A man with a beard, wearing a blue polo shirt, is looking up and to the right while holding a tablet. He is standing in a server room with rows of server racks. The racks are filled with various electronic components, cables, and lights. The background is slightly blurred, focusing on the man and the server racks. The image is framed by a large, stylized graphic element consisting of overlapping geometric shapes in blue, orange, and pink.

Protecting data  
centers with  
advanced coatings



We protect and  
beautify the world®

May 2026



## How coating technologies power the reliability and efficiency of modern data centers

The digital revolution is in full swing. Over the last decade, demand for infrastructure to support it has increased exponentially, driven by the rapid adoption and reliance on artificial intelligence (AI) tools. The need for robust and scalable computing capacity to process massive amounts of information and cloud storage has never been greater.

This surge is driving major data center investment—from the facilities powering the AI boom to the infrastructure needed for hyperscale computing and software as a service (SaaS).

Like data center builders, software providers and utilities, coatings manufacturers are a critical part of the complex data center ecosystem. These suppliers are stepping up with systems and solutions engineered to meet the full spectrum of data center demands. From anti-static and thermal- and fire-resistant coatings, to formulations that prevent thermal runaway in battery storage systems, these specialized technologies are a vital piece of the puzzle to protect, power and preserve operations.

Advanced coatings play a crucial role in extending equipment life, improving energy efficiency, managing heat and static, and supporting the growth and stability of a rapidly evolving industry.

## Fast-moving project timelines

Demand for data center infrastructure puts pressure on every phase of the build, highlighting the importance of manufacturing partners that keep projects moving with readily available and reliable solutions.

Coatings companies that offer both protective solutions and the capabilities to apply them can significantly streamline procurement and simplify specification. These integrated services also help to minimize time to market for complex data center construction supply chains.

PPG delivers true layer-by-layer compatibility across the entire coatings stack, offering a fully integrated portfolio that spans pretreatment, electrocoat, liquid and powder technologies. By engineering each layer to work seamlessly with the next, PPG helps manufacturers achieve consistent performance, improved efficiency and long-term durability across all major coatings platforms. This holistic approach ensures that every stage—from substrate preparation to final topcoat—functions as a unified system, reducing complexity while elevating overall coating performance.

However, this level of integration does more than just accelerate the construction process. It also helps ensure that the facility is equipped to meet the demanding operational requirements necessary for today's data centers.

## A higher performance benchmark

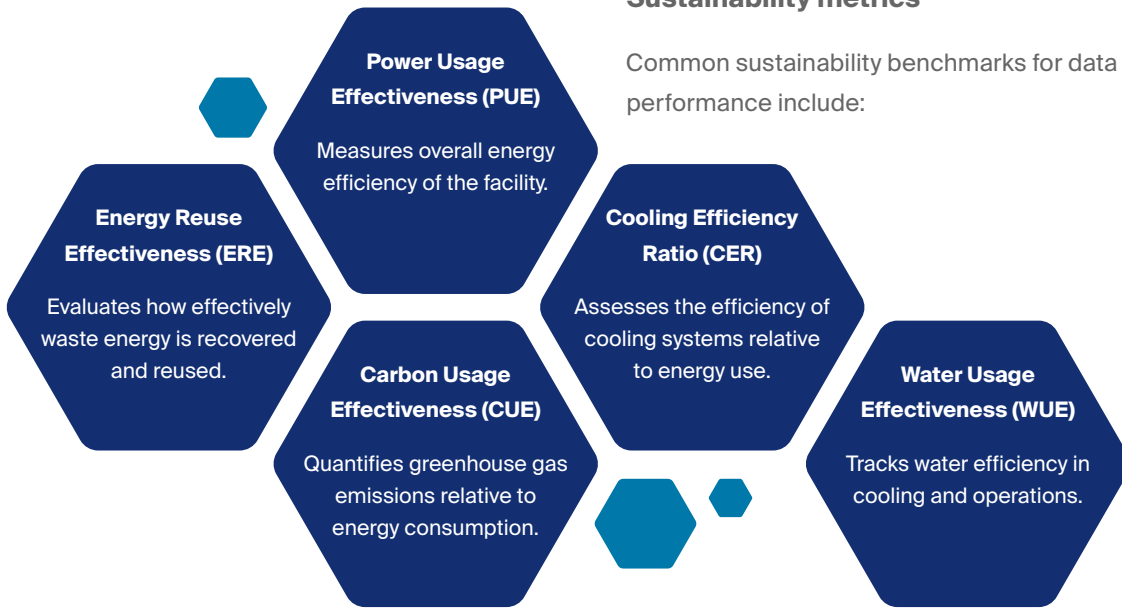
More than just a server room, the modern data center is a massive engine fueling our digital infrastructure that requires significant power, generates intense heat and must operate continuously. In fact, the ambitious uptime target for data centers is 99.9%, commonly referred to as the three nines, allowing for only a few hours of interrupted service each year. The expectation is even greater for business-critical applications that rely on real-time data and round-the-clock digital services like healthcare, finance and telecommunications, systems that are increasingly reliant on data center support.

