

S T E E L   C O N D U I T



**The Tough  
Steel Tube  
that Protects  
the Thin  
Blue Line**



*Public Safety Building, East Chicago, Indiana*



# EAST CHICAGO'S NEW PUBLIC SAFETY BUILDING

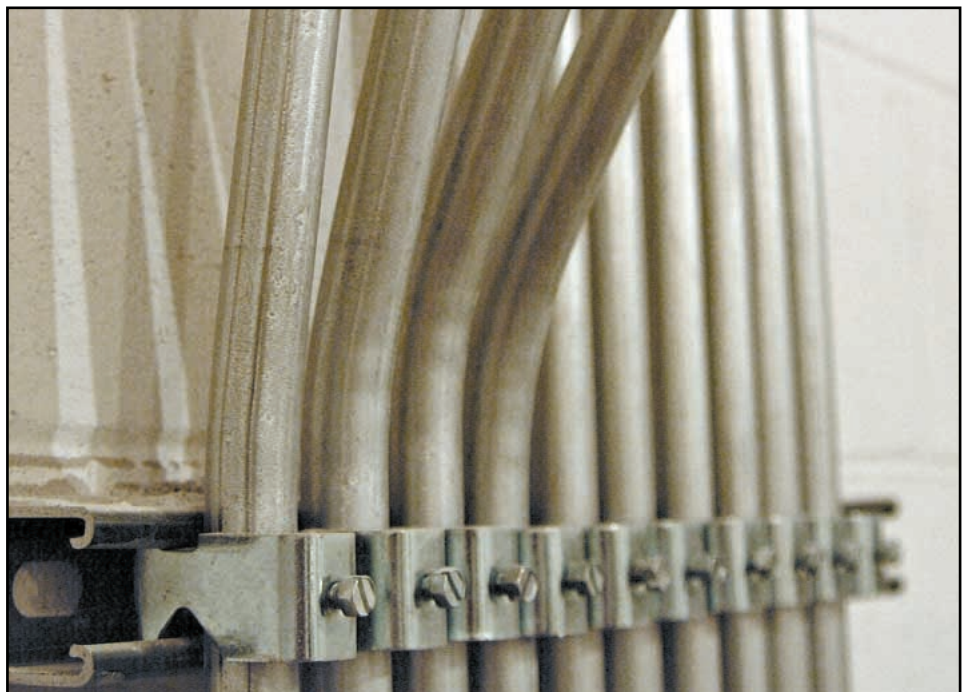


When DLZ Indiana Inc. was presented the opportunity to provide the electrical design work for the City of East Chicago, Indiana's new public safety building, there was no doubt in their mind that the power distribution system had to be encased in steel conduit to guard against ElectroMagnetic Interference (EMI).

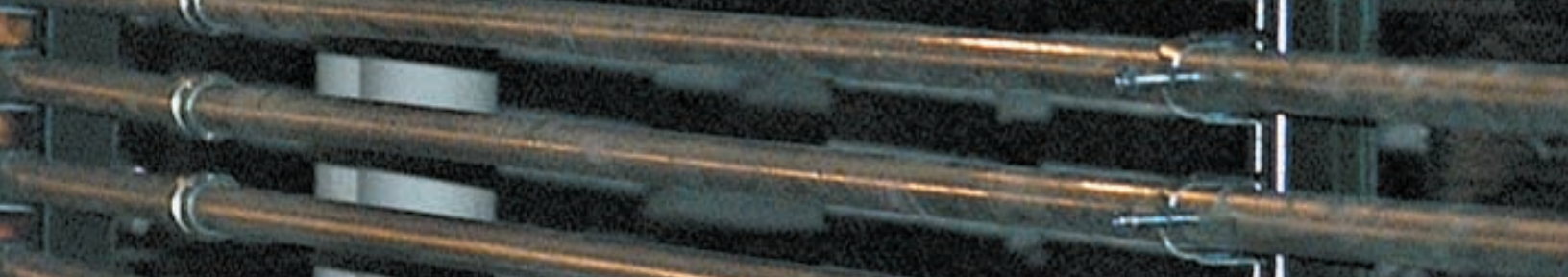
The building is designed to accommodate a 911 emergency dispatch center, a police station with a detention wing and an emergency medical service personnel group—all of which rely on sophisticated communications equipment.

The DLZ electrical design team knows, from experience, that steel conduit will shield against EMI by effectively reducing electromagnetic field levels for enclosed power distribution circuits.

Their conclusions are supported by a research study conducted by Georgia Tech under the sponsorship of the Steel Tube Institute of North America. The study shows that steel conduit can reduce electromagnetic fields at 60 Hz power frequency levels by as much as 95%. The comparable reduction for aluminum conduit was just 10%; non-conductive, nonmetallic conduit was ineffective.



