AND POWER RATING

FREQUENCY MHz	Attenuation dB/100m	dB/100ft
0.5	0.16	0.47
1	0.23	0.67
1.5	0.28	0.81
2	0.33	0.95
10	0.74	2.14
20	1.06	3.08
30	1.30	3.70
50	1.68	4.76
88	2.25	6.35
100	2.41	6.73
108	2.51	7.00
150	2.98	8.18
174	3.22	8.94
200	3.46	9.70
300	4.29	11.91
400	5.00	13.80
450	5.32	14.84

Attenuation at 20°C (68°F) cable temperature
Mean power rating at 40°C (104°F) ambient

TESTING AND ENVIRONMENT

Fire Performance

Regulatory Compliance

Installation Temperature

Storage Temperature

Operation Temperature

ADDITIONAL REFERENCES

SmartGUARD is classified as a metal raceway alternative.

Per NFPA 72, 2022 section 12.4.2
Pathway survivability Level 1 shall contain conductors, cables, or physical pathway

Per NFPA 72, 2019, section 12.4.2
Pathway survivability Level 1 shall contain conductors, cables, or other physical pathway

Per NFPA 72, 2016, 12.4.2 Pathway
Pathway survivability Level 1 shall contain interconnecting conductors, cables, or

Per NFPA 72, 2013, 12.4.2 Pathway
Pathway survivability Level 1 shall contain Installation of Sprinkler Systems, with a

Per NFPA 70, 2014, Raceway is defined as a
Raceway. An enclosed channel of metal or

Per NFPA 70, 2014
Section 348.2 Definition. Flexible Metal Raceway



PART NUMBER SG-ICA12-50JPLLR



DESCRIPTION

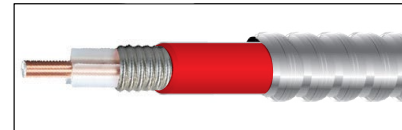
1/2" Aluminum Plenum Rated Low-loss Air Dielectric Coax with SmartGUARD™ Technology.

Acceptable as a metal raceway alternative. (*NFPA 72 section 12.4.2)

Application: Plenum In-Building

FEATURES/BENEFITS

- Supports Multiple RF Signals
- Complete Shielding. The solid outer conductor of the ClearFill® Line coaxial cable creates a continuous RFI/EMI shield that minimizes system interference.
- Outstanding Inter modulation Performance. RFS coaxial cable's solid inner and outer conductors virtually eliminate inter mods. Inter modulation performance is also confirmed with state-of-the-art equipment at the RFS factory.
- Wide Range of Applications. Typical areas of application are feed lines for plenum-space installations within occupied buildings or structures but also suitable for outdoor use due to UV rating.



TECHNICAL FEATURES

APPLICATIONS

Application	Suitable for plenum in-building/public safety or outdoor usage
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STRUCTURE

Cable Type	Air-Dielectric, Corrugated	
Size	1/2"	
Inner Conductor	mm (in)	4.8 (0.19) Copper-Clad Aluminum Wire
Dielectric	mm (in)	11.8 (0.464) Extruded Polyethylene
Outer Conductor	mm (in)	13.8 (0.54) Corrugated Aluminum
Jacket	mm (in)	15.93 (0.627) Plenum Rated/Color: Red/UV rated to ASTM G155
SmartGUARD Armor O.D.	in	945 in. ± 0.020 in

ELECTRICAL SPECIFICATIONS

Impedance	Ω	50 +/- 1
Maximum Frequency	GHz	6.0
Velocity	%	91.0
Capacitance	pF/m (pF/ft)	75 (22.86)
Inductance	μH/m (μH/ft)	0.19 (0.058)
Peak Power Rating	kW	40.0
RF Peak Voltage	Volts	2000.0
Jacket Spark	Volt RMS	8000.0
Inner Conductor dc Resistance	Ω/1000m (Ω/1000ft)	1.48 (0.45)
Outer Conductor dc Resistance	Ω/1000m (Ω/1000ft)	2.29 (0.7)
Return Loss (VSWR) Performance	19 (1.25) @ 450-960 MHz 19 (1.25) @ 1395-1432 MHz 19 (1.25) @ 1700-2155 MHz 19 (1.25) @ 2300-2500 MHz	
Temperature & Power	High Power Rating	

