

## Signal Transmission Solutions



**Applying Our  
Expertise and  
Solutions to Your  
Applications**

## Introducing the NEW Belden®...

Sending All The Right Signals™ for Your Transmission Needs

Belden has been an industry leader in providing reliable cabling products for over a century. More recently, our direction has allowed us to add new product lines, technologies, resources, and the many combinations of these, to create specific signal transmission solutions for our customers. To illustrate this point, we have created this guide to Belden capabilities as a demonstration of the breadth of resources we have today to meet the needs of your specific applications. Belden, as an expert in signal transmission technology, has more to offer than anyone else.



**Cable**  
Copper and  
Optical Fiber



**Connectivity**  
Copper and  
Optical Fiber



**Enclosures  
And Racks**



**Cable Management**



**Wireless Solutions**



**PoE**  
Power over Ethernet

### The Belden brand is built on four pillars –

- 1- We identify customer needs.
- 2- We innovate technology solutions to meet those needs.
- 3- We draw from a very broad product resource set to identify the various products or systems for your individual application.
- 4- We provide you with local product access and support through our global networks.

This is our Solutions Process, a never-ending cycle of bringing more resources and innovation to provide reliable solutions for our customers.

More Products,  
More Technologies,  
More Systems...  
More Belden Solutions  
Than Ever.



#### **Constant Innovation –**

We're continually evolving with state-of-the-art optical fiber, copper and wireless solutions to provide the best signal transmission performance. We support our core cabling solutions with related products such as Power over Ethernet (PoE) equipment, enclosures, racks, cable management and more. Belden's history of innovation continues at a stronger-than-ever pace.



#### **Broad Product Resources –**

Belden has a broader and deeper selection of signal transmission products than anyone else, as documented in our Master Catalog. Our sales, distribution and installation teams are ready to provide you with an unprecedented array of products for your facility or project. Collectively, they represent hundreds of thousands of possible combinations in which that one "right signal solution" for you resides.



## **Belden<sup>®</sup> SOLUTIONS**

#### **Global Availability –**

Belden global distribution centers, networks and strong logistics combine with our worldwide sales and customer service teams, and our vast dealer and installation resources, to provide the availability and service you need around the world. This local access to Belden products and support anywhere in the world is unequalled by any other company.



#### **Solutions for Our Customers –**

Customer-Centric Design<sup>®</sup> is more than product development. Our focus on customer needs involves ongoing discussions, identifying customers' product or technology needs, staying at the top of our craft and providing continuous support throughout the product life cycle. As a result, innovation at Belden never rests and service is our priority.

