

SBC Code Training: Defining Backbone (Riser) and Distribution (Feeder) in ERRCS Systems

The **Safer Buildings Coalition** is an independent, not for profit 501(c)4 organization.

3 Pillars Of In-Building Public Safety Communications:

- Mobile 911 Calls Must Get Out *with Location Accuracy*
- Mobile Mass Notifications Must Get In
- First Responder Communications Must Work

NFPA 1221 - 2019

Backbone (Formerly called Riser)



Riser is now called backbone in the 2019 code

3.3.10* Backbone: A communications cable in an in-building radio enhancement system that carries wideband signals important to the entire building, from the donor antenna, through the amplifiers, and to distribution antenna lines.

A.3.3.10 Backbone. Damage to a backbone cable will disable the radio enhancement system through much or all of the building, and as a result it should be identified and protected. The Backbone could be fiber-optic, copper, or coaxial cable, but it does not radiate RF energy along its path..

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Distribution (Formerly called Feeder)



Feeder is now called Distribution in the 2019 code

3.3.46* Distribution Antenna Cable. A communications cable that carries RF energy in both directions along its length to distribution antennas in one or more places in the building.

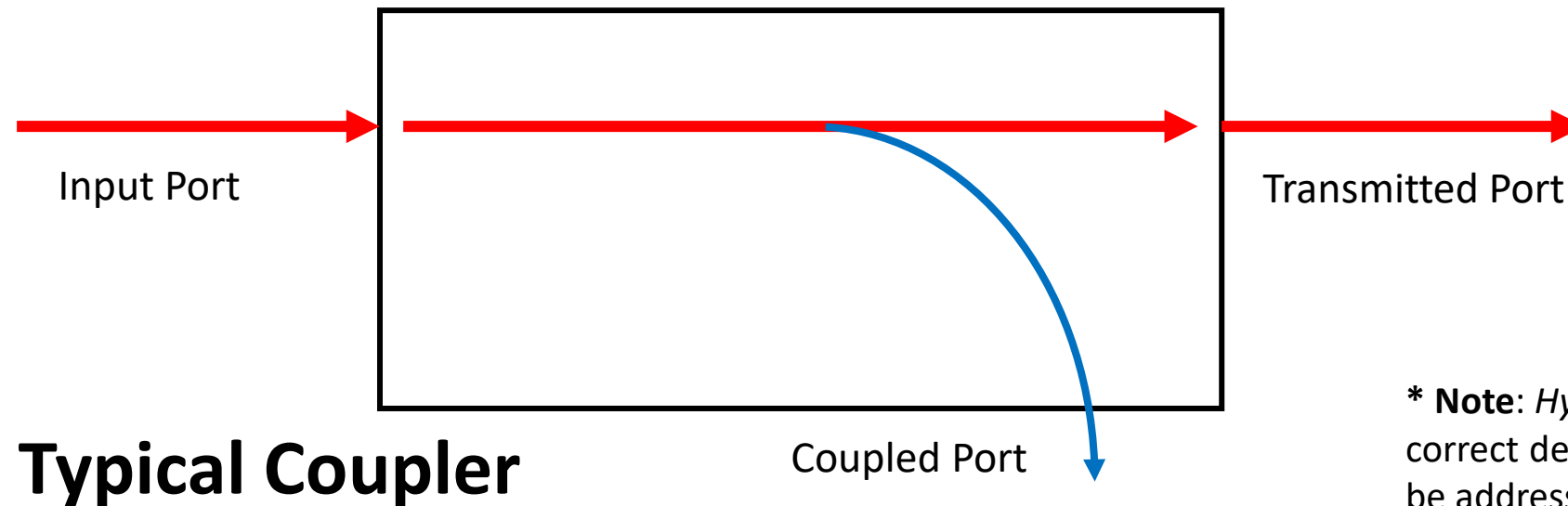
A.3.3.46. Distribution Antenna Cable. It is typically a coax cable or radiating cable, and it is outside of the heat and fire protection provided by any firewalls or other means.



NFPA 1221 – 2019

Where is the Demarcation Point ?

Δ 9.6.2.2 The **backbone cables** shall be **connected to the antenna distribution**, radiating, or copper cables using hybrid* **coupler devices** of a value determined by the overall design.