### **Thermal management, energy efficiency and sustainability**

As hardware becomes more densely packed with components and processing power, effective heat management emerges as a major operational challenge. Overheating can accelerate component degradation, but it also increases energy consumption and operational cooling costs. Advanced coatings help regulate thermal build-up to protect sensitive equipment and maintain stable temperatures. Specialized thermal-resistive, insulative and infrared-reflective coatings that redirect solar heat are particularly effective in protecting the exterior building components.

Sustainability is a critical consideration in data center operations. Key metrics widely used in the industry help operators benchmark performance on a variety of data points.

Beyond operational goals, data centers are facing increasing pressure from local communities and government entities. High energy demands, water stress, heating and cooling needs, and calls to adopt decarbonization strategies are intensifying these pressures. Low-cure, durable and energy-efficient coating systems are contributing to the overall sustainability and compliance needs of these facilities.



## Sustainability metrics

Common sustainability benchmarks for data center performance include:

Failure to meet any of these requirements impacts operational costs and efficiency, regulatory and compliance risks, and reputational and environmental impacts.

While LEED certification remains uncommon among data centers, interest in it is rising, making these metrics increasingly relevant. This is especially true among hyperscale operators and sustainability-focused enterprises.

While fewer than 5% of U.S. data centers have achieved LEED status, new projects are increasingly incorporating LEED-aligned strategies without pursuing full certification. As local communities continue to push for more environmentally sound developments—and governments toughen efficiency and emissions regulations—owners and developers must target reductions in water, energy use and greenhouse gas emissions.

Collectively, meeting these requirements is challenging, considering that the physical environment within contemporary data centers is more critical and intense than ever.

Protection and performance are paramount, and coatings play a critical role in safeguarding the mission-critical components, hardware, and equipment that support the reliability and efficiency of these immense digital warehouses.

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## Key certifications

Advanced coatings do more than just protect equipment, components and physical structures. They help data facilities comply with essential safety and performance standards.

Industry-leading certifications from Underwriters Laboratories (UL) and the Institute of Electrical and Electronics Engineers (IEEE) provide independent verification that coatings can withstand the rigorous demands of data center applications.

### UL certifications

Coatings applied to walls, racks, cable trays, and electrical enclosures are typically selected to meet multiple UL safety and performance standards:



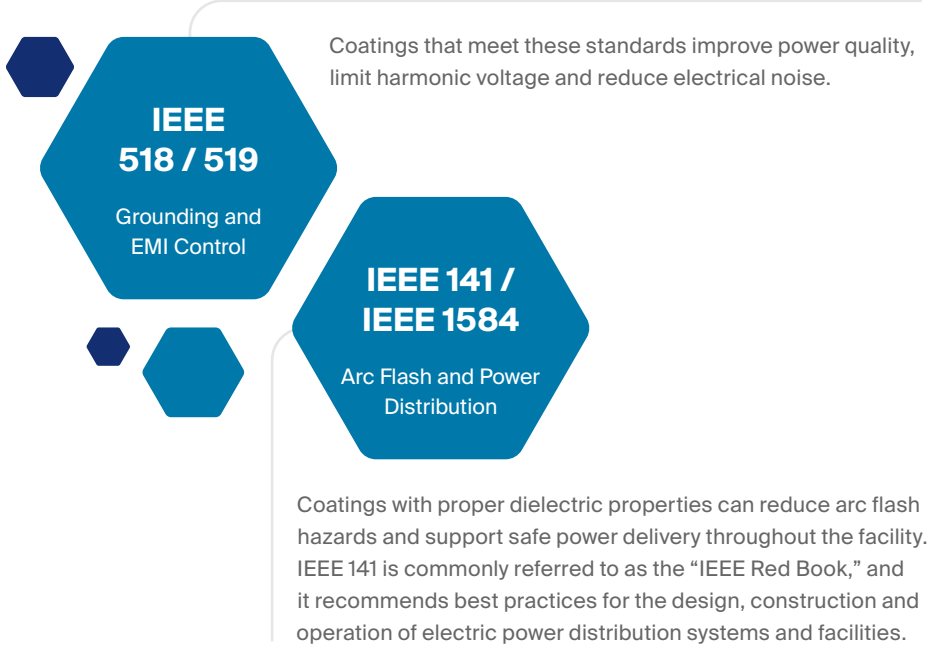
PPG's UL-certified solutions ensure compliance with rigorous criteria related to fire, smoke, electrical compatibility, and long-term performance and reliability.