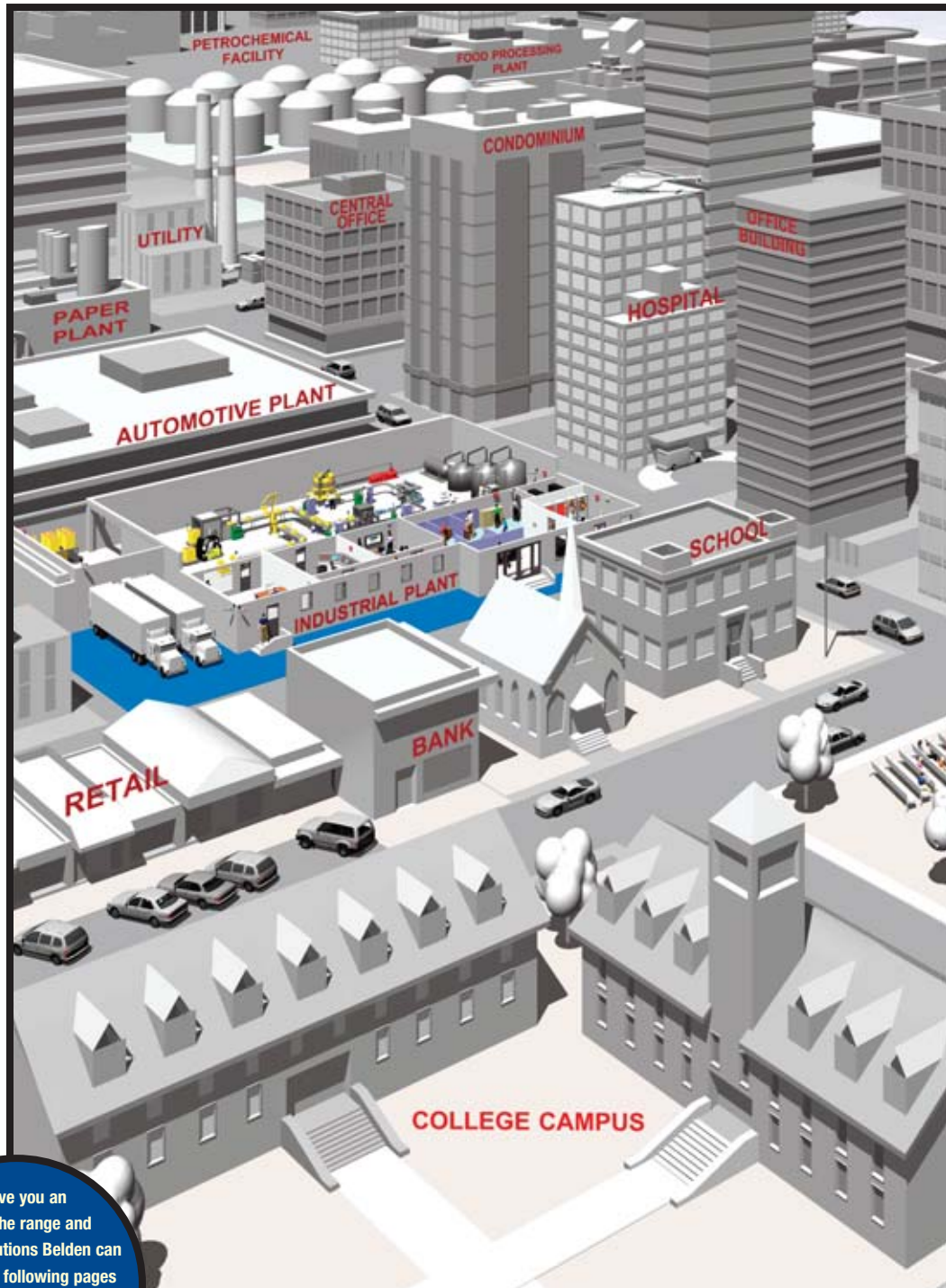




**Belden® –**

Meeting the Signal Transmission Needs of Industry, Commerce, Education, Healthcare and Entertainment Everywhere

With thousands of products available, Belden is uniquely positioned to meet your signal transmission needs. If we don't have what your application requires, we'll design it with you!



To give you an idea of the range and depth of solutions Belden can provide, the following pages overview three sites: an office building, a broadcast studio and an industrial plant.



### Providing Expert Signal Transmission Technology

If you look at a city from the air, you'll see a sea of buildings whose inhabitants have a wide range of signal transmission needs. To answer these needs, Belden offers thousands of signal transmission products – and the desire and ability to provide whatever solutions you need.

Belden's unique expertise falls within the broadcast, building networks, security, industrial and residential arenas – which extend to a whole host of markets, such as:

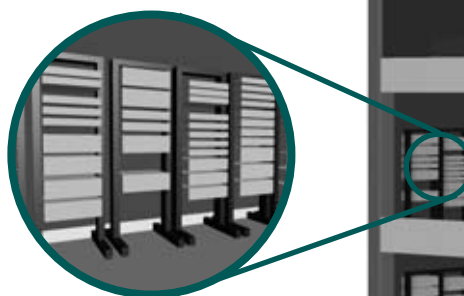
- Office complexes/buildings
- Universities/college campuses/schools
- Data centers
- Utilities
- Sports stadiums
- Financial institutions
- Retail outlets
- Power generation plants
- Hospitals/medical facilities
- Correctional facilities
- TV and radio broadcast studios
- Casinos
- Petrochemical facilities
- Processing plants
- Houses of worship
- Pulp and paper plants
- Government
- Audio/Video post-production facilities
- High tech industry
- Cruise ships
- Automotive plants
- Entertainment venues

## Belden® Solutions for the Commercial Enterprise

Including Office Buildings and Institutional Facilities

	Application	Belden Products
A	Broadband Tower	RF cables, cable ties
B	Auditorium	HD video cables, audio and speaker cables, cables for automated lighting, window and climate control, networking cables and connectivity, workstation outlets and faceplates, wireless access points, fire alarm cables, cable ties
C	Lounge	Video cable, networking cables and connectivity, workstation outlets and faceplates, wireless access points, audio speaker cable, fire alarm cables, cable ties
D	A/V Conference Room	HD video cables, audio and speaker cables, cables for automated lighting, window and climate control, networking cable and connectivity, workstation outlets and faceplates, wireless access points, cable ties
E	Data Center	Full range of copper and optical fiber structured cabling systems, enclosures and racks, patch cord/cable management units, PoE hubs, wireless switches, alarm and climate control cables, cable ties
F	Building Entrance/Lobby	Access control cable, Pan/Tilt/Zoom CCTV camera cables, networking cables and connectivity, workstation outlets and faceplates, fire alarm cables
G	Coffee Shop	Wireless access points, audio/video cables, fire alarm cables, cable ties
H	Parking Garage	Access control cables, CCTV camera cables, fire alarm cables, cable ties

