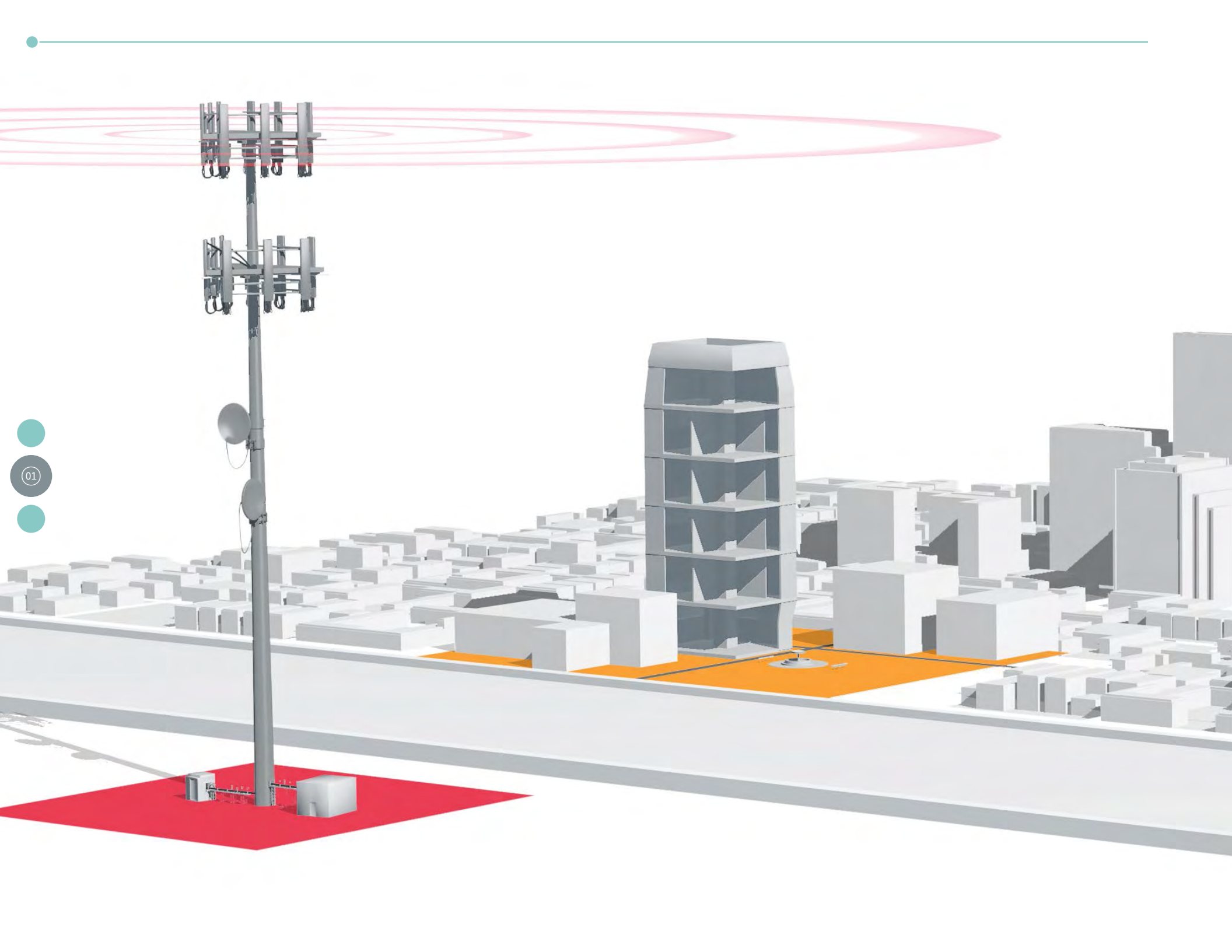# Wireless

Cabling Solutions

Application Guide
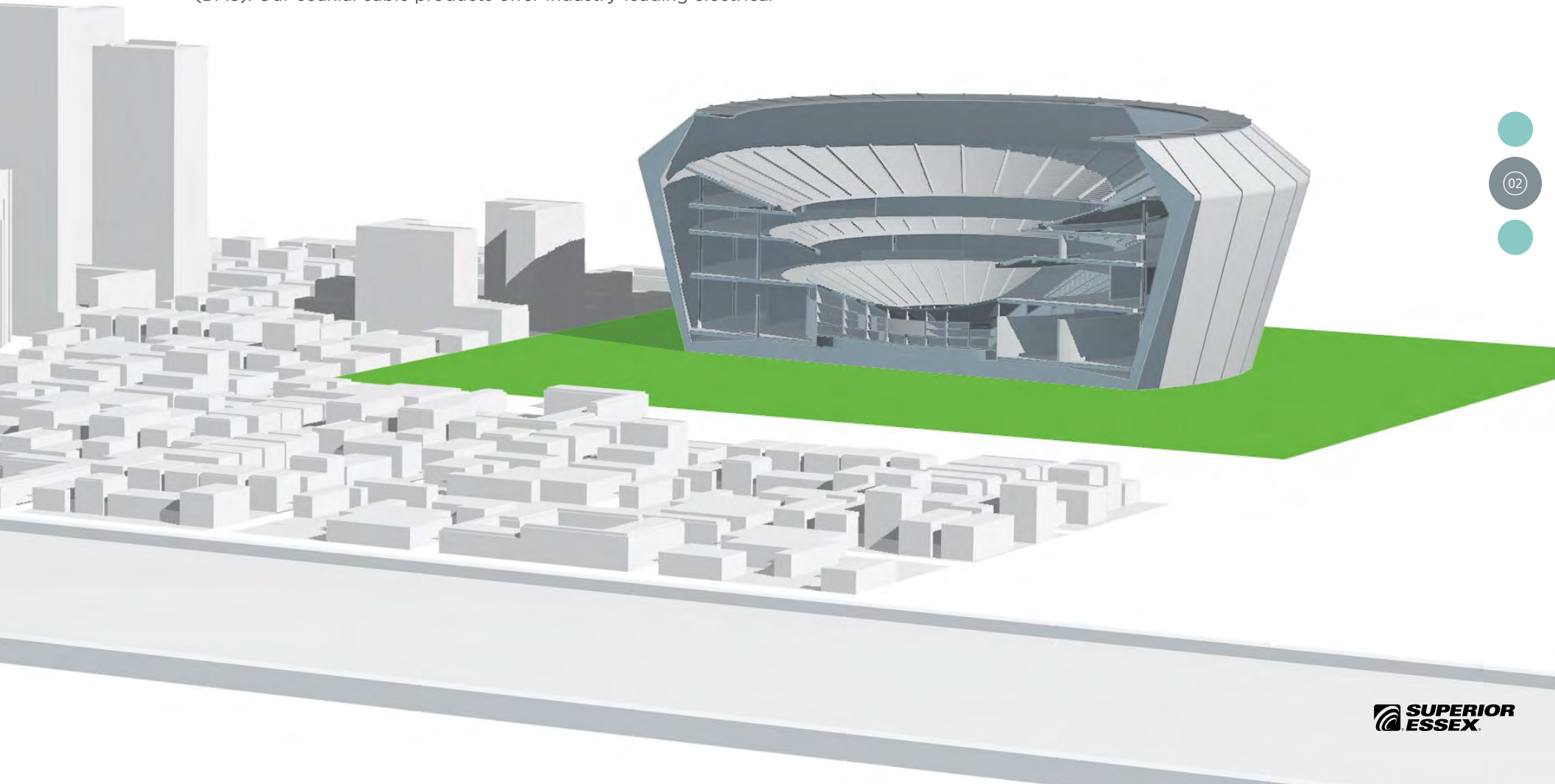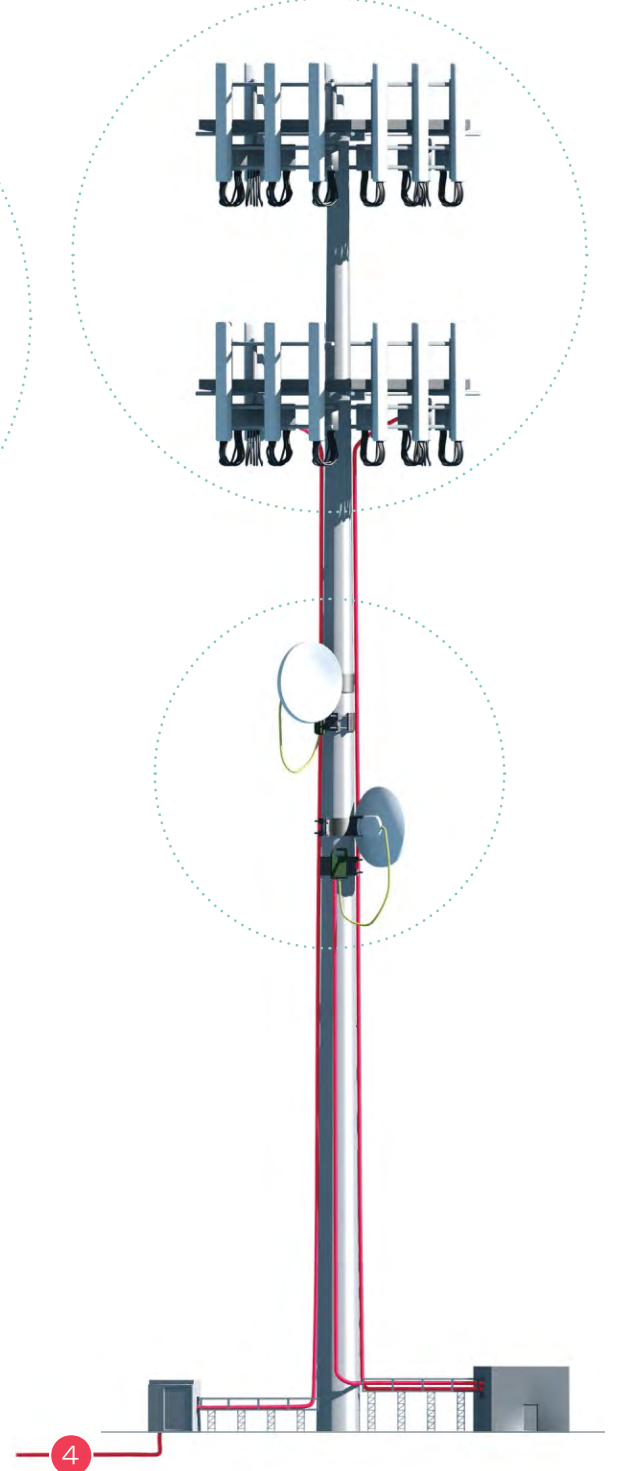