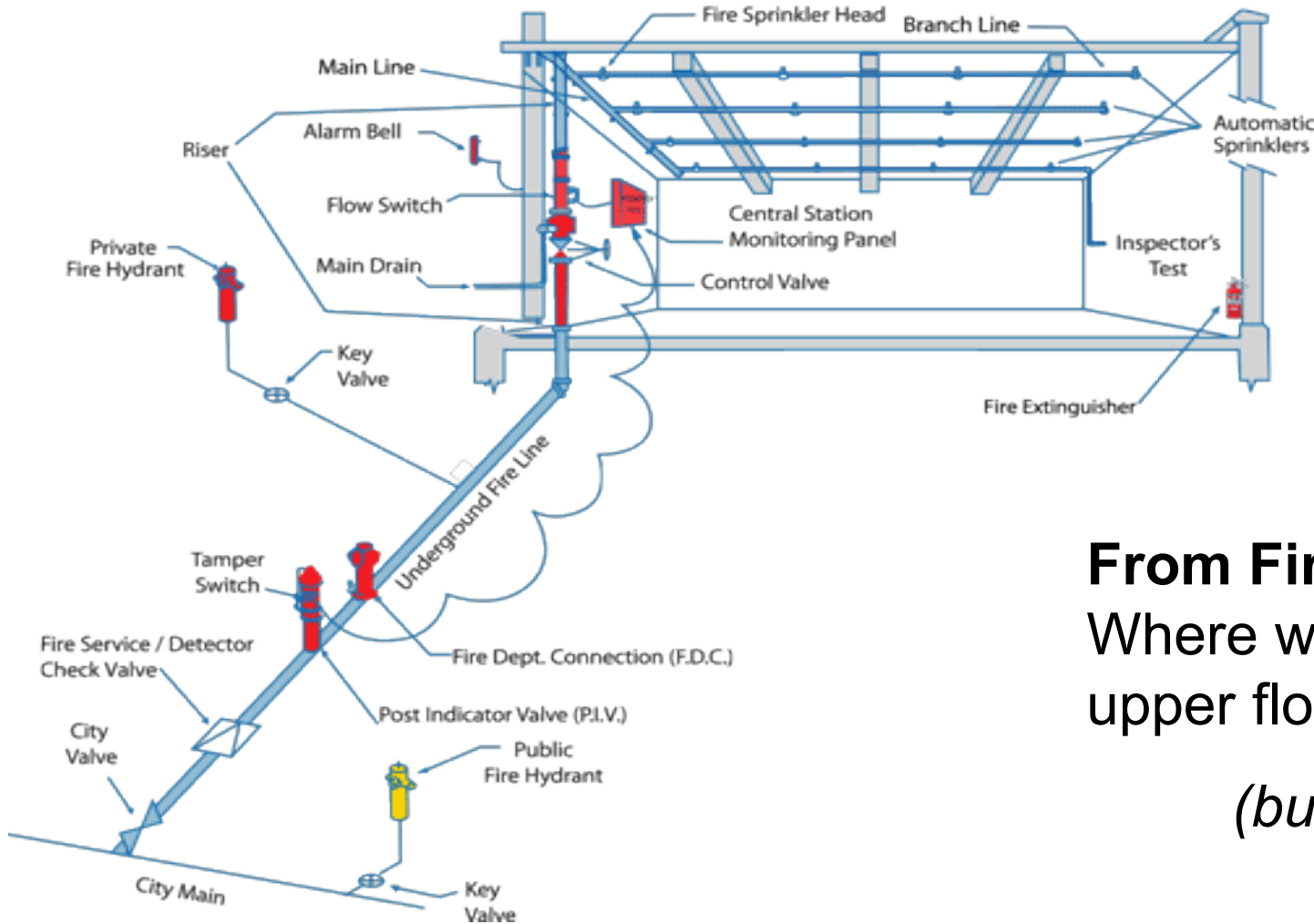


* **Note:** *Hybrid Coupler* may not be the correct device in all design cases – this should be addressed in an upcoming code cycle

Terminology



Know Your Fire Sprinkler Systems Components



Where did the term “Riser” come from in early ERRCS code versions?

From Fire Sprinkler Terminology!
Where water from the street *flows up* to upper floors...

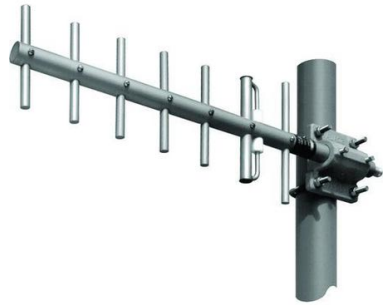
(but ... flows down to sub-floors)

So How can you tell if a Cable Run is Backbone (Riser) or Distribution (Feeder)?



