

Plenum (CMP) Rated Cable

Often found on building material lists, the Plenum rating (CMP) signifies cable that has passed stringent burn testing and is suitable for installation into Air Plenum spaces.

The Air Plenum space is defined as the area through which environmental air is transported. Examples of this include the space above a suspended ceiling or below a raised floor that does not have closed air ducts for the HVAC system to transport air. [\(click here to see diagram\)](#). Most often this space is used as the air return.

Although local building codes dictate exactly what is required in a local area, the National Fire Protection Association (NFPA) provides a recommendation on a national basis. For Plenum rated cables, this falls under NFPA-262. The UL equivalent standard is the UL-910 standard, which is made up of two primary tests, cable burn properties and smoke density.

Burn Test Results



Before



After



[Click here to see a video example of cable being burned outside the controlled lab environment.](#)

Standards:	UL-910 Test for Flame-Propagation and Smoke Density
 Flammability:	Low – Burns but will self extinguish when flame is removed
 Toxicity:	High – When burned, this cable gives off toxic and corrosive gasses
Application:	Cabling found inside walls, ceilings, and air plenums of office buildings

Riser (CMR) Rated Cable

A Riser Rating (CMR) is commonly required when cables are run between floors through open vertical shafts. [\(click here to see diagram\)](#). Although these pathways do not handle environmental air, they can easily conduct a fire from one floor to the next if the cable is not properly rated. The UL-1666 test is the industry standard for this type of cable. Unlike the Steiner Tunnel Test in UL-910, the UL-1666 test is conducted with the cables mounted vertically. The airflow over the cables is reduced and the limitations on the burning are more flexible. This test also does not look at smoke density or toxicity. CMR rated cable is suitable for vertical shafts not defined as an environmental air plenum.

Burn Test Results



Before



After



[Click here to see a video example of cable being burned outside the controlled lab environment.](#)

Standards:	UL-1666 Test for Flame-Propagation
 Flammability:	Low – Burns but will self extinguish when flame is removed
 Toxicity:	High – When burned, this cable gives off toxic and corrosive gasses
Application:	Cabling found inside walls and vertical cable shafts in office buildings

Low Smoke Zero Halogen (LSZH) Rated Cable

Low Smoke Zero Halogen cables are the newest in a family of ratings. This type of cable is sometimes referred to as low toxicity cable. When burned, PVC based cables produce a cloud of toxic smoke containing corrosive compounds such as hydrochloric acid. Examples of Halogens include Fluorine, Chlorine, Bromine, and Iodine. These compounds are often found in data cables, including Plenum Rated cables. Users often confuse the Plenum rating with the LSZH rating since both include a provision for Low Smoke. However, the Plenum rated cables often contain Fluorine, which falls under the Halogen category. The LSZH cables do not contain the Halogen type compounds that form these toxic substances. When burned, the LSZH cables give off very little smoke and do not produce the toxic halogen based gasses previously mentioned. [Click here for related products - Low Smoke Zero Halogen Rated Cables.](#)

Burn Test Results



Before



After



[Click here to see a video example of cable being burned outside the controlled lab environment.](#)

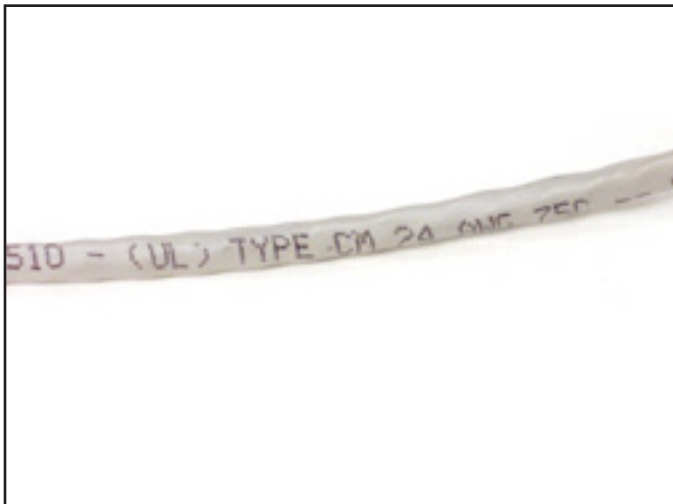
Standards:	NES-711, NES-713, MIL-C-24643, UL-1685
 Flammability:	Low – Burns but will self extinguish when flame is removed
 Toxicity:	Low – No corrosive gasses, but does give off carbon monoxide
Application:	Mostly military and shipboard patch cables

General Purpose (CM, CMG, CMx) Cable

General Purpose cables need to comply with UL-1581 testing. The most recognized part of the 1581 standard is the VW-1 Vertical Flame Test. In this test the cables are mounted vertically (similar to UL-1666) except there is no airflow over the cable. This type of cable is the minimum requirement in commercial installations. Network patch cables commonly fall into this category.

