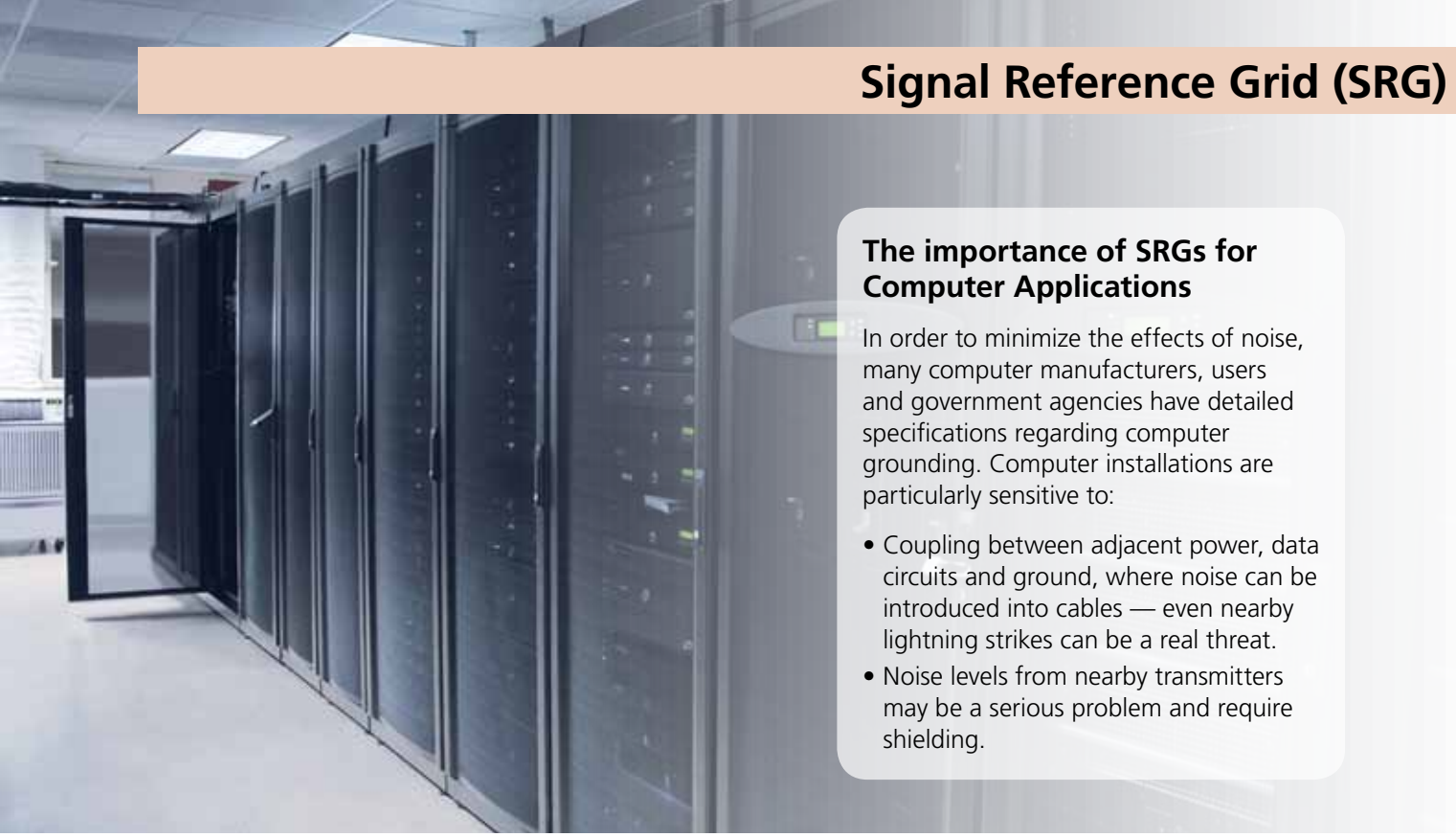


The importance of SRGs for Computer Applications

In order to minimize the effects of noise, many computer manufacturers, users and government agencies have detailed specifications regarding computer grounding. Computer installations are particularly sensitive to:

- Coupling between adjacent power, data circuits and ground, where noise can be introduced into cables — even nearby lightning strikes can be a real threat.
- Noise levels from nearby transmitters may be a serious problem and require shielding.