MECHANICAL SPECIFICATIONS

Weight (Cable and SmartGUARD)	per 1000 ft	238 lbs. (+/- 10% tolerance on cable weight)
Minimum Bending Radius, Single Bend	mm (in)	76 (3)
Minimum Bending Radius, Repeated Bends	mm (in)	127 (5)
Bending Moment	Nm (lb * ft)	5.4
Tensile Strength	N (lb)	549 (150)
Recommended/Maximum Clamp Spacing	m (ft)	1.8 (6) **
Crush Strength	kg/cm² (lb/in²)	1.25 (70)

RATINGS/COMPLIANCE

Fire Performance	Flame Retardant, Plenum-rated, CMP
Regulatory Compliance	NEC Article 800 Communication Circuits; ETL Listed to UL444; Canadian CSA C.22.2/FT6 *NFPA 72 section 12.4.2 Pathway Survivability Level 1 ** NEC 330.30 (B), (C), (D.3)
VSWR Performance	19.0 (1.25) @ 806-960, 1700-2155; dB (VSWR)



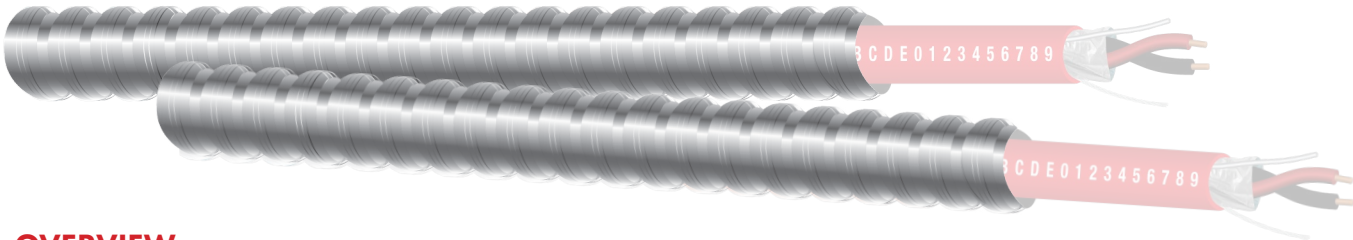
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WINDY CITY WIRE



PART NUMBER METAL CLAD - HALF INCH

ALUMINUM STRIP: ½ INCH

**OVERVIEW**

Aluminum strip is ideal as metal sheathing for mechanical protection on electrical and fiber optic cables, as well as aluminum flexible conduit. These armored solutions are well suited for a broad range of commercial, industrial and utility applications. With its combination of strength, flexibility and light weight, aluminum strip is recommended for use on all North America high speed armouring machines. Aluminum strip is produced with alloys AA5052-H24 and AA5154A-H24.

WIDTH, THICKNESS, TOLERANCE

STRIP WIDTH ½ in.	Thickness tolerance	± 0.002 in.
	Width tolerance - under 3/4 in.	± 0.006 in.
STRIP THICKNESS 0.022 in.	Width tolerance - 3/4 in.	± 0.006 in.

STRAIGHTNESS

In any length of 12 in., the maximum allowable deviation from a straight line (depth of arc) shall be 0.2 in. maximum.

ALLOWABLE COIL TOLERANCES

Nominal Coil I.D.	16.125 in. ± 0.125 in.
Nominal Coil O.D.	35 in. ± 1 in.
Coil width Tolerance	+0 in./-0.5 in.

MECHANICAL PROPERTIES

Other alloys and tempers may be available upon request.

Alloy & Temper	Ultimate tensile strength			Elongation in 10 in./250 mm
	ksi	MPa	kgf/mm ²	% min.
AA5154A-H24	40.0 – 44.0	276 - 303	28.1 – 30.9	5.0

Armor O.D.	1.65 in. ± 0.020 in.
Armor I.D.	1.50 in. ± 0.020 in.
Interlocking Lip	.065 in. ± 0.015 in.
Weight of Armor	180 lbs./mft. Nominal

SECURING AND SUPPORTING

As stated, SmartGUARD cable support requirements are waived when the cable is fished. This is a major advantage of SmartGUARD cable in remodeling work over other wiring products that cannot be fished.