Burn Test Results



Before



After



[Click here to see a video example of cable being burned outside the controlled lab environment.](#)

Standards:	UL-1581 Reference Standard for Electrical Wires, Cables, and Flexible Cords
 Flammability:	Medium – Burns but will self extinguish when flame is removed
 Toxicity:	High – When burned, this cable gives off toxic and corrosive gasses
Application:	Cabling used on patch cables and office cords

Unrated Cable

Cables that do not meet any of the other categories often are not tested in accordance with any standard. For some applications this might be acceptable. However for most applications this should not be overlooked. As demonstrated in our test video, these non-rated cables burn quickly and spread flames to other areas not initially affected by a fire. For users, this could be dangerous. A small cable that shorts out on the back of a computer desk could engulf an entire building. The flame will rise up the desk igniting the wall and other surrounding material. This can happen in as little as 30 seconds. During our test, less than two minutes had passed when the flame had already consumed the length of test cable. If this had been in the office area we would have had a major fire. Be sure to comply with all local codes when installing cables. It might cost a little more now but the long-term payoff could be significant.


Burn Test Results



Before

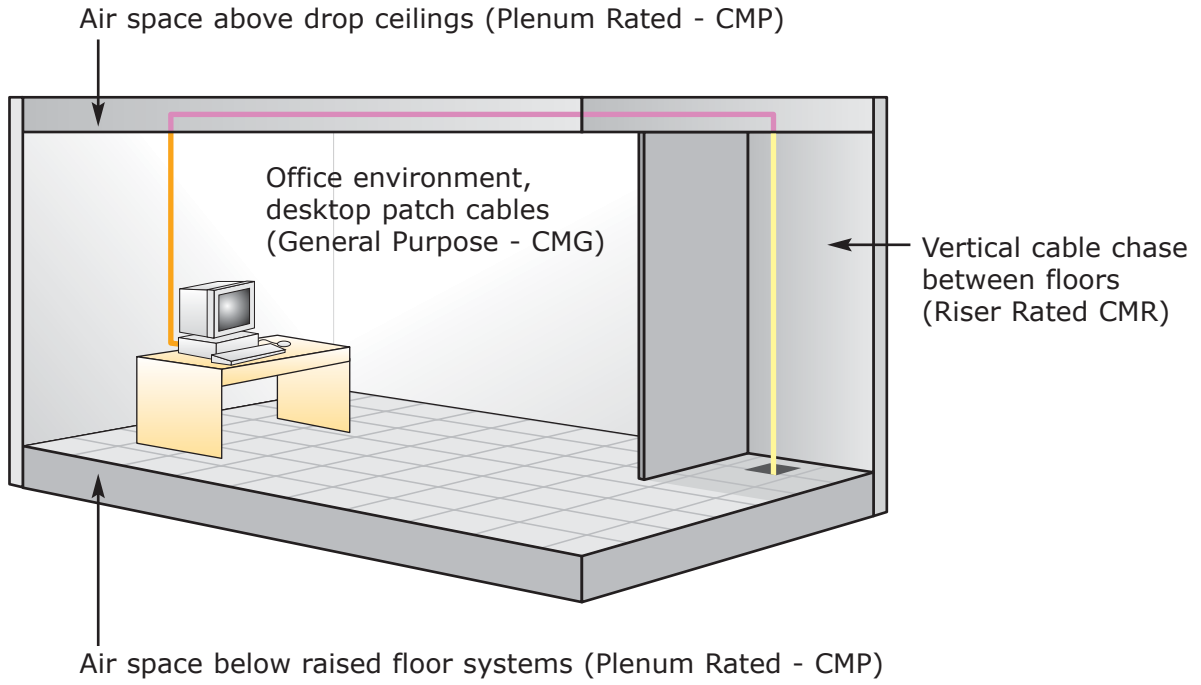


After



 [Click here to see a video example of cable being burned outside the controlled lab environment.](#)

Standards:	None
 Flammability:	High – Burns readily and will not self extinguish
 Toxicity:	High – When burned, this cable gives off toxic and corrosive gasses
Application:	Low Cost Computer Cabling



[top](#)