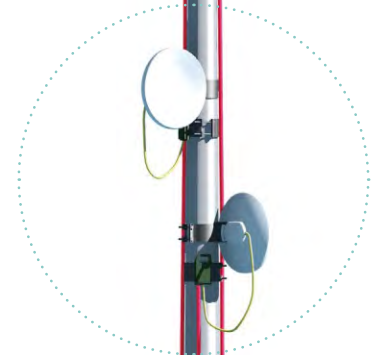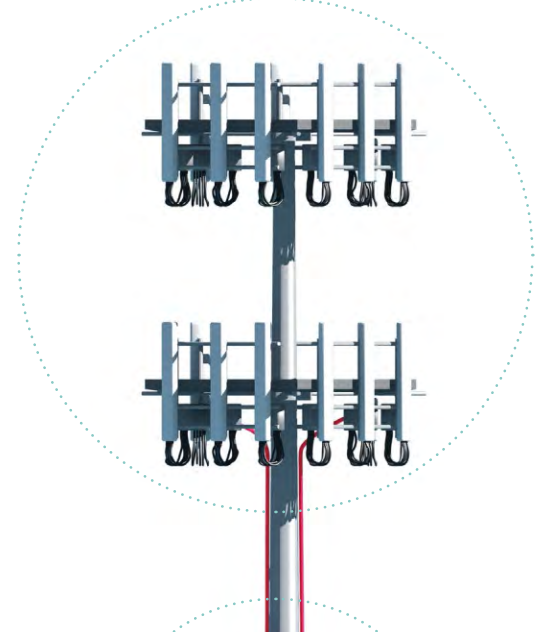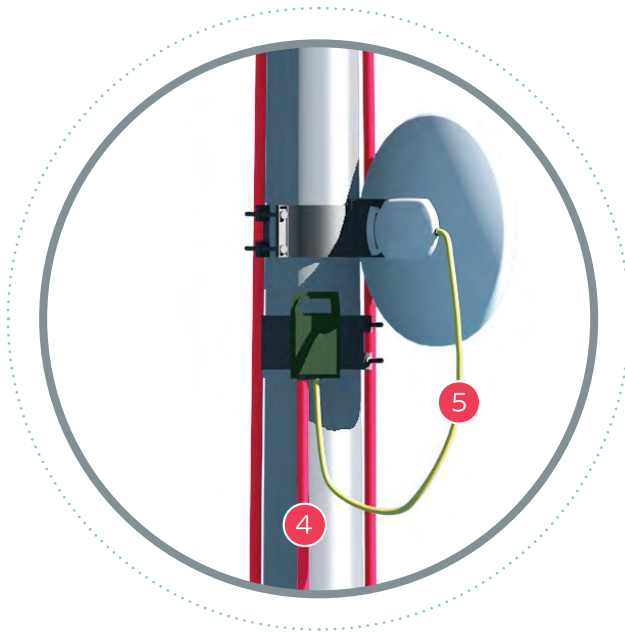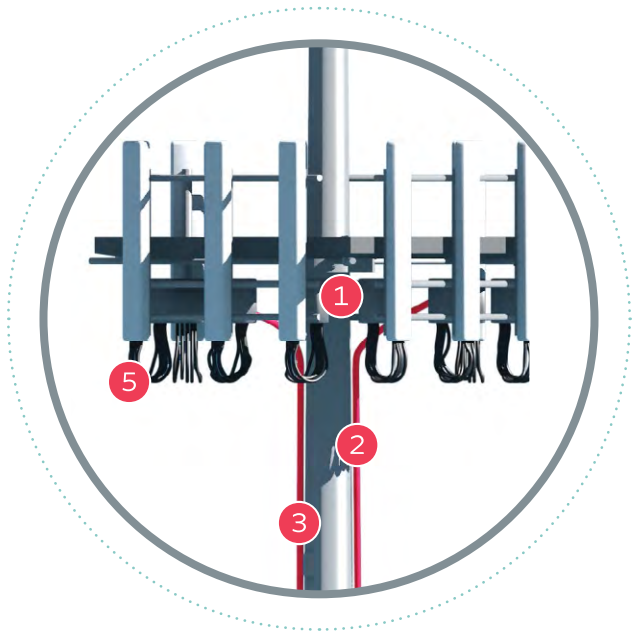
SUPERIOR ESSEX