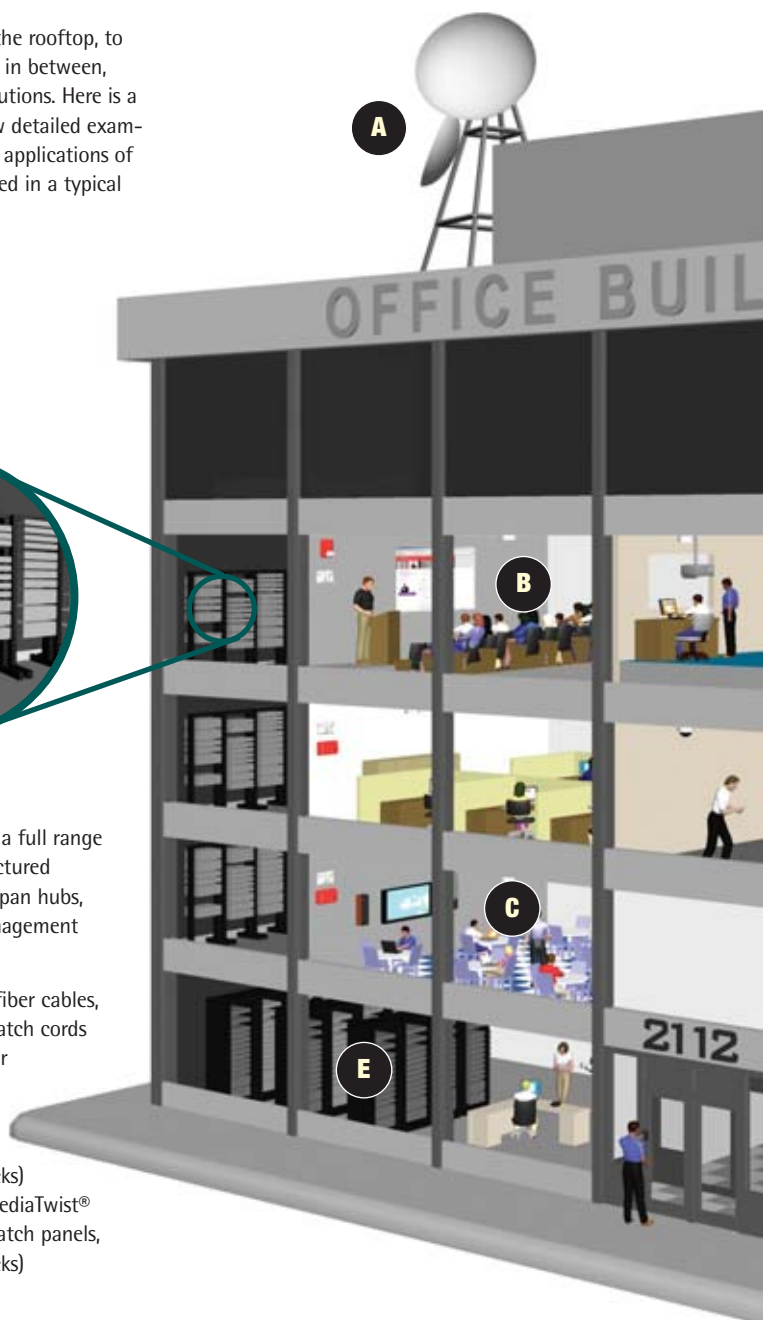
From the building entrance, to the rooftop, to the parking lot, and everywhere in between, you will find reliable Belden Solutions. Here is a typical office building and a few detailed examples showing some of the many applications of Belden products and systems used in a typical commercial facility.