BEND RADIUS OF COAX CABLE

- Part Number: WCW-ICA1250-JPLL(X):
- Minimum Bending Radius, Single Bend 76 mm (3 in)
- Minimum Bending Radius, Repeated Bends 127 mm (5 in)

BEND RADIUS OF SMARTGUARD ARMOR

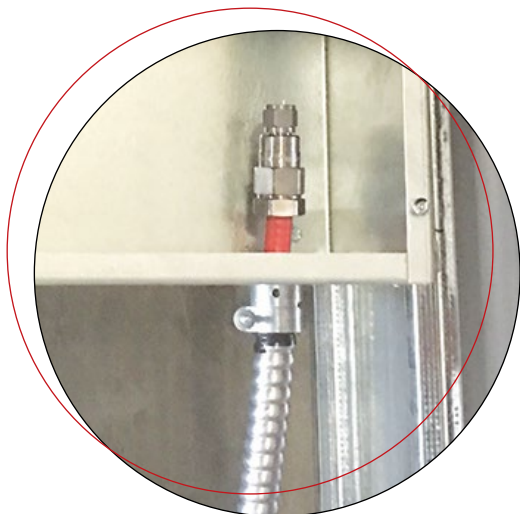
- Per NEC 320.24 – calculated at 7 times the external Diameter of the SmartGUARD

COUPLINGS AND CONNECTORS

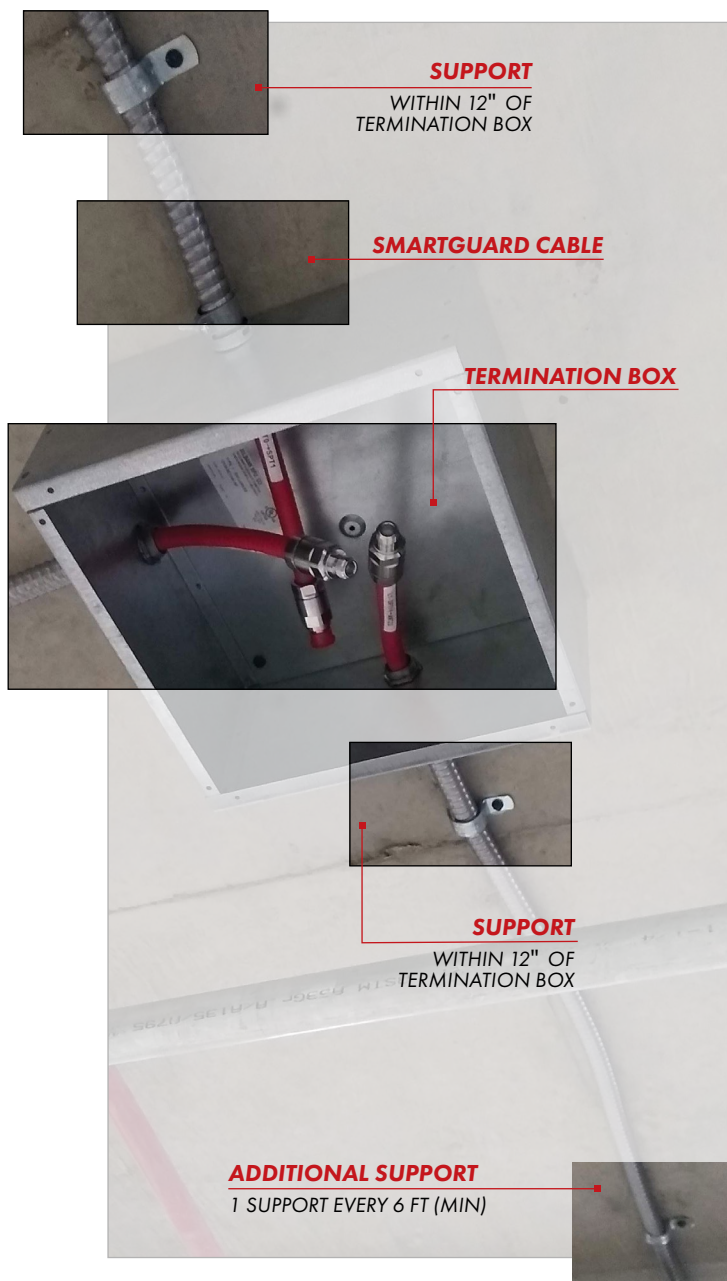
- In Termination Box: GAR-DB75IC connectors are recommended