Delivering Wireless Cable Solutions
for the HetNet

We provide our customers with a broad portfolio of cable products and accessories designed for the modern wireless heterogeneous network (HetNet), including coaxial, fiber, power, hybrid and category cables, as well as connectors and jumpers used for cell towers, Small Cells and Distributed Antenna Systems (DAS). Our coaxial cable products offer industry-leading electrical performance, with low attenuation, low VSWR and low PIM. We have manufacturing facilities throughout the United States, and we offer the shortest lead times in the industry, getting products to our customers when they need them in order to complete their projects on time.

SUPERIOR ESSEX

From the Bottom Up
We Have You Covered

Superior Essex Macro Cell and transmission line products are designed to withstand extreme cell tower weather and temperature conditions while providing the electrical performance necessary for reliable high-speed broadband communications. Our cabling solutions include fiber, power and hybrid cable products for Remote Radio Heads (RRH), Power over Ethernet (PoE) cable for outdoor split-mount microwave systems, and traditional base-station Radio Frequency (RF) feeder applications. With a wide range of sizes, configurations and rugged designs, Superior Essex has all the cable you need to complete your tower installation from the bottom up.

DIN
Connectors
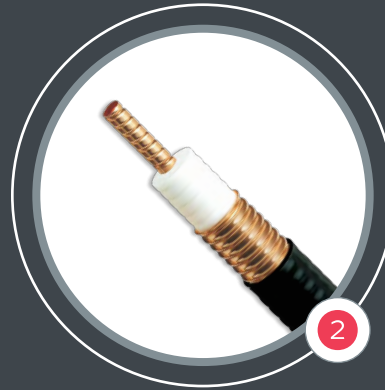
RF Feeder

RRH Cable
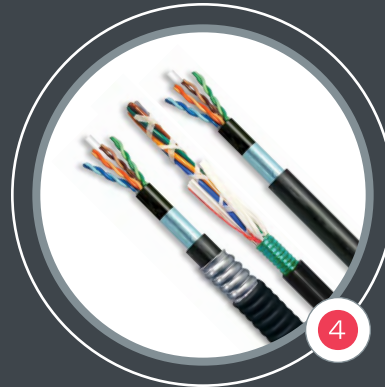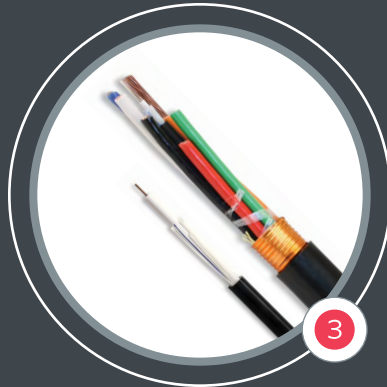
Backhaul
Fiber and PoE

RF Jumper

Tower
Accessories

1

2

3

4

5

SUPERIOR ESSEX

Operate at
Maximum Capacity

Stadiums, arenas and entertainment venues are challenged with supporting increasingly high volumes of data traffic during game-days and events. To help venue owners and managers meet their growing network demands, Superior Essex offers indoor/outdoor coaxial, fiber and hybrid cable for DAS and Ethernet cable for carrier WiFi. With reliable, industry-leading electrical performance across multiple frequency bands, our cable products ensure that your network operates at maximum capacity.