**Steel  
Conduit.  
Get wired  
for the  
future.**



# BUILDING IS PROTECTED BY STEEL CONDUIT



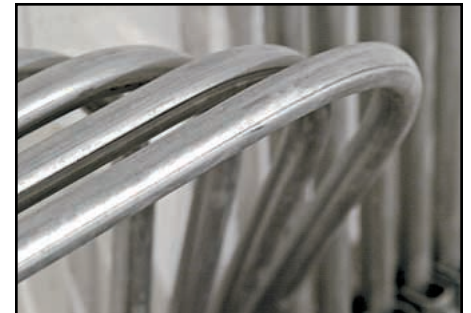
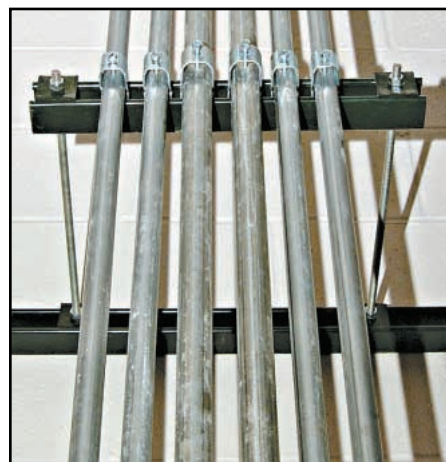
## Steel Conduit Shields Against EMI

Steel conduit does two basic things. First, it reduces the electromagnetic fields created by electron flow through the conductors inside the conduit that can affect the performance of computers and other sophisticated electronic equipment. Second, it shields the conductors inside the conduit from being affected by external electromagnetic fields.

The most important consideration in the public safety building was to keep the high power currents from affecting the very sensitive communications systems in the building.

Dr. Tim Raykovich is the owner of the building and the facility's

project manager. He also is an electrical engineer and a medical doctor. Consequently, the decision to install steel conduit throughout the building wasn't a difficult one to make. The DLZ design team felt steel conduit above grade, as well as below the slab, was the right choice, and Dr. Raykovich readily agreed.



In fact, DLZ specifies rigid steel conduit even under a 6" or 8" thick concrete slab to shield against EMI.

## Protecting Systems A Key Consideration

Since both the design team and the building owner considered the electrical and communications systems to be a critical component of the building, protecting them was a key design consideration.

Although guarding against EMI was the primary driver in specifying steel conduit in the public safety building, DLZ's design team says the physical properties and life-cycle cost advantages that steel conduit provides to both the building and its owner also are significant advantages.

Overall, the DLZ electrical design team specifies rigid galvanized conduit in areas containing electrical and mechanical equipment that could be subject to damage and electrical metallic tubing behind the walls and above ceilings.

The use of steel conduit in a building assures that if there's a problem, or if circuits have to be replaced or added, it's easy to pull conductors out of conduit and replace them. That's a big advantage over using cable.

An additional benefit of steel conduit is that it does not contribute to the flammable and combustible material content in a building. That's an important consideration in the overall design of a public facility and can be a life-saving issue if a fire occurs.

DLZ also specifies other system upgrades, like upsizing the branch circuit wiring, which may add up to a few more dollars spent, but the DLZ design team knows that it provides a much better building system when they're done. Their goal is to design in efficiency for today, while assuring that the building is cost-efficient through the years.

## Design Meets Needs Of Today, Tomorrow

When DLZ engineers a building, it aims to provide the owner with an 80-year life span. Including steel conduit in the building's

infrastructure is a key step in assuring that life span.

The engineering firm recognizes that the use of steel conduit may mean slightly higher initial costs. However, they know initial installed cost will be offset by significant savings in both life-cycle and maintenance costs.

## The Steel Tube Institute

The Steel Tube Institute was founded in 1930 and sponsors cooperative member efforts to improve manufacturing techniques for conduit and other tubular steel products and informs customers and fabricators about these products' utility and versatility. It is headquartered in Coral Gables, Florida.

## Steel Conduit Provides Added Protection

Steel conduit protects electrical conductors against mechanical and electrical damage, and provides excellent grounding for electrical equipment. It also protects against electromagnetic fields (EMF) that could hurt the performance of nearby

computers and other electronic equipment. There are three basic types: Rigid Steel Conduit (GRC); Intermediate Metal Conduit (IMC); and Electrical Metallic Tubing (EMT).

## Free GEMI Analysis Software Available

The Georgia Tech study that confirms the EMI shielding advantages of steel conduit is incorporated in the Grounding and ElectroMagnetic Interference (GEMI) analysis software, available free from the Steel Tube Institute. The GEMI CD helps you accurately calculate the electromagnetic field density of a network design for conduit-enclosed circuits. It also helps you confirm that your system design complies with the equipment grounding requirements of the NEC.



For your free GEMI CD, contact the STI. Log onto [www.steelconduit.org](http://www.steelconduit.org) and download it at no cost.

## Steel Conduit Members

### Allied Tube & Conduit

16100 S. Lathrop Avenue  
Harvey, IL 60426  
Telephone: (708) 339-1610  
Fax: (708) 339-0615

### Picoma Industries

330 East Ninth Street  
Waynesboro, PA 17268  
Telephone: (800) 742-6621  
Fax: (717) 762-0948

### Republic Conduit

#### Maverick Tube Corp.

1315 Albert Street  
Youngstown, OH 44505  
Telephone: (330) 742-6000  
Fax: (330) 742-6096

### Robroy Industries

1100 US Highway 271 South  
Gilmer, TX 75644-1828  
Telephone: (903) 843-5591  
Fax: (903) 843-2516

### Western Tube & Conduit Co.

P.O. Box 2720  
Long Beach, CA 90801-2720  
Telephone: (310) 537-6300  
Fax: (310) 604-9785

### Wheatland Tube Company

P.O. Box 600  
Collingswood, NJ 08108-0600  
Telephone: (856) 854-5400  
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