Components of the SRG

Effective SRG uses:

- A multitude of conductors to create a very low impedance to noise at any frequency
- 2-foot spacing between conductors
- Terminations that provide a constant impedance over the life of the facility
- Multiple paths within the SRG to allow the noise currents to divide at each crossover, which further reduces voltage drop
- A mesh made of flat copper strips to provide the most functional low impedance and cost effective computer grounding system available
- Welded connections to assure a noise-free bond

Welded Connections

Welded connections are often specified because they are the only connections proven to assure a "noise-free" bond. Normal shock and vibration jar mechanical connections, creating electronic noise. This causes relatively high Ldi/dt voltages, due to a sudden change in connection impedance. This sudden change can result in pulses which can be coupled onto the signal circuits. These unwanted signals can create false data or even cause permanent circuit damage. Corrosion, dirt and cleaning fluids cannot interfere with the molecular bond of a welded joint.

Pre-fabricated Signal Reference Grid installed under computer room floor.

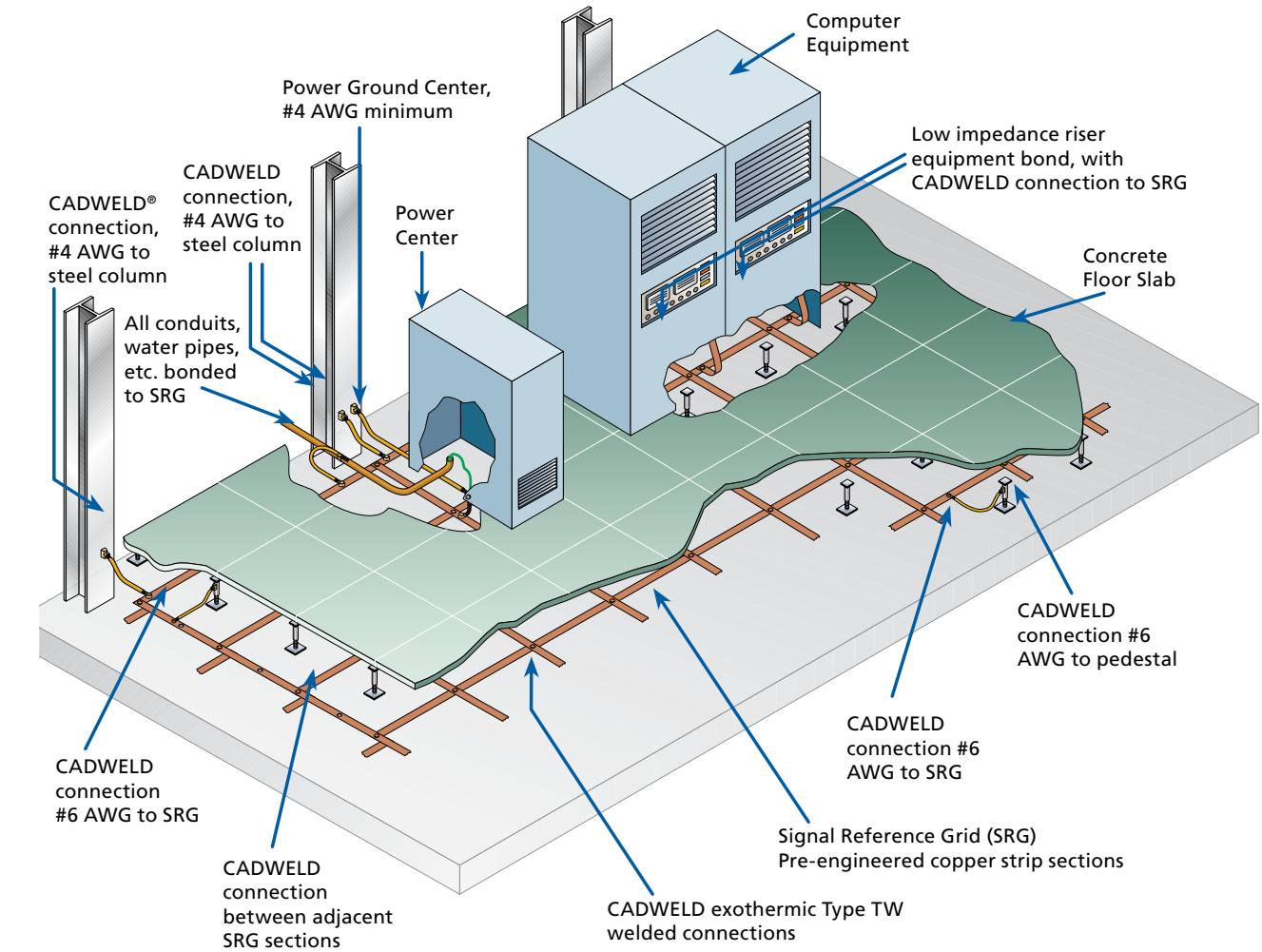
Signal Reference Grid (SRG)