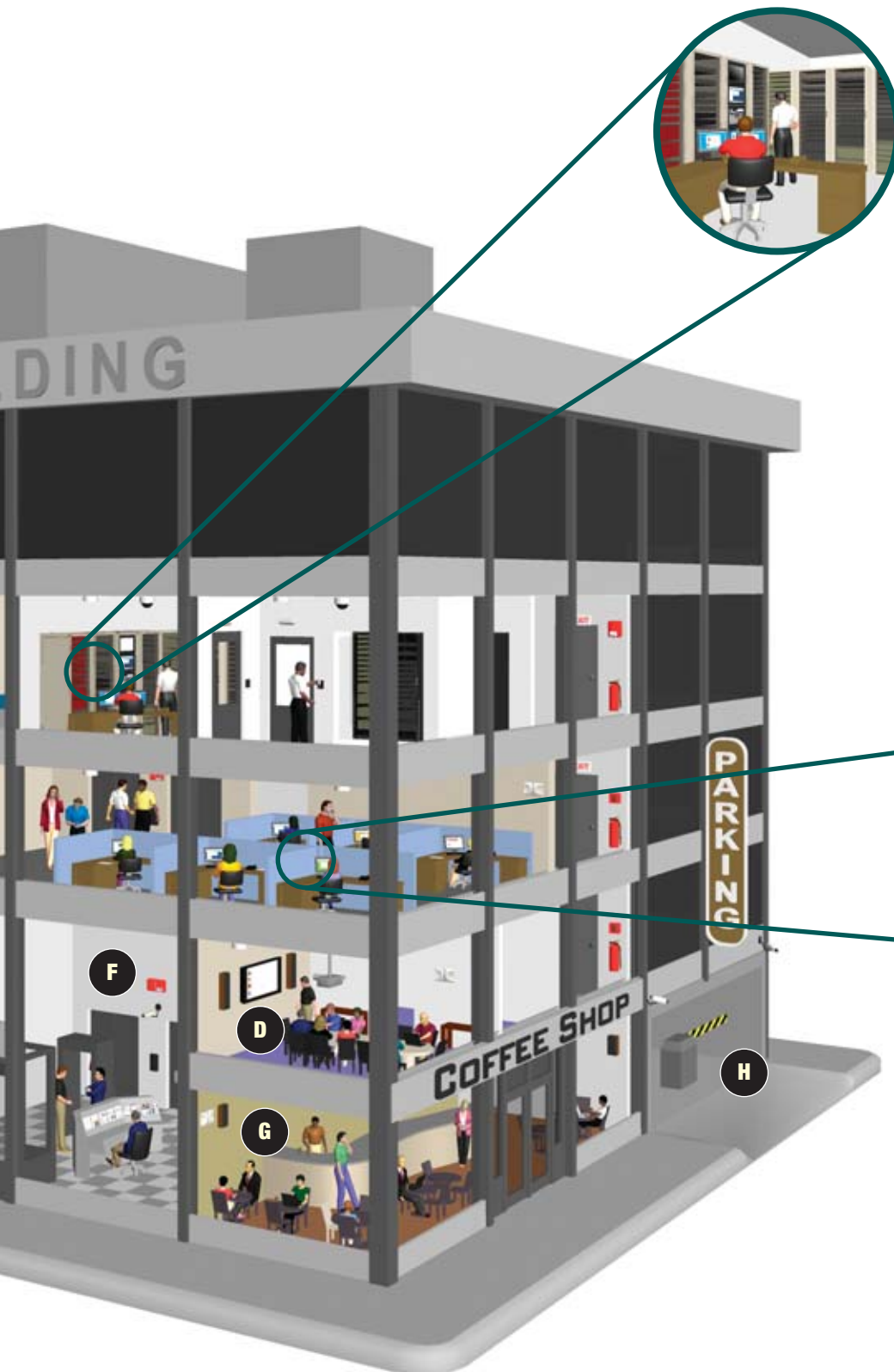
### Telecommunications Room

Typical Belden products include a full range of copper and optical fiber structured cabling systems, racks, PoE midspan hubs, wireless switches and cable management accessories, such as:

- IBDN® FiberExpress® optical fiber cables, patch panels, adapters and patch cords
- Optimax® field connectors for optical cable
- IBDN System 10GX® (10 Gb) copper cable, patch panels, patch cords and modules (jacks)
- DataTwist®, GigaFlex® and MediaTwist® copper cable, and GigaFlex patch panels, patch cords and modules (jacks)
- IDC cross-connect systems
- Racks
- PowerSense® PoE 24-port midspan hubs
- Media converters
- Wireless switches
- Headend cables
- New Generation® audio cables
- Patch cord/cable management units







### Control Room

Belden® products used in this application include access control, security and alarm cables, CCTV camera cables, cables for Emergency Voice/Alarm Communications (EVAC) systems, cabinets and enclosures, wireless switches, midspan PoE hubs, Heating, Ventilating and Air Conditioning (HVAC) system cables and cable ties, including products such as:

- Secured/Keyed LC optical fiber connector system
- IBDN® FiberExpress® optical fiber cable, patch panels, adapters and patch cords
- IBDN System 10GX® (10Gb) copper cable, patch panels, patch cords and modules (jacks)
- DataTwist®, GigaFlex® and MediaTwist® copper cable, and GigaFlex patch panels, patch cords and modules (jacks)
- Workstation outlets and faceplates
- BananaPeel® access control cable
- New Generation® CCTV camera cables
- Safe-T-Line® cable for EVAC systems
- Enclosures and NEMA cabinets
- PowerSense® PoE midspan hubs
- New Generation HVAC system cable
- New Generation fire alarm cable
- Cable ties



### Office Areas

Belden office solutions include copper and optical fiber cables and connectivity, wireless access points, fire alarm cable, climate control cable, Pan/Tilt/Zoom CCTV camera cable, sound (paging) cable, surface raceway systems and cable ties or, more specifically, products such as:

- IBDN System 10GX (10 Gb) copper cable and modules (jacks)
- DataTwist®, GigaFlex® and MediaTwist® copper cable, and GigaFlex modules (jacks)
- Workstation outlets and faceplates
- Wireless access points
- Pan/Tilt/Zoom CCTV camera cable
- New Generation fire alarm cable
- Safe-T-Line cables for EVAC systems
- New Generation HVAC control cable
- New Generation audio cable
- Surface raceway systems
- Cable ties