GAR-DB75IC INSTALLATION STEPS

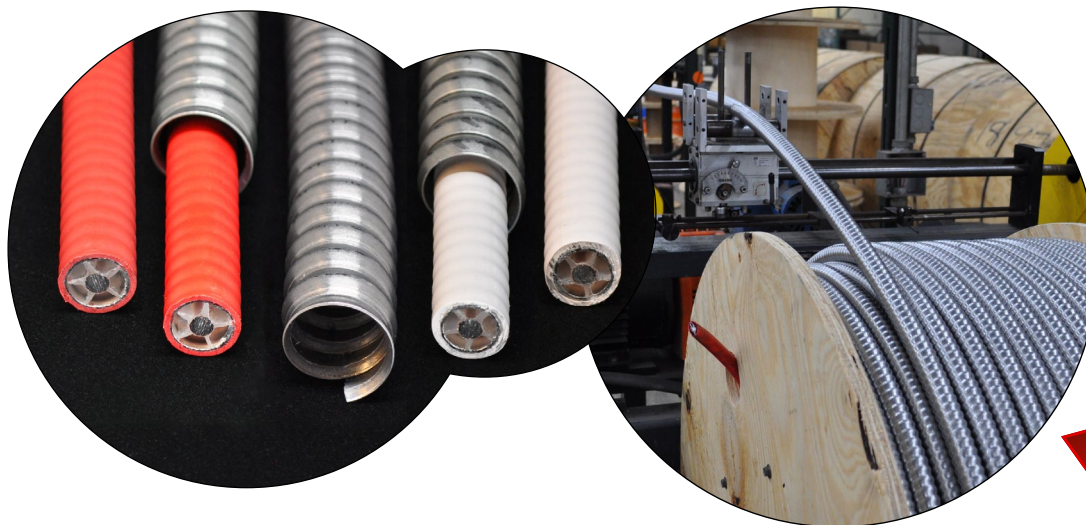
1. REMOVE lock nut
2. LOOSEN UP the screw on top of the locking double bite piece
3. INSERT the Smart**GUARD** cable
4. TIGHTEN UP the screw on top of the locking double bite piece to secure the cable
5. INSERT fitting into the box
6. INSERT lock nut to fitting to secure to the box



ABOVE *Angle connectors are not recommended.

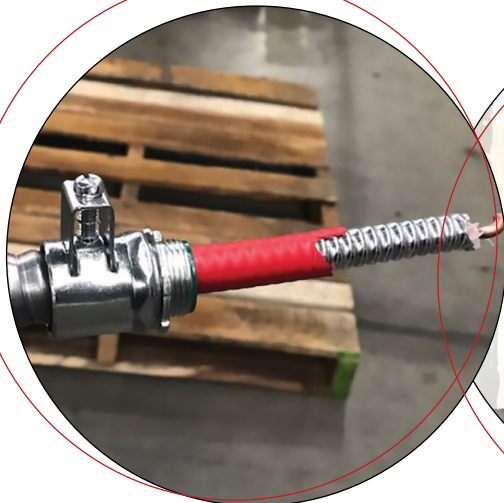


Smart**GUARD** is an ideal metal sheathing for mechanical protection on coax, electrical and fiber optic cables. With its combination of strength, flexibility and light weight, these armored solutions are well suited for a broad range of commercial, industrial and utility applications. This solution has been well received in the DAS/BDA market. This solution will provide a more efficient installation vs running conduit/flex for mechanical protection.

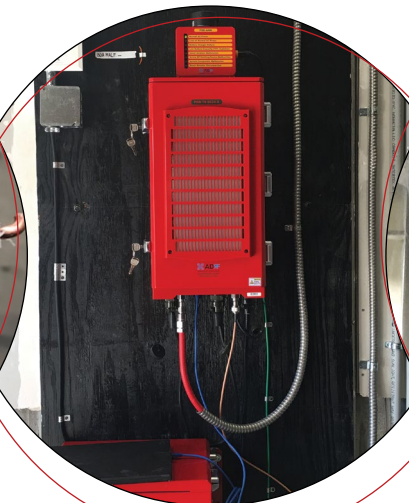


Smart**GUARD In-Building coaxial cables** are a game changer, eliminating the need for conduit ... not to mention the savings! This is the first offering of it's kind in the industry and available exclusively from **Windy City Wire!**