The Signal Reference Grid (SRG) is a pre-fabricated, low impedance network of conductors established to create an equipotential plane for high frequency, low voltage digital signals in such applications as intensive computer, telemetry and telecommunications installations.

Digital signal line voltages are typically low. Their sensitivity to transient noise is very high (typically 1 volt for some digital systems). The SRG complies with IEEE® Standard 1100-1992 for grounding practices in sensitive electronic environments.

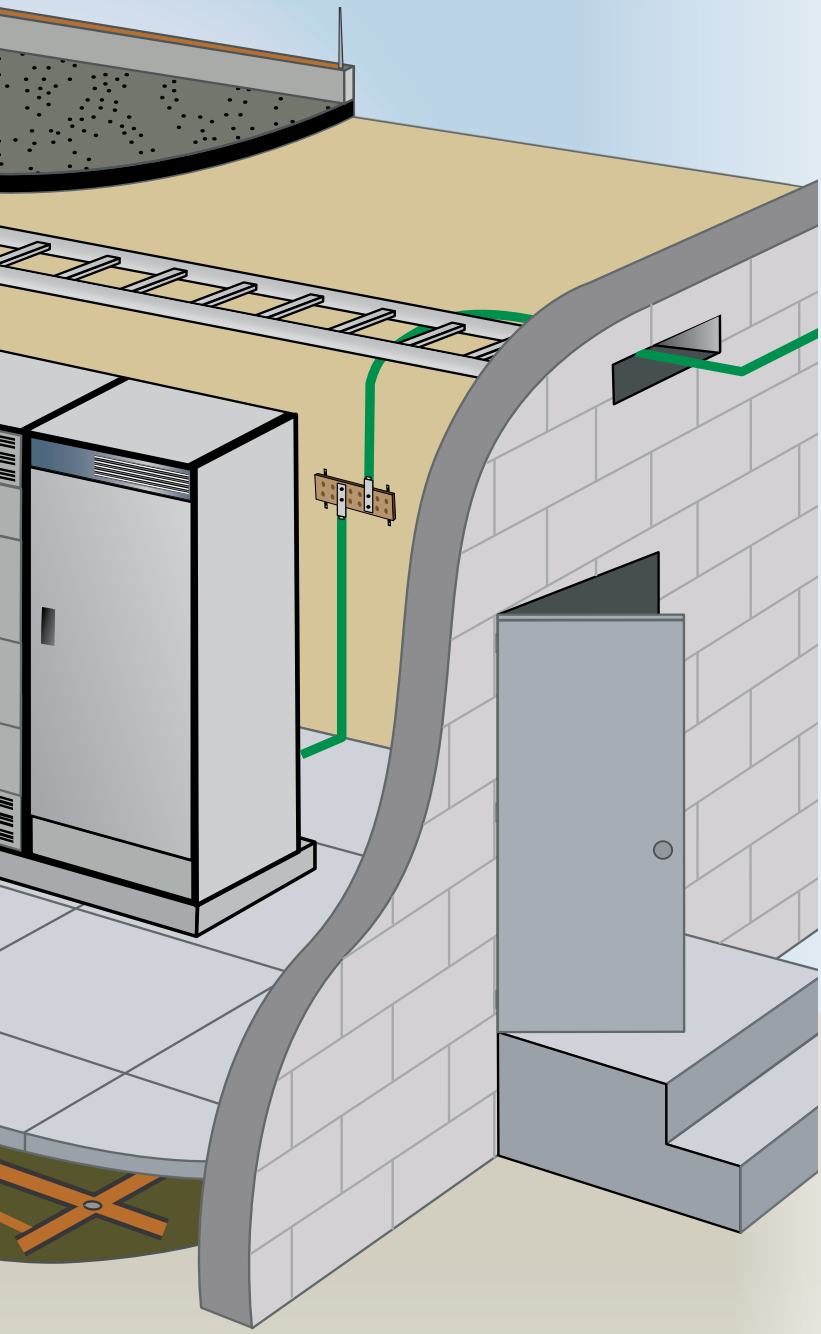
Proper grounding and bonding of sensitive electronic systems, including computer installations, requires careful consideration of all frequencies from DC to over 100 megahertz. The local requirements for electrical fault current and lightning protection must also be met.