- It has to do with the function of that cable in the system
- It does not matter if the cable is running **vertically** or **horizontally**,
- It does not matter if the signal is travelling **down** from the roof or **up** from the basement, or **sideways** from tower to tower or building to building

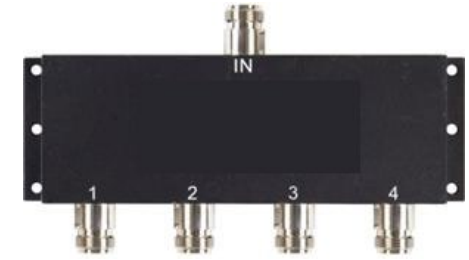
Common Passive DAS Parts



Donor Antenna



Distribution Antenna



Divider



Coax Cable



Amplifier

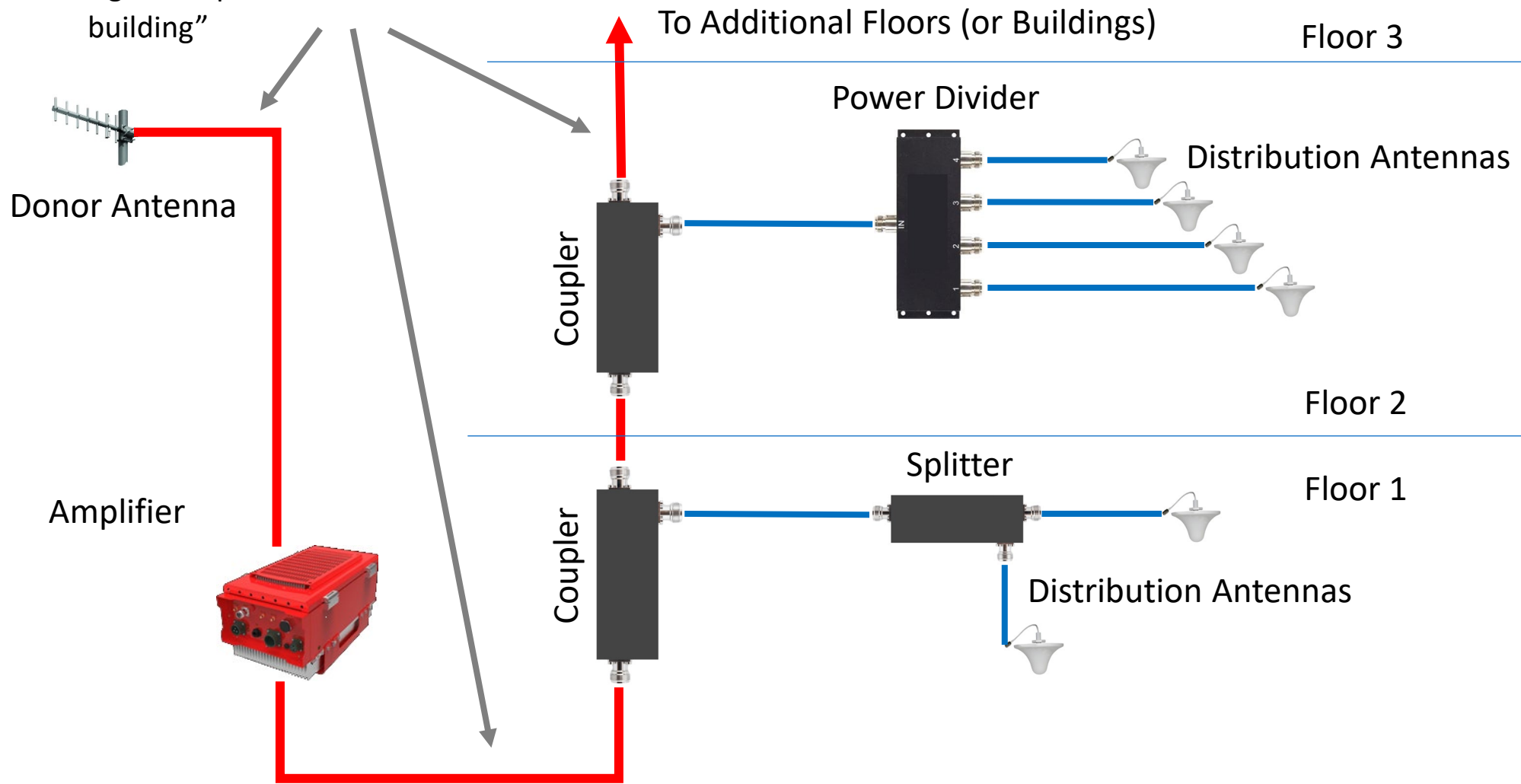


Splitters and Couplers

Backbone or Distribution? Running UP?



