



## DATACOM CABLE SOLUTIONS

### Communications Cable Offerings for Healthcare Facilities and General Cable's 17 FREE<sup>®</sup> CMR Products

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# Communications Cable Offerings for Healthcare Facilities and General Cable's 17 FREE<sup>®</sup> CMR Products

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## OVERVIEW

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Communications cables in the U.S. are typically broken down into two types, Plenum (CMP) and non-plenum or Riser (CMR) with guidelines for each specified by the National Fire Protection Association (NFPA 70) in the National Electric Code (NEC). As defined in the NEC, Plenum cables are meant for spaces that are not specifically fabricated for environmental air handling purposes but are used for air handling purposes as a plenum or for applications otherwise required by the local authority having jurisdiction. Riser cables are typically used in all other non-plenum applications that do not require plenum cables. So for most applications, there is usually only a choice between Riser and Plenum cables based on the building design and codes.

Plenum and Riser cables have traditionally used materials such as polyvinylchloride (PVC), fluorinated ethylene propylene (FEP), and other brominated, fluorinated, or chlorinated flame retardants, all of which contain halogens. Until recently, these materials have been necessary in order to meet the stringent flame and smoke requirements for Plenum and Riser cables. For many years, there have been concerns about the use of some of these materials due to the color and the content of the smoke they emit when ignited. Today, a third option is available in General Cable's GenSPEED<sup>®</sup> 17 FREE<sup>®</sup> line of Riser products. The 17 FREE line does not contain halogens, which is especially important in healthcare facilities where the ventilation systems have different requirements.

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## HALOGENATED MATERIALS

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Traditional communications cables are manufactured using polyvinylchloride (PVC), fluorinated ethylene propylene (FEP), polyolefins, or other materials with additives that contain flame retardants. Collectively, these materials are most often used in Plenum and Riser communication cables because of their physical and electrical properties and their ability to limit how quickly flames spread as well as the amount of smoke produced in a fire. These flame and smoke requirements are governed by the NFPA 262 test for Plenum cables and the UL 1666 test for Riser cables. Many of these cables use materials containing halogens.

Halogens are elements found in the seventeenth group on the Periodic Table and include Fluorine, Chlorine, Bromine, Iodine and Astatine. Halogens by nature are very reactive, meaning they want to combine with other elements to become stable. During a fire, halogens used in PVC and other flame retardants break apart from the other elements. This reaction is very beneficial because it reduces the ability of the flame to spread and the amount of smoke produced.



When cables containing halogenated materials are ignited their smoke may contain acids such as HCl (Hydrogen Chloride), HF (Hydrogen Fluoride) and HBr (Hydrogen Bromide). This smoke may also be darker smoke than that produced by non-halogenated products, which may reduce visibility during a fire.

This smoke that contains halogenated acids such as HCl, HF, and HBr has the potential to damage sensitive electronics equipment in the event of a fire. During a fire, the smoke from these materials can deposit soot containing the acids onto the electronic equipment and circuit boards. The deposited soot may adversely impact the performance and functionality of the equipment by reacting with chemicals used in the circuit boards causing malfunctions, electrical shorts, and potentially even permanent damage to the equipment. Although the equipment can typically be cleaned and repaired, it can be costly to do so.

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## **APPLICATIONS IN THE HEALTHCARE INDUSTRY**

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The Healthcare industry has unique opportunities from traditional premise buildings that present more choices on what type of cables may be used. Hospitals and healthcare facilities typically follow specialized industry standards for the design of their HVAC system. These standards outline the requirements for air flow, filtration and pressure difference in most areas of healthcare facilities. As a result, fully ducted returns are often used in HVAC system, which would allow the use of Riser cables in horizontal spaces where Plenum cables would traditionally be used. Consequently, a designer has more choices when deciding which cables can be used in which spaces as permitted by the NEC or local authority having jurisdiction.

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## **OPPORTUNITIES AND BENEFITS FOR THE USE OF 17 FREE<sup>®</sup> PRODUCTS IN THE HEALTHCARE INDUSTRY**

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For a designer, there are many things to consider when choosing cable for use in a healthcare facility including cost, performance and occupant safety in the event of a fire. If the application uses fully ducted air returns, and if the area is not defined as requiring plenum cables by the local authority having jurisdiction, then there can now be three options for which cable to use. The first option is Plenum cables, which have the best flame and smoke ratings and can be used in almost any application. These cables would provide the highest level of safety due to the fact that their flame spread performance is so much better than Riser cables. However, Plenum cables are much more expensive than Riser cables. The second option would be to use a traditional Riser cable. While Riser is the least expensive option, it still contains halogens which can damage electronics equipment and can produce darker smoke in a fire which can reduce visibility. General Cable's 17 FREE Riser cables provide a unique third option.

The 17 FREE line of Riser communication cables, including Cat 5e, Cat 6 and Cat 6A, are all made without halogens. Since these products do not contain halogens, they significantly reduce the darkness of the smoke. Additionally the smoke produced has a significantly reduced halogen acid content which may prevent costly damage to expensive and sensitive electronics equipment used in healthcare facilities. At the same time, 17 FREE products cost significantly less than Plenum cables and only cost marginally more than traditional Riser cables.



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## CONCLUSION

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General Cable's 17 FREE<sup>®</sup> Riser product offering presents an excellent alternative to traditional Plenum and Riser cables in healthcare facilities. The 17 FREE Riser product line provides increased safety for occupants, and may prevent damage to electronics equipment in the event of a fire while still being a cost-effective solution.

When designing a building for LEED certification, the use of General Cable's 17 FREE products may qualify towards LEED credits. Buildings that are LEED certified use resources more efficiently compared to the standard building code and can provide a healthier working environment for people. There are four levels of certifications—baseline, silver, gold and platinum—that offer a reduction in operations costs and possible increased tax incentives.

Incorporating General Cable's 17 FREE line of Riser cables into a building significantly reduces the release of halogen-based smoke in a fire scenario, while still meeting industry standards.