The safety grounding system required by code does not address the special requirements of noise immunity. An additional "grounding" system called the Signal Reference Grid (SRG) is needed for trouble-free equipment performance.



Important points to consider when installing an SRG:

- Local codes must be followed.
- All equipment shall be bonded to the ERITECH® brand of SRG using low impedance risers. Never connect to strip closest to outside wall.
- All raised floors within the computer room should be bolted stringer type.
- Every sixth raised floor pedestal in each direction shall be connected to the SRG using a #6 AWG concentric copper conductor. The connection to both thepedestal and the SRG shall be a CADWELD exothermic connection.
- All columns, conduits, water pipes, ducts, etc. entering the computer room shall be bonded to the SRG (at each end of the room if these are horizontal).
- Power distribution panels and power distribution center should be mounted directly to the building steel or bonded to it by a short length of grounding conductor equal to the "green wire ground" but at least #4 AWG copper. The grounding wire inside any panel or enclosure supplying AC power to the computer must be bonded to its enclosure.



SRG Clamp & Connector

Part No.	Description	Standard Package
SRGC46	SRG Connector for #4 and #6 AWG solid or stranded conductor	20
SRGC46BR	Pedestal mounting bracket for 7/8" square or 1" round pedestals	10

Mesh Bonding Network Connectors

SRGC46

SRGC46

MBNC

- MBNC heavy duty clamps with stainless steel hardware, suitable for direct burial (UL® 467 Listed)
- Allow for fast, simple and economical field connection of grounding and bonding wires
- Can accommodate additional pigtails that can be used to connect to building steel and equipment
- Can be combined with Universal Pedestal Clamp (part # UPCJ) for bonding to various pedestal sizes for mesh bonding networks (MBN)

Part No.	Conductor Range (AWG)*	Conductor Range (Metric)	Standard Package
MBNC82	8 solid – 2 stranded	10 mm² – 35 mm²	25

* Stranded conductors #8 – 2 AWG (10 mm² – 35 mm²): 7 or 19 strands

Universal Pedestal Clamp with Cable Management Feature

- Only one attachment required for both mesh bonding and cable management
- Eliminate need for separate mounting brackets for different pedestal types or sizes
- Stainless steel construction of bracket and hardware reduces potential for galvanic corrosion
- Mesh bonding conductors do not have to bend around each pedestal to conform to grid pattern
- UL® Listed as a grounding/bonding clamp in addition to a cable support (Full Code compliance NEC® Article 250 and 300)

Part No.	Conductor Range (AWG)*	Conductor Range (Metric)*	Pedestal Size (Round or Square)	Standard Package
MBNUPCJ82	8 solid – 2 stranded	10 mm² – 35 mm²	7/8" – 2" (2.2 cm – 5.1 cm)	25

* Stranded conductors #8 – 2 AWG (10 mm² – 35 mm²): 7 or 19 strands