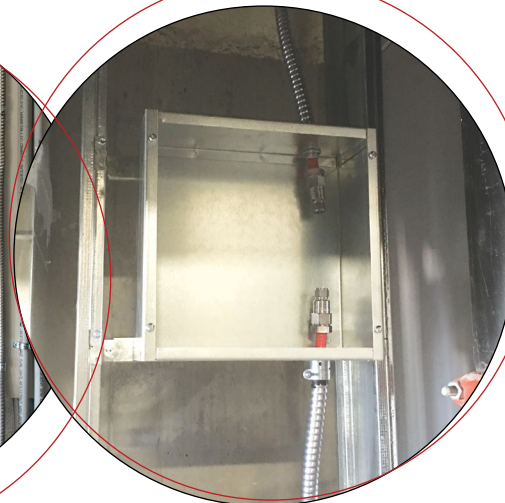
We stock standard in-building coaxial cables or as a value-added service we can provide these cables with SmartGuard jacketing.



Smart**GUARD** with our 3/4"
Steel Saddle Connector



Smart**GUARD** Install into
BDA/Repeater



Smart**GUARD** Install
into Junction Box

**In compliance with NFPA 72 section 12.4.2 Pathway Survivability Level 1*



SIGNIFICANT SAVINGS

Protection for Coax, Electrical and Fiber Optic Cables

Strong, **flexible** and light weight

Commercial, **industrial** and utility applications

Metal raceway alternative in ERCS system distribution

Reduces overall material and **reduces labor costs** on pre-wires

Savings regardless if the system is required or not

INSTALLATION COST COMPARISON

INSTALLATION	ESTIMATED COST	RESULTS
1.5" Conduit	\$24 – \$30 per ft.	Mechanical Protection Only (Additional cost for coax & installation labor)
Smart GUARD	\$7 – \$10 per ft.	Mechanically Protected Coax (Installation completed)

2,000 FOOT RUN SAVINGS COMPARISON

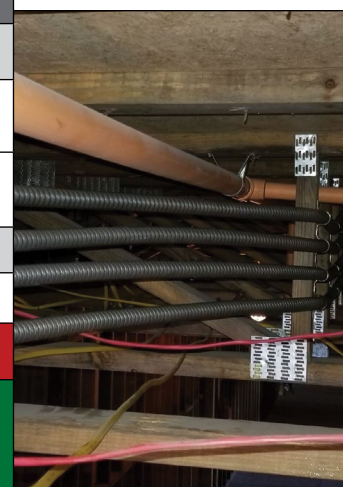
1.5" Conduit = \$48,000 – \$60,000

SMARTGUARD = \$14,000 – \$20,000



Potential SAVINGS

\$34,000 – \$40,000



Smart**GUARD** is classified as metal raceway alternative and is a metal armored cable. When reviewing NFPA 72 codes there is different verbiage between the code amongst the different years.

Per NFPA 72, 2022 section 12.4.2 Pathway Survivability Level 1

Pathway survivability Level 1 shall consist of pathways in building that are fully protected by an automatic sprinkler system in accordance with NFPA 13 with any interconnecting conductors, cables, or physical pathways protected by **metal raceways or metal armored cables**.

Per NFPA 72, 2019, section 12.4.2 Pathway Survivability Level 1.

Pathway survivability Level 1 shall consist of pathways in buildings that are fully protected by an automatic sprinkler system in accordance with NFPA 13 with any interconnecting conductors, cables, or other physical pathways protected by **metal raceways or metal armored cables**.

Per NFPA 72, 2016, 12.4.2 Pathway Survivability Level 1.

Pathway survivability Level 1 shall consist of pathways in buildings that are fully protected by an automatic sprinkler system in accordance with NFPA 13, with any interconnecting conductors, cables, or other **physical pathways installed in metal raceways**.

Per NFPA 72, 2013, 12.4.2 Pathway Survivability Level 1.

Pathway survivability Level 1 shall consist of pathways in buildings that are fully protected by an automatic sprinkler system in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, with any interconnecting conductors, cables, or other **physical pathways installed in metal raceways**.