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## IEEE standards

While UL focuses on material performance, IEEE standards address the electrical and operational safety of data centers:



Some data centers, such as those with high-density battery rooms or fuel cells, may require additional certifications like UL 60079 (hazardous locations) or specialized IEEE thermal management compliance. While not needed in every facility, advanced coatings that meet these rigorous specifications provide extra assurance for high-risk environments.

Specifying resilient coatings that meet or exceed applicable standards ensures reliable performance, minimizes fire and electrical risks, and helps facilities stay compliant with building and safety codes.

## Coating types and their functions

Five key pillars define effective data center coatings: **resiliency, efficiency, safety, security and sustainability.**

Specialized coatings with enhanced functional properties help to maintain service continuity, optimize energy use and extend the reliability and longevity of critical equipment. The many components within a data center may require unique coating properties to ensure optimal performance and safety.

**EMI-shielding coatings** protect servers, networking gear and storage systems from electromagnetic interference that can disrupt performance. By reducing signal noise and crosstalk in dense hardware environments, they help to preserve reliability in essential operations.

**Anti-static and fire-resistant coatings** prevent electrostatic discharge that can damage electronics and infrastructure. Rigorously tested, **passive fire protection (PFP) coatings** are engineered to maintain the integrity of structural steel during a fire event, increasing time for evacuation and containment.

**Dielectric powders** create durable barriers that prevent unintended electrical conduction and short circuits. Their stability under high heat and heavy loads makes them ideal for high-density server environments.

**Thermal-resistive coatings** slow heat transfer and protect components from thermal stress. By helping maintain stable operating temperatures, they reduce degradation and extend equipment life.

**Insulative coatings** create an effective thermal break that minimizes heat transfer and helps prevent corrosion caused by condensation. With advanced hydrophobic properties, they repel moisture and deliver exceptional corrosion resistance on insulated surfaces, protecting critical assets such as pipes, tanks and temperature-control systems.

**IR-reflective coatings** redirect infrared radiation away from roofs and exterior panels, reducing heat absorption, lowering cooling loads and improving overall energy efficiency. The higher a coating's Total Solar Reflectance (TSR) value, the more solar energy it redirects back into the atmosphere.

**Anti-corrosion coatings** shield metal building components and equipment like HVAC systems, racks, coils, transformers, switchgear, generators and enclosures from moisture, chemicals and airborne contaminants. This protection improves reliability, reduces maintenance and extends asset life.

PPG has a portfolio of high-performance solutions engineered to meet rigorous ISO 12944-6 standards for protective systems and perform reliably in harsh C5H corrosivity environments.

**Protective coatings for Uninterruptible Power Supply (UPS) batteries** ensure seamless power continuity and protect equipment from voltage disturbances. Coatings such as conformal layers, corrosion-resistant paints and specialized polymers safeguard battery cells, terminals, busbars, cabinets and control electronics from moisture, off-gassing and corrosion.

PPG has a portfolio of high-performance solutions engineered to meet rigorous ISO 12944-6 standards for protective systems and perform reliably in harsh C5H corrosivity environments.