DAS Antenna

WIFI Access Point

1 RF Jumpers

2 PoE
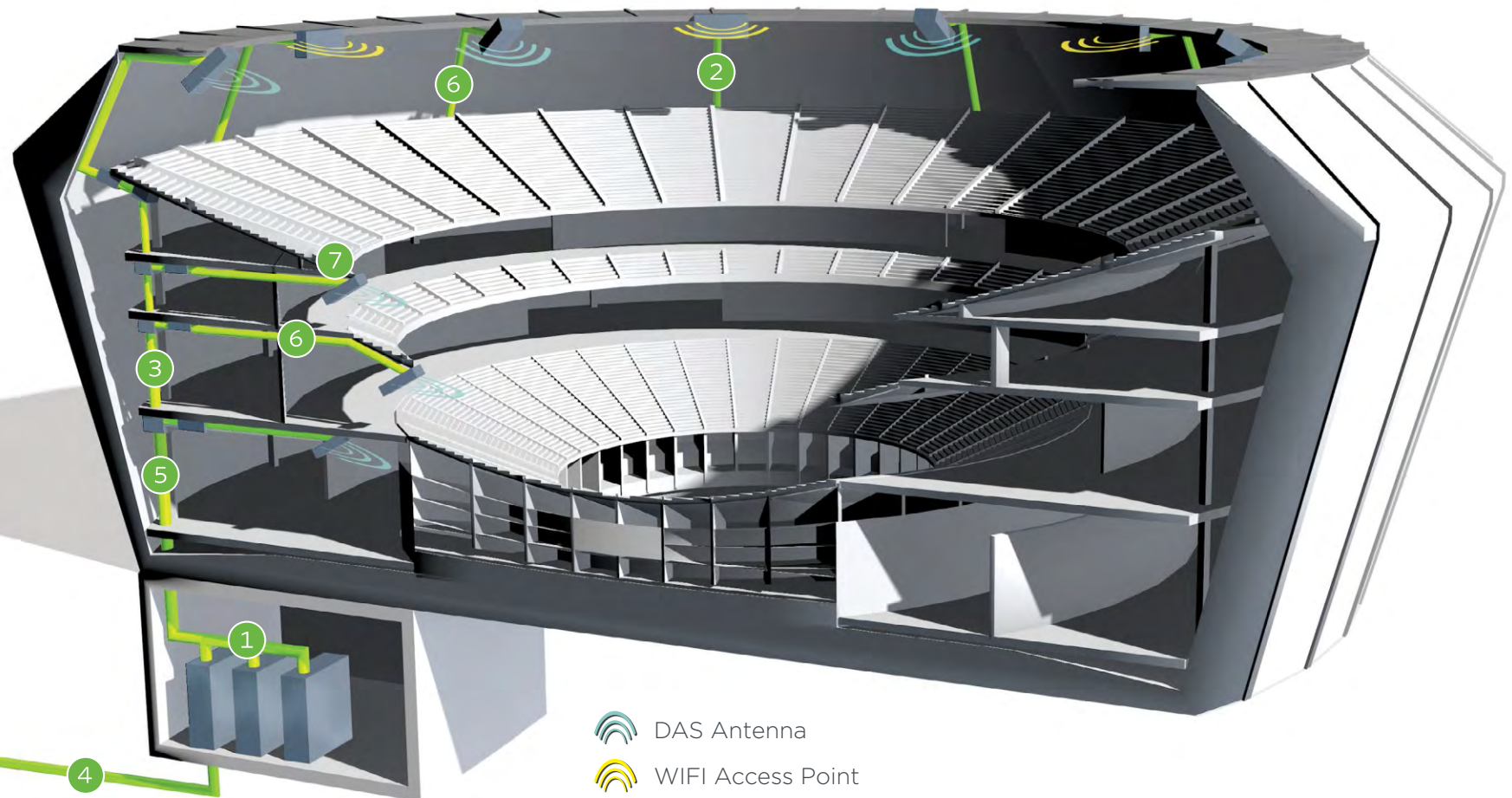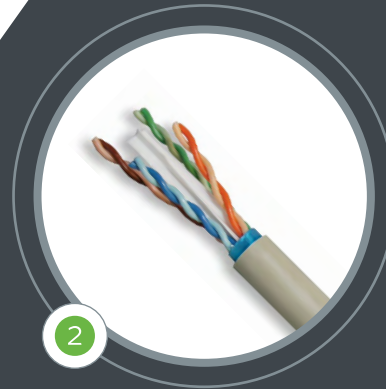
3 DAS Hybrid

4 Backhaul

5 Optical Fiber

6 Indoor/Outdoor Coax

7 Type N Connectors

SUPERIOR ESSEX

Stay Connected
Inside and Out

As mobile devices become the primary technology for personal and business communications, and the National Fire Code expands the requirement for providing survivable in-building radio coverage for first responders, building owners and wireless carriers must provide uninterrupted wireless coverage indoors and outdoors. To help overcome these challenges, Superior Essex offers a complete portfolio of high-performance cables for indoor DAS and Small Cells. Our products are plenum and riser-rated and may be installed throughout a building, even in the most restrictive air carrying space. With an extensive portfolio of copper, fiber and hybrid cables capable of transmitting power and data seamlessly throughout indoor and outdoor environments, we help you stay connected inside and out.
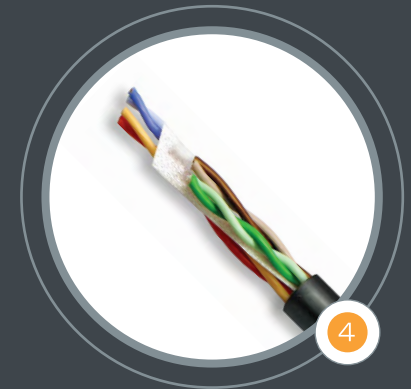
DAS Coax