CODE: "Backbone...carries wideband signals important to the entire building"



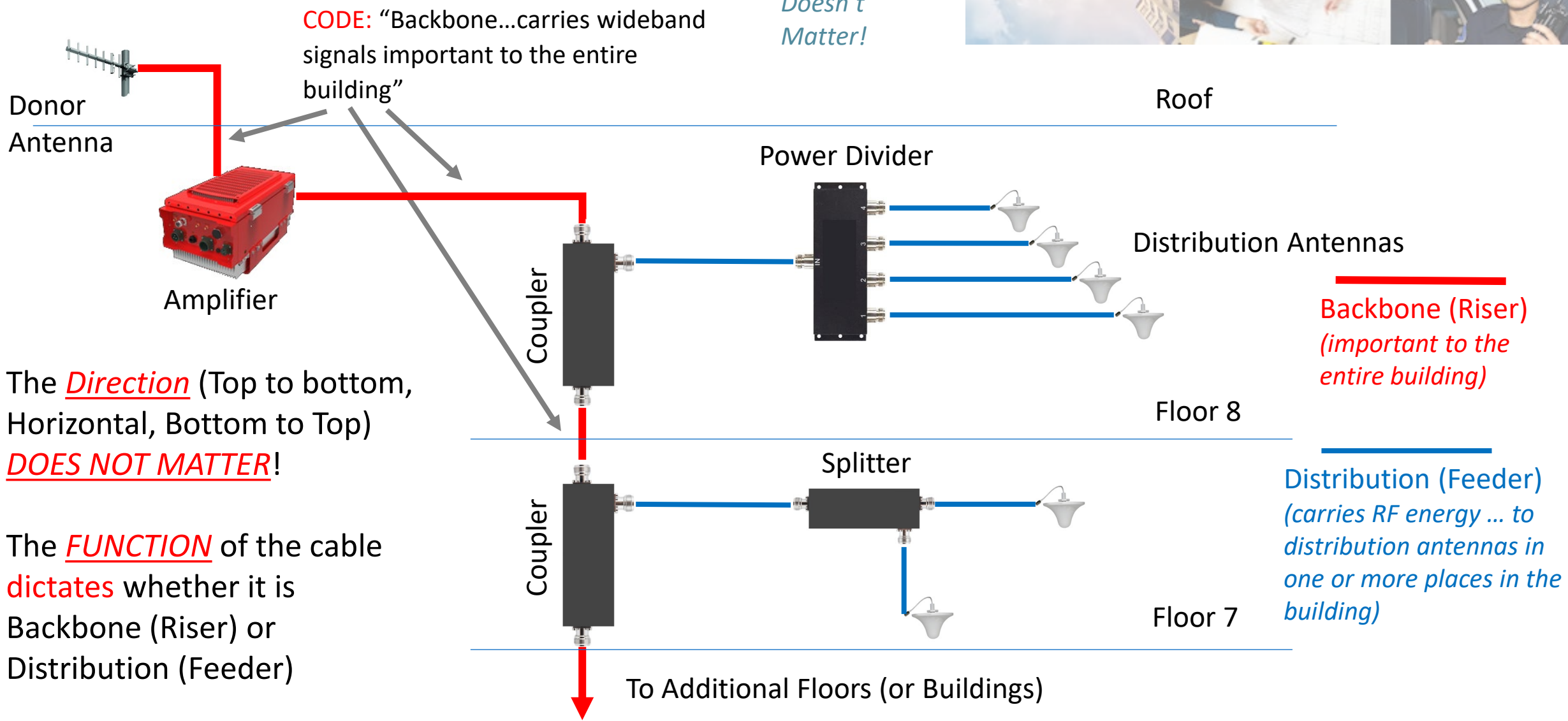
Backbone (Riser)
(important to the entire building)

Distribution (Feeder)
(carries RF energy ... to distribution antennas in one or more places in the building)

Backbone or Distribution?



Or Running DOWN?
Doesn't Matter!



The Direction (Top to bottom, Horizontal, Bottom to Top) **DOES NOT MATTER!**

The FUNCTION of the cable **dictates** whether it is Backbone (Riser) or Distribution (Feeder)

Thank You

Safer Buildings Coalition Membership always free for AHJs and First Responders

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