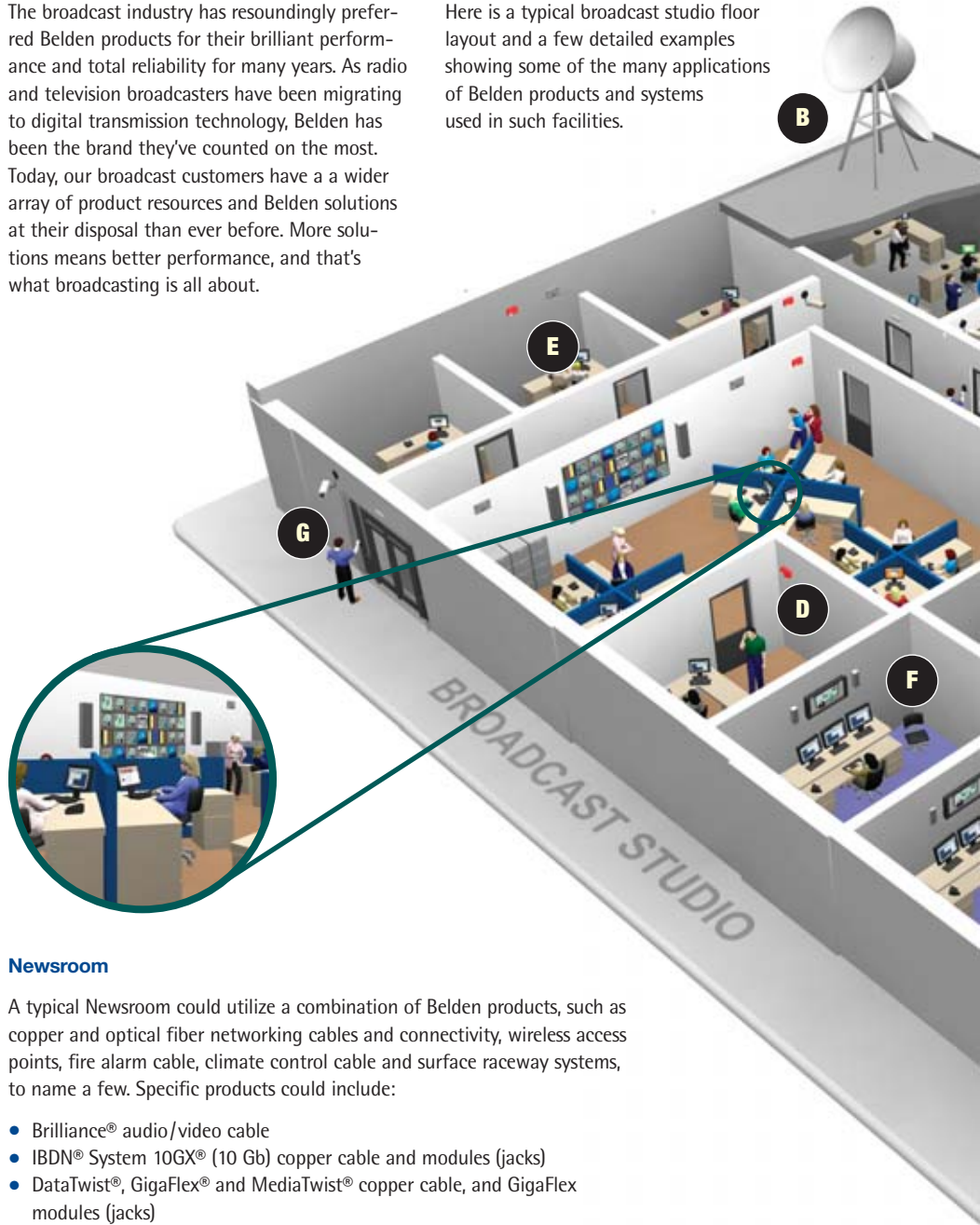
## Belden® Solutions for the Broadcast Studio

Including Network, Pre- and Post-production Facilities and Venues

	Application	Belden Products
A	<b>Automation Room</b>	Audio/video cables, satellite uplink cable, headend cables, fire alarm cable, wireless access points, networking cables and connectivity, cables ties
B	<b>TV Broadcast/ Broadband Transmission Tower</b>	Satellite uplink/downlink cables, RF cables
C	<b>Master Control Room</b>	HDTV coaxial cables, AES/EBU audio cables, A/V cable assemblies, networking cables and connectivity, speaker cables, fire alarm cables, wireless access points, PoE midspan hub, cable ties
D	<b>Newsroom Manager</b>	Networking cables and connectivity, wireless access points
E	<b>Office Area</b>	Networking cables and connectivity, wireless access points, fire alarm cables, speaker cables, cable ties
F	<b>Editing Bays</b>	HDTV coaxial cables, audio cables, networking cable and connectivity, wireless access points, cable ties
G	<b>Building Entrance</b>	Access control cable, lighting control cable, CCTV camera cable
H	<b>Broadcast Truck</b>	HDTV coaxial cables, AES/EBU audio cables, audio/video composite cables, Electronic News Gathering (ENG) cable, Electronic Field Production (EFP) cables, copper and optical fiber networking cables and connectivity, tactical fiber optic cable, cable ties

The broadcast industry has resoundingly preferred Belden products for their brilliant performance and total reliability for many years. As radio and television broadcasters have been migrating to digital transmission technology, Belden has been the brand they've counted on the most. Today, our broadcast customers have a wider array of product resources and Belden solutions at their disposal than ever before. More solutions means better performance, and that's what broadcasting is all about.