1

DAS Jumpers

2

Optical Fiber*

3

DAS Hybrid*

3

CAT 6

4

Backhaul

5
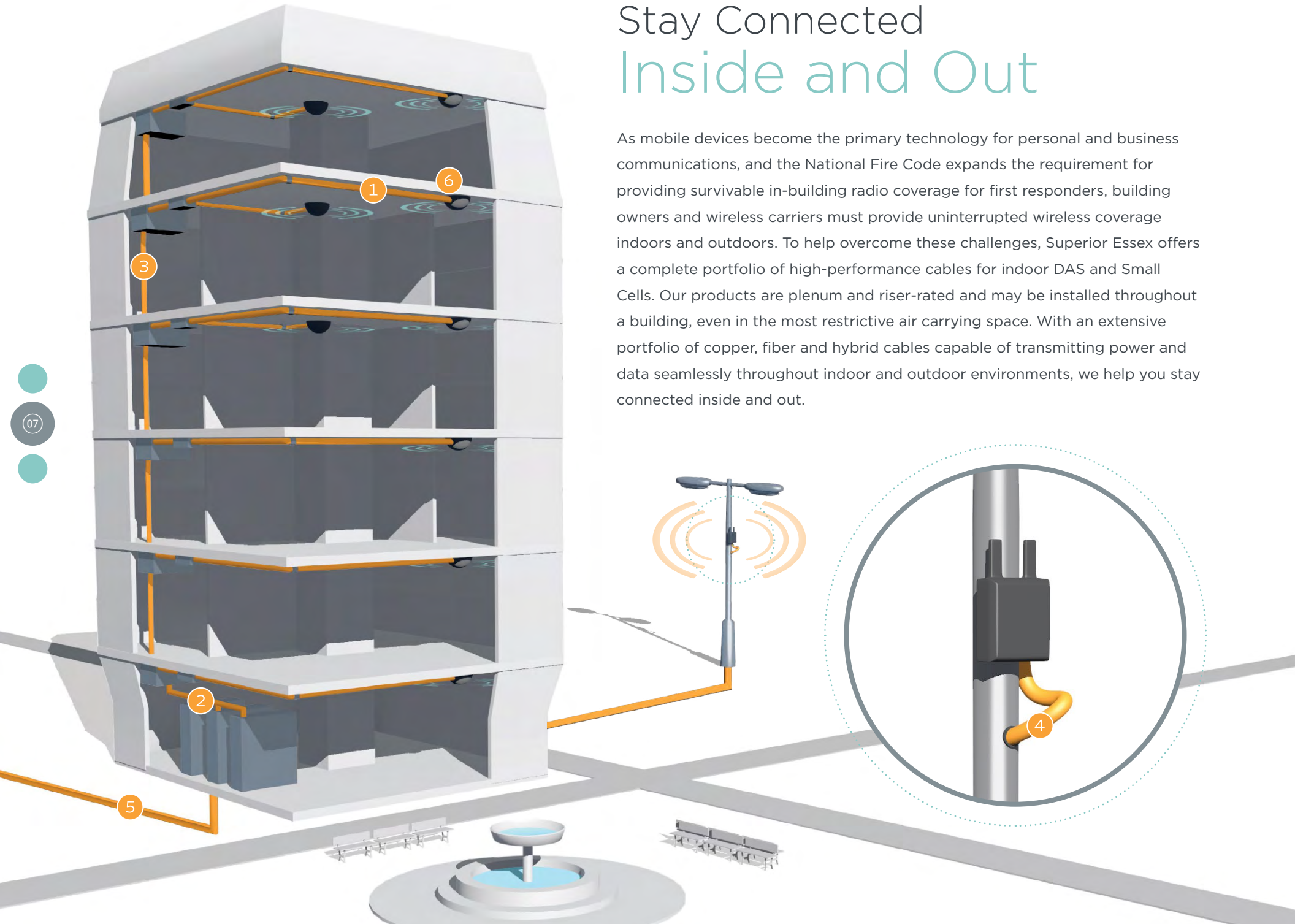
Type N & DIN
Connectors

6

*Based on application

SUPERIOR ESSEX

DAS CABLE AND CONNECTORS

		Product Name	Compatible DIN Connectors	Compatible N Connectors	Connector Interface Type	
					Gender	Straight or Angle
Riser		**HFSC-12DR** ½" Super Flexible, Foam Dielectric Copper Corrugated Outer Conductor ETL listed CMR	CHFS-12DM	CHFS-12NM	Male	Straight
			CHFS-12DF	CHFS-12NF	Female	Straight
			CHFS12DMR	CHFS12NMR	Male	Right Angle
			CHFS12DFR	CHFS12NFR	Female	Right Angle
		LHF-12DR ½" Low Loss, High Flexible, Foam Dielectric Copper Corrugated Outer Conductor ETL Listed CMR	CLH-12DM	CLH-12NM	Male	Straight
			CLH-12DF	CLH-12NF	Female	Straight
			CLH-12DMR	CLH-12NMR	Male	Right Angle
			CLH-12DFR	CLH-12NFR	Female	Right Angle
		HFAC-12DR ½" Low Loss, High Flexible, Foam Dielectric Aluminum Corrugated Outer Conductor ETL Listed CMR	CHFA-12DM	CHFA-12NM	Male	Straight
			CHFA-12DF	CHFA-12NF	Female	Straight
			-	CHFA12NMR	Male	Right Angle
			-	CHFA12NFR	Female	Right Angle
Plenum		**HFSC-12DP** ½" Super Flexible, Air Dielectric Copper Corrugated Outer Conductor ETL Listed CMP	CHFSP12DM	CHFSP12NM	Male	Straight
			CHFSP12DF	CHFSP12NF	Female	Straight
			CHFSP12DMR	CHFSP12NMR	Male	Right Angle
			CHFSP12DFR	CHFSP12NFR	Female	Right Angle
		LHF-12DP ½" Low Loss, High Flexible, Air Dielectric Copper Corrugated Outer Conductor ETL Listed CMP	CLHP-12DM	CLHP-12NM	Male	Straight
			CLHP-12DF	CLHP-12NF	Female	Straight
			CLHP12DMR	CLHP12NMR	Male	Right Angle
			CLHP12DFR	CLHP12NFR	Female	Right Angle
		HFAC-12DP ½" Low Loss, High Flexible, Air Dielectric Aluminum Corrugated Outer Conductor ETL Listed CMP	CHFAP12DM	CHFAP12NM	Male	Straight
			CHFAP12DF	CHFAP12NF	Female	Straight
			CHFAP12DMR	CHFAP12NMR	Male	Right Angle
			CHFAP12DFR	CHFAP12NFR	Female	Right Angle

