

What is that in my Equipment Room? Or My Equipment Room 101

This document is provided with the intent of explaining some of the fundamentals and the associated standards of your equipment room in *non-technical* terms. Do yourself and your equipment a favor. Run through this document and check it against your equipment/practices. It may reduce problems and add years to the useful life of your equipment/systems. Please feel free to contact us at any time with questions or to schedule a no cost site visit.

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Good General Rules to Follow:

Heat, static electricity and electrical surges are the enemy:

The greatest cause of wear-and-tear and ultimate failure of electronic equipment are heat, static electricity and electrical surges. If you are aware of the general causes of equipment damage due to heat and keep these under control you will cut down the amount of problems and increase the overall useful life cycle of your equipment/systems. Equipment damage due to heat, static electricity and electrical surges can cause immediate equipment failure, but more often than not the effects will be more subtle. Damage from these causes is cumulative, so if your equipment is subjected to these factors you are almost certainly shortening the equipment life and when you do experience an apparent error or failure the actual cause may not be apparent (often seen as “ghost” or intermittent problems).

Do: (far from exhaustive but an important good start)

1. Keep your equipment as clean and dirt/dust free as possible. The concern over dirt and dust is not appearance (although that may also be a factor). The issue is that dirt and dust in, on and around electronic equipment reduces it’s ability to dissipate heat efficiently.
2. Be careful what you are placing on or around your equipment. When you place books or even paper on or around your equipment, depending on what it is and where it is placed it can significantly restrict airflow. Proper airflow in and around your equipment is an important factor in the equipment’s ability to properly dissipate heat. If you look at your equipment you will find that much of it has ventilation holes. Those holes are there for a reason. Don’t block them.
3. Keep your equipment cool. A good rule of thumb for equipment and temperature is “if the ambient temperature in your equipment room feels warm to you, it is too

warm for your equipment.” “If it feels hot to you, your equipment is likely being damaged.

4. Make sure there is enough room around your equipment to provide adequate airflow to allow proper cooling.
5. Make sure all of your equipment is properly grounded to a universal ground point and that the universal ground point is a solid “earth ground.”
6. At a minimum make sure all sensitive electronics and computers are isolated from the electrical source (wall plug-in) with a UPS (uninterruptible power supply). A power strip that is also a “surge suppressor” does not count.
7. If your center is equipped with a backup generator be absolutely certain that you have adequate surge/sag/spike suppression. The proper explanation of this item goes beyond the scope of this document but it is nonetheless critically important and commonly not properly addressed, causing a great deal of serious damage.

Equipment Racks & Rack Standards:

Rack Width:

The racks that your equipment is mounted in follow some standards. The most common are the rack width. Depending on the type of equipment, the most common standards are 19” or 23”. That specification is the width from side to side as you look at the front of a rack.

Equipment Height:

Another meaningful standard is the height measurement. The standard unit of measurement is “U” which stands for “Unit” (no we are not kidding or making this up). 1U = 1.75” therefore a 2U chassis will take up 3.5” of vertical rack space and a 4U chassis will take up 7” of vertical rack space.

Budgeting Rack Space:

When budgeting rack space be aware that the hole pattern used in nearly all equipment racks is staggered. This often results in an inability to utilize all of the vertical space in a rack simply because the mounting holes will not line up efficiently. Mounting equipment in the lowest possible position in a rack is not recommended unless you are mounting passive items such as batteries or books. This is because the equipment at the bottom will collect dust and dirt at an alarming rate which will greatly shorten the life expectancy of that equipment.

Punch Blocks:

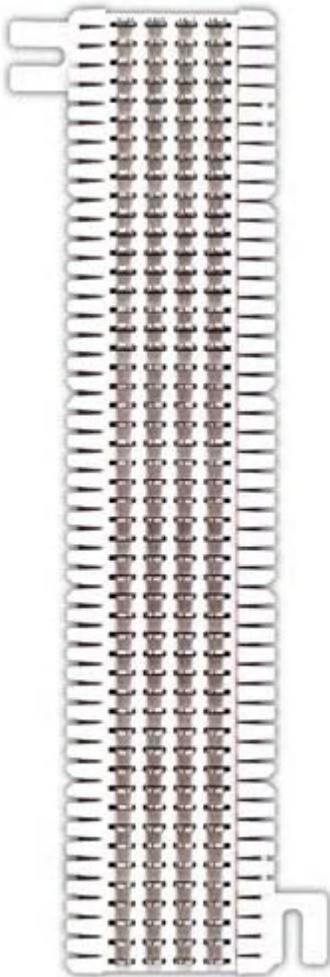
Punch blocks are the most common method used to terminate and/or cross-connect telephone and/or radio signal circuits. The two primary groups of punch block types are “66 Blocks” and “110 Blocks.” Within these two groups there are numerous sub-types.

66 Blocks:

The advantages of 66 blocks are that they provide a much simpler method of connecting other equipment and of temporarily “breaking or opening” the circuit for testing purposes. They also allow other equipment to be connected or rerouted without necessarily having to open or break the circuit. Therefore adds, moves, changes or upgrades can more often be performed without disabling the circuit.