Here is a typical broadcast studio floor layout and a few detailed examples showing some of the many applications of Belden products and systems used in such facilities.

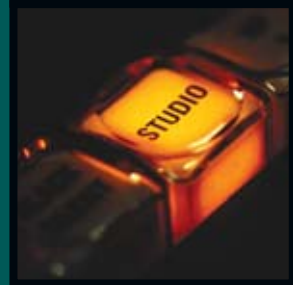


### Newsroom

A typical Newsroom could utilize a combination of Belden products, such as copper and optical fiber networking cables and connectivity, wireless access points, fire alarm cable, climate control cable and surface raceway systems, to name a few. Specific products could include:

- Brilliance® audio/video cable
- IBDN® System 10GX® (10 Gb) copper cable and modules (jacks)
- DataTwist®, GigaFlex® and MediaTwist® copper cable, and GigaFlex modules (jacks)
- Workstation outlets and faceplates
- Wireless access points
- New Generation® fire alarm cable
- New Generation HVAC control cable
- Surface raceway systems
- Cable ties





### Engineering Room

The Engineering Room, with a data hub and core control equipment, can utilize copper and optical fiber networking cables and connectivity, PoE midspan hubs, wireless switches, enclosures and racks, cable management, audio/video cables and cable ties. Several popular Belden products for this type of application include:

- Brilliance® audio and video cables
- Brilliance control cable
- IBDN® FiberExpress® optical fiber cable, patch panels, adapters and patch cords
- Optimax® field connectors for optical cable
- IBDN System 10GX® (10 Gb) copper cable, patch panels, patch cords and modules (jacks)
- DataTwist®, GigaFlex® and MediaTwist® copper cable, and GigaFlex patch panels, patch cords and modules (jacks)
- IDC cross-connect kits
- Enclosures and racks
- PowerSense® PoE midspan hubs
- Media converters
- Wireless switches
- Patch cords/cable management units
- Cable ties



### TV Broadcast Studio

The studio itself hosts a collection of Belden products, including audio/video cables, camera cables, cables for lighting and climate control, fire alarm cables and cable management. More specifically, these can include popular Belden products such as:

- Brilliance® AES/EBU digital audio cable
- Brilliance HDTV composite (copper/optical fiber) camera cable
- Precision audio/video snake cables
- Digital patch cables
- New Generation® fire alarm cable
- New Generation HVAC control cable
- Surface raceway systems
- Cable ties

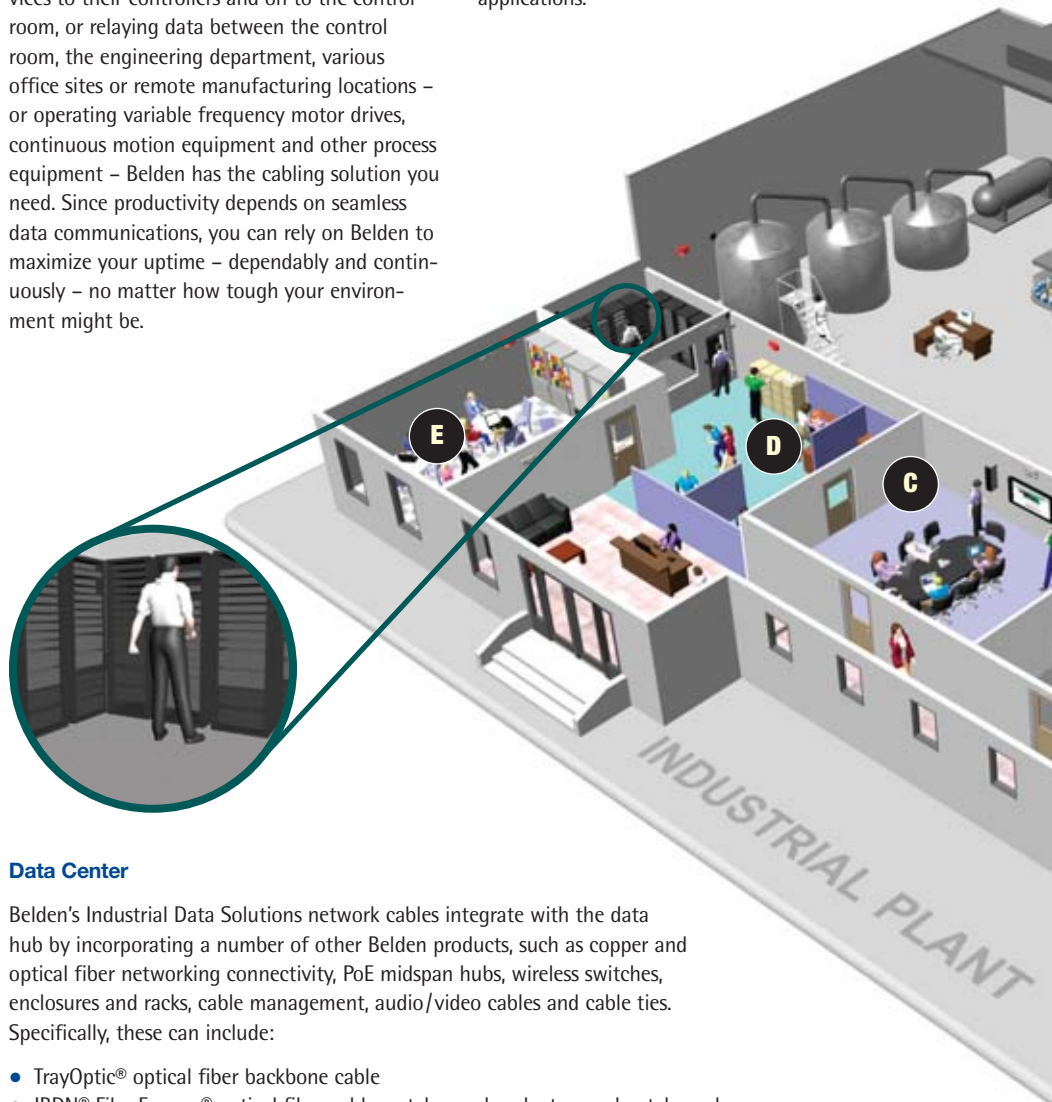
## Belden® Solutions for the Industrial Enterprise