CABLE PREP TOOLS

Part Number	Description	Compatible Cable/ Tool
T-HFSC12DR	Cable Prep Drill Tool	HFSC-12DR
T-LHF12DR	Cable Prep Drill Tool	LHF-12DR
T-HFAC12DR	Cable Prep Drill Tool	HFAC-12DR
T-HFSC12DP	Cable Prep Drill Tool	HFSC-12DP
T-LHFA12DP	Cable Prep Drill Tool	LHF-12DP, HFAC-12DP

Part Number	Description	Compatible Cable/ Tool
TF-LHFA12	Flare and Foam Separator	LHF-12DP, LHF-12DR, HFAC-12DP, HFAC-12DR
TF-HFSC12	Flare and Foam Separator	HFSC-12DP, HFSC-12DR

DAS JUMPERS

		Part Number[1]	Cable Size and Type	Interface Type End 1	Interface Type End 2
Riser		JR12xNMNM	½" HFSC-12DR	N Male	N Male
		JR12xNMNF		N Male	N Female
		JR12xNFNF		N Female	N Female
		JR12xNMRM		N Male	N Male Right Angle
		JR12xNMRF		N Male	N Female Right Angle
		JR12xNFRF		N Female	N Female Right Angle
Plenum		JP12xNMNM	½" HFSC-12DP	N Male	N Male
		JP12xNMNF		N Male	N Female
		JP12xNFNF		N Female	N Female
		JP12xNMRM		N Male	N Male Right Angle
		JP12xNMRF		N Male	N Female Right Angle
		JP12xNFRF		N Female	N Female Right Angle

[1]Where "x" = jumper cable length (i.e. 1 meter, 2 meters or 3 meters).

Part Number	Description	Compatible Cable/ Tool
TBK-LHFA12	Replacement Blade Kit for Automatic Cable Prep Tool	T-LHFA12DP, T-LHF12DR, T-HFAC12DR
TBK-HFSC12	Replacement Blade Kit for Automatic Cable Prep Tool	T-HFSC12DP, T-HFSC12DR

RF CABLE AND CONNECTORS

	Product Name	Compatible DIN Connectors	Compatible N Connectors	Connector Interface Type	
				Gender	Straight or Angle
Super Flex	HFSC-12D ½" Super Flexible Foam Dielectric Copper Corrugated Outer Conductor	CHFS-12DM	CHFS 12NM	Male	Straight
		CHFS-12DF	CHFS-12NF	Female	Straight
		CHFS12DMR	CHFS12NMR	Male	Right Angle
		CHFS12DFR	CHFS12NFR	Female	Right Angle
Low Loss	LHF-12D ½" Low Loss Feeder Dielectric Copper Corrugated Outer Conductor	CLH-12DM	CLH-12NM	Male	Straight
		CLH-12DF	CLH-12NF	Female	Straight
		CLH-12DMR	CLH-12NMR	Male	Right Angle
		CLH-12DFR	CLH-12NFR	Female	Right Angle
	LHF-33D 1¼" Low Loss Feeder Dielectric Copper Corrugated Outer Conductor	CLH-33DM	CLH-33NM	Male	Straight
		CLH-33DF	CLH-33NF	Female	Straight
Ultra Low Loss	LHF-22DU ⅞" Ultra Low Loss Feeder Dielectric Copper Corrugated Outer Conductor	CLH-22DM	CLH-22NM	Male	Straight
		CLH-22DF	CLH-22NF	Female	Straight
	LHF-42DUF 1⅝" Ultra Low Loss Feeder Dielectric Copper Corrugated Outer Conductor	CLH-42DM	CLH-42NM	Male	Straight
		CLH-42DF	CLH-42NF	Female	Straight

RF JUMPERS

Part Number[1]	Cable Assembly Size and Type	Interface Type	
		End 1	End 2
J12-xDMDM		DIN Male	DIN Male
J12-xNMNM		N Male	N Male
J12-xDMDF	½" HFSC	DIN Male	DIN Female
J12xNMNMR		N Male	N Male Right Angle
J12xDMDMR		DIN Male	DIN Male Right Angle

[1]Where "x" = jumper cable length is 1 - 6 Meters.

ADAPTER KITS

Part Number	Description	Unit of Measure
RM-A100	1" to 2" Round Adapters	Kit of 10
RM-A300	3" to 4" Round Adapters	Kit of 10
SA-SS200	1½" to 3½" Stand-Off Adapters	Kit of 10
SA-SS300	2" to 4.5" Stand-Off Adapters	Kit of 10
L-SA-38	3-Way Stand-Off Adapters	Kit of 10
AA-SL	Angle Adapters	Kit of 10

HANGER KITS

	Part Number	Description	Unit of Measure
Standard	LBHS12NH	½" Cable Standard Hangers	Kit of 10
	LBHS22NH	⅞" Cable Standard Hangers	Kit of 10
	LBHS33NH	1¼" Cable Standard Hangers	Kit of 10
	LBHS42NH	1⅝" Cable Standard Hangers	Kit of 10
Stackable Snap-In	L-SH-S12	½" Cable Stackable Snap-In Hangers	Kit of 10
	L-SH-S22	⅞" Cable Stackable Snap-In Hangers	Kit of 10
	L-SH-S33	1¼" Cable Stackable Snap-In Hangers	Kit of 10
	L-SH-S42	1⅝" Cable Stackable Snap-In Hangers	Kit of 10

	Part Number	Description	Unit of Measure
Universal Snap-In	L-SH-U12	½" Cable Universal Snap-In Hangers	Kit of 10
	L-SH-U22	⅞" Cable Universal Snap-In Hangers	Kit of 10
	L-SH-U33	1¼" Cable Universal Snap-In Hangers	Kit of 10
	L-SH-U42	1⅝" Cable Universal Snap-In Hangers	Kit of 10