## Core applications, components and coatings

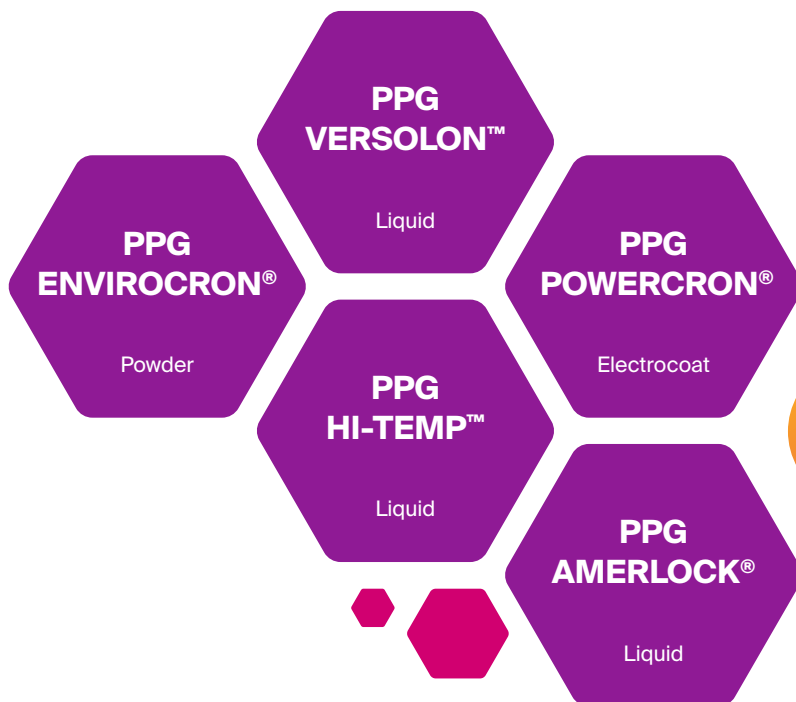
Data center components are fabricated from a wide range of materials, including metals such as steel, aluminum and various alloys, as well as non-metal substrates like plastics, glass, fiberglass, concrete, wood and composites.

Protective coatings enhance corrosion resistance, thermal management, electrostatic control and overall durability across these diverse materials.

### Servers and electrical enclosures

Servers are the central and most indispensable component of every data center. They house sensitive electronics that must be protected against moisture, dust and corrosive contaminants to ensure reliable operations 24/7. Protective coatings help prevent short circuits, mitigate electrostatic discharge and prevent component degradation.

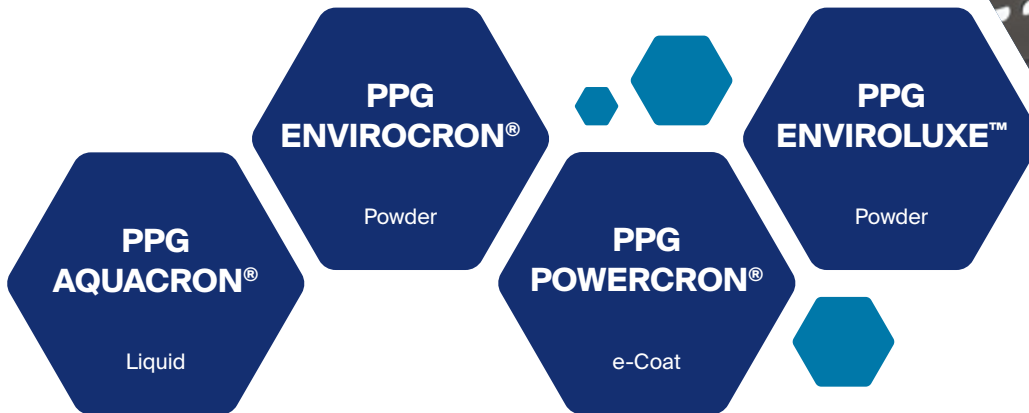
Recommended PPG coatings options for servers and electronics:



## Shelving and racking

Shelving, racks and cabinets support heavy IT hardware, servers, storage systems, networking equipment and power distribution units. Protective coatings enhance their structural integrity, wear resistance and durability under constant load and movement.