Including Manufacturing and Processing Plants, Utilities and Other Harsh Environment Facilities

Application	Belden Products
<b>A Warehouse</b>	CCTV camera cable, access control cable, fire alarm cable, networking cables and connectivity, cable ties
<b>B Manufacturing Supervision Office</b>	Networking cable and connectivity, wireless access points, cable ties
<b>C A/V Conference Room</b>	Audio/video cable, HDTV video cable, speaker cable, CCTV camera cable, networking cable and connectivity, cables for automated lighting, window and climate control, workstation outlets and faceplates, wireless access points, fire alarm cable, cable ties
<b>D Office Area</b>	Networking cable and connectivity, wireless access points, fire alarm cable, climate control cable, workstation outlets and faceplates, surface raceway systems, cable ties
<b>E Lunchroom</b>	Networking cable and connectivity, video cable, speaker cable, fire alarm cable, EVAC system cable, wireless access points

Belden has developed the most comprehensive line of industrial cabling solutions in the world today. Whether you are networking your factory floor and/or your process equipment and devices to their controllers and on to the control room, or relaying data between the control room, the engineering department, various office sites or remote manufacturing locations – or operating variable frequency motor drives, continuous motion equipment and other process equipment – Belden has the cabling solution you need. Since productivity depends on seamless data communications, you can rely on Belden to maximize your uptime – dependably and continuously – no matter how tough your environment might be.

The facility illustrated here represents a typical industrial enterprise – from office, to manufacturing or processing cells, to shipping – and the Belden solutions you can find in each of these applications.



### Data Center

Belden's Industrial Data Solutions network cables integrate with the data hub by incorporating a number of other Belden products, such as copper and optical fiber networking connectivity, PoE midspan hubs, wireless switches, enclosures and racks, cable management, audio/video cables and cable ties. Specifically, these can include:

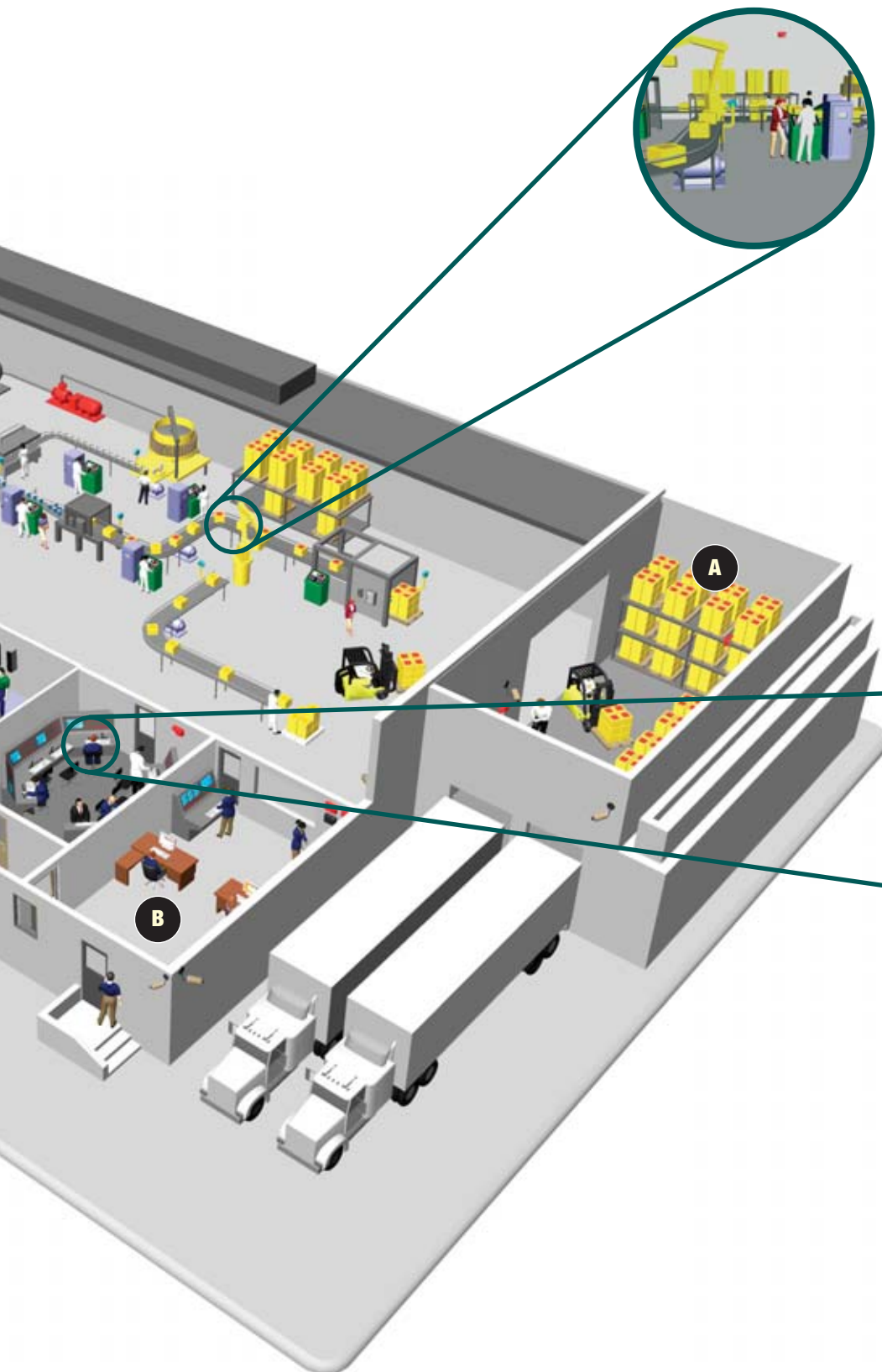
- TrayOptic® optical fiber backbone cable
- IBDN® FiberExpress® optical fiber cable, patch panels, adapters and patch cords
- Optimax® field connectors for optical cable
- IBDN System 10GX® copper cable, patch panels, patch cords and modules (jacks)
- DataTwist®, GigaFlex® and MediaTwist® copper cable, and GigaFlex patch panels, patch cords and modules (jacks)
- Enclosures and racks
- PowerSense® PoE midspan hubs
- Media converters
- New Generation® audio cable
- Wireless switches
- Patch cord/cable management units
- Cable ties



## Manufacturing/Process Area

Belden solutions can include Industrial Data Solutions® supporting Industrial Ethernet and Bus networks, as well as Interconnect and RS-485 applications, instrumentation and control cables, armored cables, flexible automation cables, Pan/Tilt/Zoom CCTV camera cable, fire alarm cable, PoE, sound (paging) cable and more. Popular products can include the following:

- DataTuff®, DataBus®, DeviceBus®, ControlBus® and other industrial data cables for any industrial network application
- TrayOptic® fiber cable, designed for harsh environments
- Industrial or commercial optical fiber cable for backbone applications
- Blue Hose® twinax cable for PLC/DCS signals
- Variable Frequency Drive (VFD) cables
- Belden Infinity® flexible automation cables for robotics and continuous motion systems
- 300V Power Limited Tray Cable PLTC/ITC, 600V Tray Cable (TC), and thermocouple cable products
- New Generation® Pan/Tilt/Zoom CCTV cable
- New Generation fire alarm cable
- New Generation audio cable
- PowerSense® PoE midspan hubs
- Cable ties



## Security Office

Belden can outfit all cabling solutions for security applications, including CCTV camera cable, fire alarm and access control cable, and cable for EVAC systems. In addition, Belden supplies audio/video cable, climate control cable, copper networking cable and connectivity, wireless LANs, enclosures and cable management. Specific products can include:

- IBDN® System 10GX® (10 Gb) copper cable and modules (jacks)
- Workstation outlets and faceplates
- Wireless Solution access points
- New Generation Pan/Tilt/Zoom CCTV camera cable
- New Generation fire alarm cable
- New Generation HVAC control cable
- New Generation audio cable
- Surface raceway systems
- Cable ties



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