OTHER ACCESSORIES

	Part Number	Description	Unit of Measure
Grounding	L-GK-C12	½" Cable Grounding Kit – Clip-on Type	Kit
	L-GK-C22	⅞" Cable Grounding Kit – Clip-on Type	Kit
	L-GK-C42	1⅝" Cable Grounding Kit – Clip-on Type	Kit
Hoisting Grips	L-HG-12	½" Cable Hoisting Grip – Lace-Up	Each
	L-HG-22	⅞" Cable Hoisting Grip – Lace-Up	Each
	L-HG-33	1¼" Cable Hoisting Grip – Lace-Up	Each
	L-HG-42	1⅝" Cable Hoisting Grip – Lace-Up	Each
	L-HG-12L	½" Cable Hoisting Grip – Pre-Laced	Each
	L-HG-22L	⅞" Cable Hoisting Grip – Pre-Laced	Each
	L-HG-42L	1⅝" Cable Hoisting Grip – Pre-Laced	Each
Tools	L-CT-12D	½" Cable Cutting Tool – LHF and HFAC	Each
	L-CT-12DS	½" Cable Cutting Tool – HFSC	Each
	L-CT-22D	⅞" Cable Cutting Tool – LHF	Each
	L-FT-42D	1⅝" Cable Cutting Tool – LHF	Each
Miscellaneous	L-WK-U	Universal Weatherproofing Kit	Kit
	GB0424TU	Ground Bus Bar Kit	Kit
	WPSANT12D	Weather Proofing Shell – Antenna to ½" DIN	Each
	WPS12158D	Weather Proofing Shell – ½" to 1⅝" DIN	Each
	WATS-38	Anti-Theft Hardware Kit	Kit

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DAS HYBRID

	Product Name	Part Number	Conductor Count	Conductor Type	AWG (mm)	Fiber Count	Fiber Type
	DAS Hybrid Fiber + Copper, Plenum	F4C2-012U13-6991-CE5	4	19 x 0.185"	12 (2.05)	12	SMF TeraFlex® Bend Resistant G.657.A1
	Interlock Armored DAS Hybrid Fiber + Copper, Plenum	F2C2-012U13-6991-CE5	4	19 x 0.185"	12 (2.05)	12	SMF TeraFlex Bend Resistant G.657.A1

FIBER-TO-THE-ANTENNA (FTTA)

	Product Name	Part Number	Conductor Count	AWG (mm)	Fiber Component	Fiber Count
	Fiber-to-the-Antenna (FTTA) OFNR	53012K01Q	-	-	Central tube	12
		53024K01Q				24
		53048K01Q				48
	Fiber-to-the-Antenna (FTTA) Hybrid Fiber + Power	GM012K221	6	8 (3.26)	Tight buffer	12
		GM012K111			Central tube	
		GM012K011			Loose tube	

PREMISES FIBER (LOOSE TUBE)

	Product Name	Listing	Part Number[1]	Configuration	Fiber Count	Package	EPD	HPD
	Microarray Data Center Interconnect	OFNR	P3***xx01	3 mm Round	2 – 12	Reel	✔	✔
			P3024xxA1	Duplex	24			
		OFNP	V4***xx01	2 mm Round	2 – 12			
			P4***xx01	3 mm Round	2 – 12			
			P4024xxC1	3.8 mm Round	24			
			P4024xxA1	Duplex	24			
	2 mm Microarray Breakout	OFNP	V4***xxB1	Multi-unit	24, 36	Reel	✔	✔
			V4***xx01	Multi-unit	48, 144	Reel		
	2 mm Interlock Armored, Microarray Breakout	OFCP	L4***xVB1	Multi-unit	24, 36	Reel	✔	-
			L4***xV01	Multi-unit	48, 144	Reel		
	3 mm Microarray Breakout	OFNR	P3024xxB1	Multi-unit	24	Reel	✔	✔
			P3***xx01		48 – 144			
		OFNP	P4024xxB1	Multi-unit	24			
			P4***xx01		48 – 144			
	3 mm Interlock Armored, Microarray Breakout	OFCR	L3024xPB1	Multi-unit	24	Reel	✔	✔
			L3***xP01		48 – 144			
		OFCP	L4024xPB1	Multi-unit	24			
			L4***xP01		48 – 144			

[1]Where "***" = fiber count (i.e. 002, 004, 006, 008, 012, 018, 024, 036, 048, 060, 072, 096, 144) and "x" or "xx" = fiber type (refer to key below).

SUSTAINABILITY

Environmental Product Declaration (EPD)

A source of transparent, scientifically-based information that discloses the potential environmental impact of a product or product family.

Health Product Declaration™ (HPD™)

A report that describes product contents and each ingredient's relationship to human and ecological health.
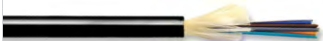
KEY

Single Mode Fiber (SMF) Types			
	TeraFlex® Bend Resistant		
	G.657.A1	G.657.A2	G.657.B3
[1]Replace "x" with:	K	J	L
[1]Replace "xx" with:	K1	J1	L1
Premises Jacket Colors	Yellow		

Multimode Fiber (MMF) Types			
	TeraFlex Bend Resistant Laser Optimized 50/125		
	10G/150	10G/300	10G/550
[1]Replace "x" with:	M	N	P
[1]Replace "xx" with:	MG	NG	PG
Premises Jacket Colors	Aqua		

PREMISES FIBER (TIGHT BUFFER)

Product Name	Listing	Part Number[1]	Configuration	Fiber Count	Package	EPD	HPD
Simplex, Duplex and Quad Interconnect	OFNR	33***xx01	3 mm Round	1	Reel	✓	✓
		A3001xx01	2 mm Round	1			
		B3002xx01	3 mm Zip	2			
		C3002xx01	2 mm Zip	2			
		33***xxyy	Round	2, 4	Refer to key		
	OFNP	34***xx01	3 mm Round	1	Reel		
		A4001xx01	2 mm Round	1			
		B4002xx01	3 mm Zip	2			
		C4002xx01	2 mm Zip	2			
		34***xxyy	Round	2, 4	Refer to key		
Single Unit Distribution	OFNR	43***xxyy	Single unit	6, 8, 12	Refer to key	✓	✓
		43***xK01		18, 24	Reel		
	OFNP	44***xxyy		6, 8, 12	Refer to key		
		44***xK01		18, 24	Reel		
Rugged Indoor/ Outdoor MDU	OFNR	D5001L5yy	Round	1	Refer to key	✓	✓
Indoor/Outdoor Sunlight Resistant	OFNP	W4***xxyy	Single unit	2 – 12	Refer to key	✓	✓
		W4024xK01		24	Reel		
		24***xx01	Multi-unit	18 – 72			
Single Unit, Interlock Armored, Tight Buffer	OFCR	L3***x301	Single unit	2, 4	Reel	✓	✓
		L3***x401		6, 8, 12			
		L3***xK1Q		18, 24			
	OFCP	L4***x301	Single unit	2, 4			
		L4***x401		6, 8, 12			
		L4***xK1Q		18, 24			

[1]Where "***" = fiber count (i.e. 002, 004, 006, 008, 012, 018, 024, 036, 048, 060, 072, 096, 144) and "x" or "xx" = fiber type (refer to keys below).