Recommended PPG coatings options for shelving and racking:

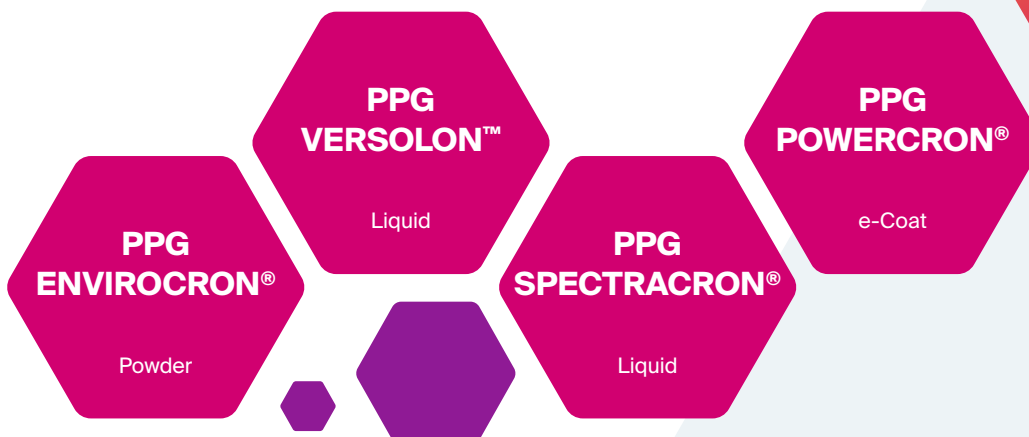


## Generators

Generators are the essential power backups for data center operations, providing immediate backup electricity during a power outage. Often powered by diesel or natural gas, they are activated by an Automatic Transfer Switch (ATS) to deliver an uninterrupted flow of electricity that preserves operations.

While generators may power entire facilities during outages, they also protect sensitive servers and storage devices from damage caused by sudden power loss. Additionally, these systems assist with peak shaving, meaning they are activated during periods of high electricity demand or elevated utility rates. For generators, protective coatings are a critical layer of defense, offering robust protection against harsh environmental conditions to prevent corrosion-related failures.

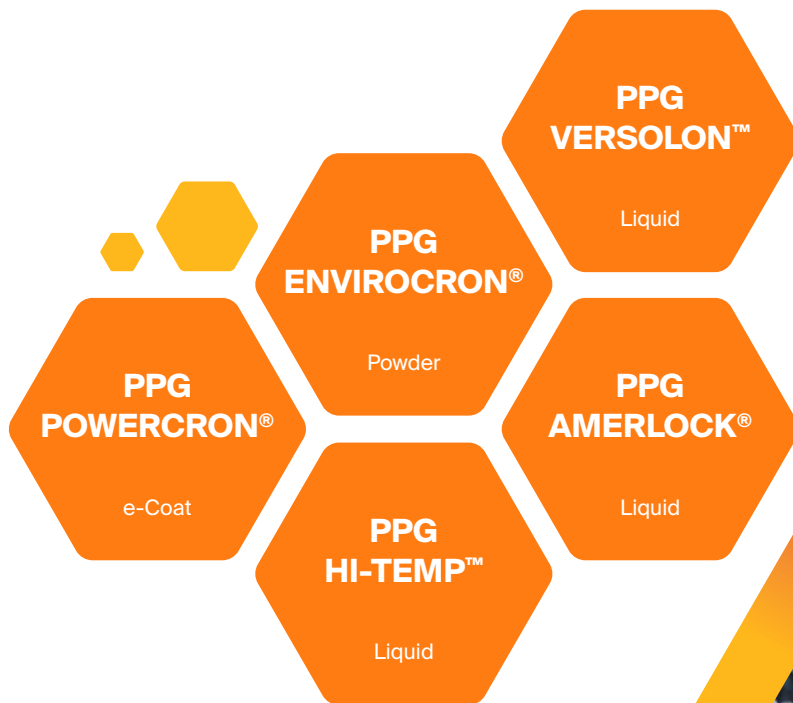
Recommended PPG coatings options for generators:



## Transformers and switchgear

Transformers adjust voltage from the grid to meet the needs of the equipment inside, while switchgear ensures electricity is safely, efficiently and reliably distributed throughout the facility. Without the proper coatings, these components can corrode over time, weakening their structural mechanisms, electrical connections and reducing the overall lifespan of equipment. Coatings help to minimize downtime risk while insulating against moisture and contaminants.