Per NFPA 70, 2014, Raceway is defined as follows:

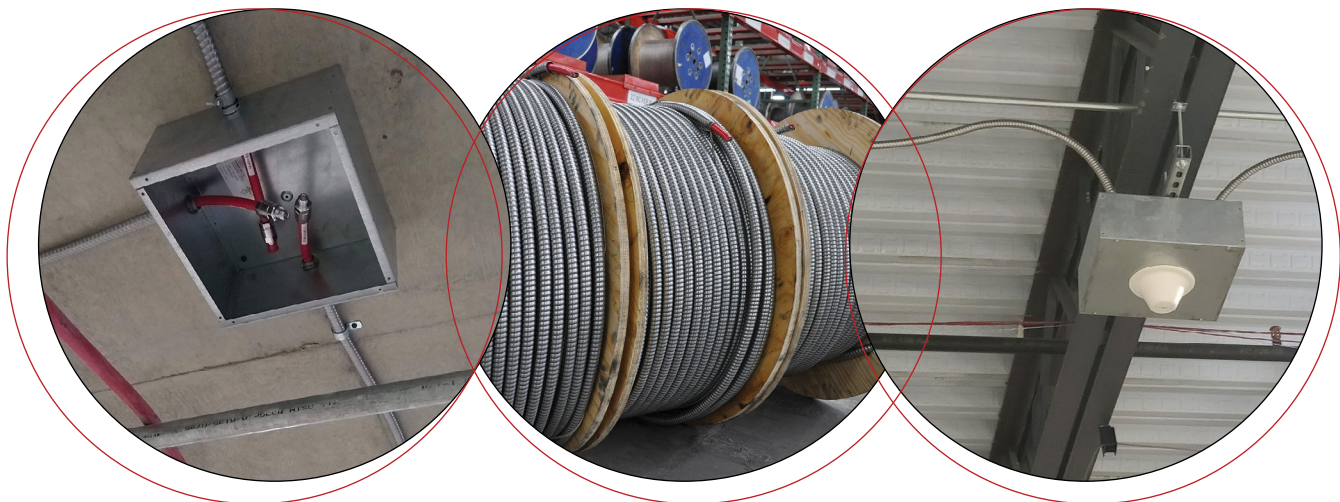
Raceway. An enclosed channel of metallic or nonmetallic materials designed especially for holding wires, cables, or busbars, with additional functions as permitted in this code.

Per NFPA 70, 2014

Section 348.2 Definition. Flexible Metal Conduit (FMC). A raceway of circular cross section made of helically wound, formed, interlocked metal strip.

ADDITIONAL FEEDBACK

- I am approving the installation under the Level 1 Survivability as listed in NFPA 1221-5.10.2
- Approved its use in NFPA 13 sprinkled buildings as suggested in NFPA 72, 2013, Section 12.4.
- This is approved on horizontal runs. This can be used as a metallic raceway alternative.
- The fire marshal has approved this product to be utilized in place of metal conduit in egress stairs/elevators shafts for das installations.
- Our electrical manager states that the Smart**GUARD** would be acceptable as raceway based on the definition from NFPA 70.
- The Fire Marshall has approved this product to be utilized in place of metal conduit in egress stairs/elevator shafts for DAS/BDA.
- I have reviewed your manufacturer's spec sheet Smart**GUARD**: SG-ICA12-50JPLLR. I believe that your wire is just what the industry has been looking for with ease of use, ease of install and ease to the AHJ for review and field inspections. I would be willing to accept this with any-and-all ERRC installations. It was an easy choice to approve as there is not a long list of assembly items or installation steps that we as a department would need to oversee in the field.



HOW THIS ALL BENEFITS END USERS

- Significantly reduces labor and material costs
- Stocking and staging capabilities
- Fast turnaround times and deliveries
- WCW messenger and delivery services available

WINDY CITY WIRE BEST PRACTICES

- You will receive a personal account representative to assist you in every aspect of the ordering process. Our team will help you make cost effective choices and ensure the correct use of all of products, saving you time and money.
- Access to our online portal to place and track orders, view frequently purchased devices, check current inventory levels, review and order projects quoted, get account and payment status plus much more.

CONTACT US TODAY

We look forward to working with your team and showing you **The Windy City Wire Difference** in everything that we do.

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ECOSYSTEM SOLUTIONS