KEY

Single Mode Fiber (SMF) Types				
	Reduced Water Peak	TeraFlex® Bend Resistant		
		G.657.A1	G.657.A2	G.657.B3
[1]Replace "x" with:	3	K	J	L
[1]Replace "xx" with:	31	K1	J1	L1
Premises Jacket Colors	Yellow			
I/O Jacket Color	Black			

Multimode Fiber (MMF) Types				
	TeraGain® 62.5/125	TeraFlex Bend Resistant Laser Optimized 50/125		
		10G/150	10G/300	10G/550
[1]Replace "x" with:	6	M	N	P
[1]Replace "xx" with:	6G	MG	NG	PG
Premises Jacket Colors	Orange	Aqua		
I/O Jacket Color	Black			

Packaging Options				
	Cut to Length Plywood reel	1,000 ft BrakeBox	1,500 ft BrakeBox	2,000 ft BrakeBox
[1]Replace "yy" with:	01	BB	BD	BC

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OSP FIBER

Product Name	Series	Features	Part Number[1]	Fiber Count
Loose Tube Single Jacket Single Armor	12D	Dri-Lite gel-free	12***xD0b	6 – 288
	12	PFM gel-filled	12***xz0b	2 – 288

[1]Where "***" = fiber count (i.e. 002, 004, 006, 008, 012...), "x" = fiber type, "z" = special attribute, "b" = jacket print code and "0" = standard product (refer to keys below).

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PREMISES COPPER

	Product Name	Listing	Part Number[1]	Package	EPD	HPD
	10Gain® **XP** CAT 6A	CMR	6H-272-xA	1,000' Reel	✔	✔
		CMP	6H-272-xB			
	10Gain CAT 6A	CMR	6A-272-xA	1,000' Reel	✔	✔
		CMP	6A-272-xB			
	NextGain® CAT 6eX	CMR	54-246-xA	1,000' BrakeBox®	✔	✔
		CMP	54-246-xB	1,000' BrakeBox		
	DataGain® CAT 6+	CMR	66-246-xA	1,000' BrakeBox	✔	✔
			66-240-xA	1,000' POP™ box		
		CMP	66-246-xB	1,000' BrakeBox		
			66-240-xB	1,000' POP box		
	CAT 6	CMR	77-246-xA	1,000' BrakeBox	✔	✔
			77-240-xA	1,000' POP box		
		CMP	77-246-xB	1,000' BrakeBox		
			77-240-xB	1,000' POP box		
	Interlock Armored Premises Copper CAT 6 (single component)	CMR	K4-199-xA[2]	1,000' Reel	-	-
			L4-199-xA[3]			
	Interlock Armored Premises Copper CAT 6 (dual component)	CMR	K4-299-SA[2]	1,000' Reel	-	-
			L4-299-SA[3]			
	Cobra CAT 5e+	CMR	52-200-x5	1,000' Reel-in-a-Box	✔	✔
			52-240-x5	1,000' POP box		
		CMP	52-200-x8	1,000' Reel-in-a-Box		
			52-241-x8	1,000' POP box		
	Marathon LAN® CAT 5e	CMR	51-243-x5	1,000' Reel-in-a-Box	✔	✔
			51-240-x5	1,000' POP box		
		CMP	51-243-x8	1,000' Reel-in-a-Box		
			51-241-x8	1,000' POP box		

[1]Where "x" = jacket color (see color key below). [2]No outer jacket. [3]With outer jacket. For single component cables, the outer jacket color matches the internal component jacket color. For dual component cables, the standard outer jacket color is Blue.

KEY

Standard Jacket Colors			
[1]Replace "x" with:	Blue = 2	Gray = 3	White = 4

Non-standard Jacket Colors[4]			
Green = 5	Yellow = 6	Purple = 7	Red = 9
Orange = D	Black = E		

[4]Non-standard jacket colors and other packaging options (types and lengths) available with minimum order quantity and lead time.

OSP COPPER

	Product Name	Category	Part Number	Product Code	Shield	Package
	OSP Broadband BBDG[1]	CAT 6A	04-001-A5	BBDG6A	Copper-clad steel	1,000' Reel
		CAT 6	04-001-65	BBDG6		
		CAT 5e	04-001-55	BBDGe		
	OSP Broadband Duplex	CAT 5e	04-A01-55	BBDGe	Copper-clad steel	1,000' Reel

[1]Also available with optional aluminum interlock armor with overjacket upon request.

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About Superior Essex

Superior Essex International LP is a leading manufacturer and supplier of communications and energy cables and accessories. With a complete portfolio of high-performance products manufactured in the U.S.A., and over eighty years serving the communications and energy markets, Superior Essex has the expertise and experience to meet all your cabling needs.

Our Commitments to Transparency and Sustainability

Superior Essex is firmly committed to environmental responsibility and transparency, and we constantly strive to lead innovation and design toward sustainable product solutions.

We are the first wire and telecommunications cable manufacturer to conduct an independent full Life Cycle Assessment examining the environmental impact of our high performance copper and optical fiber data cabling products, including our raw materials, manufacturing, transportation, installation and end of life practices.

We are also the first in our industry to contribute toward LEED certification by offering Environmental Product Declarations (EPD) and Health Product Declarations™ (HPD™) for our premises copper and optical fiber cable products. Additionally, we offer Multi-attribute Certifications for our premises copper products, which provide transparency into our manufacturing processes and help government procurement agents meet their sustainability goals by simplifying the sustainable supplier selection process.

As the first and only sustainable and transparent cable manufacturer, we are the preferred choice for all enterprises relying on sustainable cabling solutions.

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