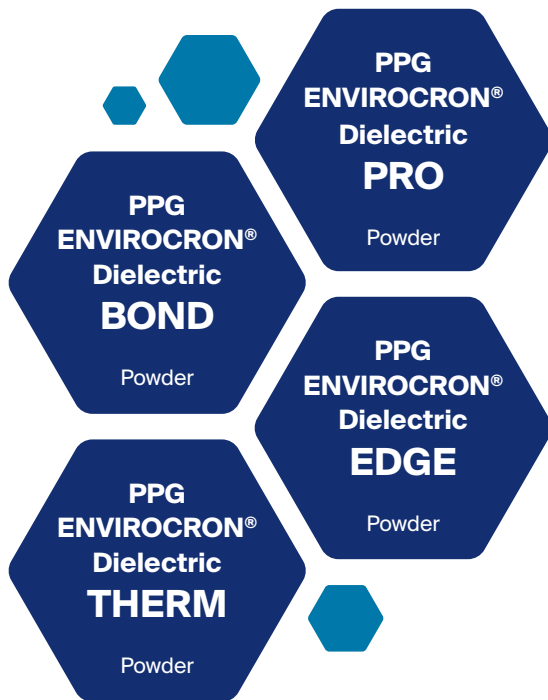
Recommended PPG coatings options for transformers and switchgear:



## Battery energy storage

Similar to generators, battery energy storage systems (BESS) provide immediate backup power during grid outages. Unlike generators, BESS offer instantaneous, emission-free power for short-term outages and activates in milliseconds to provide power without interruption. The right coatings for battery applications help to prevent catastrophic failures, reduce thermal runaway risk and allow systems to operate more efficiently and stably. They also safeguard against moisture, dust and corrosion while resisting chemical exposure and thermal cycling.

Recommended PPG coatings options for BESS:



## Flooring solutions

Data center flooring must support hefty equipment, foot traffic and the movement of heavy-duty racks. Floors must be durable, provide anti-static protection to reduce electrostatic discharge and offer fire- and chemical-resistance to help maintain safe, reliable operations.

Recommended PPG coatings for flooring:



Specifying solutions using the most up-to-date coating standards is essential since data centers operate under rapidly evolving thermal, electrical and environmental demands. Using outdated specs can leave critical components under-protected, while new, more advanced formulations ensure maximum durability, compliance and long-term reliability.

Full-stack solutions providers like PPG, with coatings across every major technology platform, bring deep expertise, proven high-performance systems and technical support to data center designers, contractors and operators. This enables them to build specifications that deliver durability, compliance and reliability, with coating layers engineered to work seamlessly together.

## Resilience redefined: advanced coatings for power and protection

As demand for data centers intensifies, high-performance coatings will continue to play an essential role in their construction and the protection of their indispensable electrical and power systems. In a world that relies on constant connectivity, advanced coatings are an unsung hero, helping the digital economy thrive without interruption and in ways that are increasingly more sustainably focused.

PPG advanced coatings for data centers provide owners, operators, developers and builders with a comprehensive suite of solutions, including fire- and corrosion-resistant coatings, anti-static and battery protection systems and other performance-enhancing technologies. PPG offers coatings made without PFAS, as well as solutions like PPG ENVIROCRON® Extreme Protection Edge Plus that delivers a smooth, uniform finish on challenging areas such as sharp edges, angles and recesses, offering more complete corrosion protection that reduces the need for replacement.

In addition, PPG's high-transfer efficiency (HTE) coatings are engineered to electrostatically wrap and penetrate intricately shaped parts, achieving first-pass efficiency rates of up to 85% or higher, significantly reducing powder consumption. These types of coatings play a vital role in total carbon footprint reduction while increasing the lifespan of data center assets.

Choosing PPG as a single-source supplier and partner streamlines the specification process and empowers project teams to implement solutions without juggling multiple vendors. Plus, PPG advanced coatings are backed by world-class technical support, a global manufacturing network, coating line engineering, installation and operation, and expert in-house or outsourced coating application services for liquid, powder, electrocoat and pretreatment solutions. This integrated model is unique in the industry and simplifies the entire coating process, reducing delays to keep projects moving efficiently.



To learn more about PPG's data center coatings portfolio, scan the code or [click here.](#)