The primary disadvantage of 66 blocks is that they take up more space than 110 blocks.

Here is a picture of a typical 66 block:

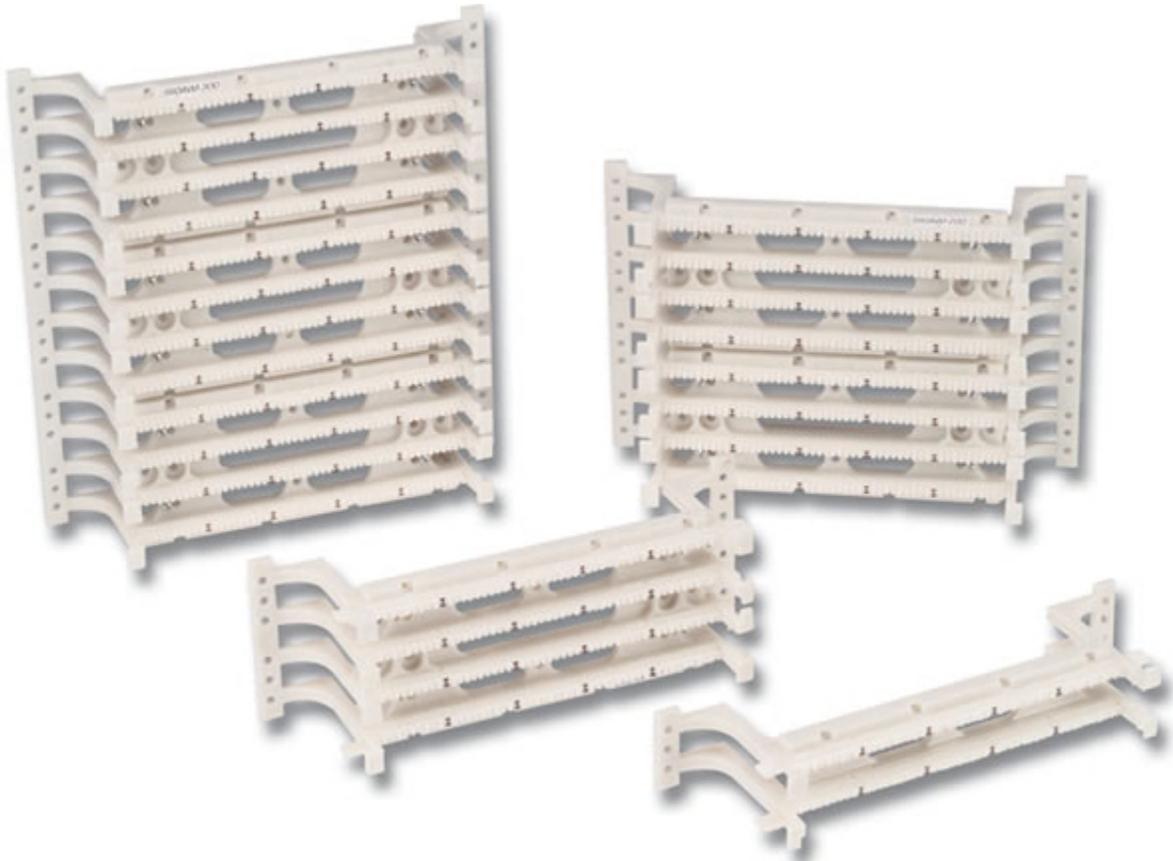


110 Blocks:

The primary advantage of 110 blocks is that they take up less space than 66 blocks.

The disadvantages of 110 blocks are that it is more difficult and time consuming to connect other equipment and this often requires temporarily “breaking or opening” the circuit for testing purposes. Due to the design they do not allow other equipment to be connected or rerouted without necessarily having to open or break the circuit. Therefore adds, moves, changes or upgrades typically cannot be performed without disabling the circuit.

Here is a picture of typical 110 blocks:



There are other less common punch block types in use. These include BIX and Krone. While there are “fans” of each type of block, we will not go into the intricacies of these. Suffice to say that as long as the work is done in a professional manner, it is likely that the choice of punch block type in your facility was arrived at with some thought and arrived at for a reason. Our purpose is not to judge that reasoning.

Cabling and Cable Management:

Neat and orderly cabling / equipment wiring (or the lack thereof) is one of the first things that will impact the general appearance of your equipment room. While the appearance may or may not be important to you, this is important for more important reasons than the aesthetics.

If your cabling / equipment wiring is sloppy or done in a manner that does not meet industry standards your costs will be higher because each time someone has to work on your equipment they will have to spend more time “figuring out” how things are wired. Worse yet, you may experience increased down time for repairs. More often than not, work that is done in a less than professional manner will need to be re-done at a later date.

This should matter to you and it will matter to a vendor who is technically competent and cares about your wellbeing. If it looks bad it is bad. You don’t need to be a technical expert to catch much of this. Don’t allow your vendors to perform substandard work.

For more information on cabling and wiring please refer back to the Technical Resources page of this CD and click the button labeled Cabling Tips & Guidelines,