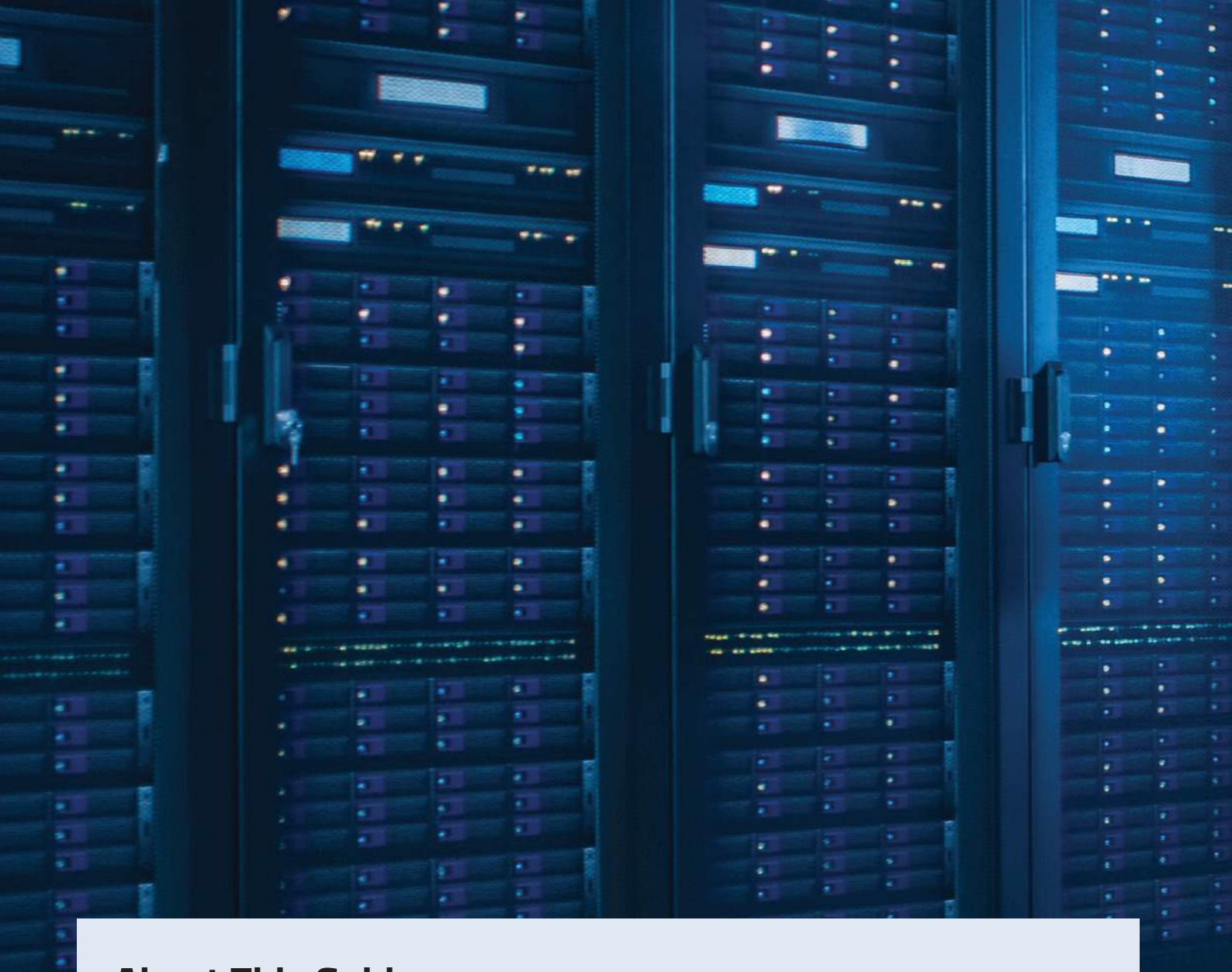wesco | anixter

Data Centre Application Guide

About This Guide

This Data Centre Application Guide is your roadmap for best practices and solution recommendations for future-ready data centres that can deliver the desired outcomes for end users and integrators.

This guide is primarily designed for contractors, integrators and consultants, but it is also a resource that can be shared with end-user customers to illustrate the importance of sustainability initiatives, infrastructure and technology within their facilities.

As individuals, communities and companies of all sizes increasingly rely on digital services and products, the need for data centres is progressing at an accelerated pace. These centres are essential to digital infrastructure; they host storage systems, servers, routers and computing equipment that organisations use daily and ensure users can access vital information and communicate effectively.

Wesco Anixter is uniquely positioned to develop this guide based on our strategic partner relationships and our extensive experience in the data centre industry. We have expertise across network infrastructure, communications and networking, lighting, security, AV and safety. In addition, we can provide services that include advisory collaboration, installation enhancement, project deployment and supply chain management.

Our insights in the data centre space, along with our global partner ecosystem and relationships with thousands of manufacturers, give us the ability to provide the recommendations, solutions, products, services and best practices needed to build, modernise and maintain an optimised and future-ready data centre.

Why Contractors and Integrators Choose Wesco Anixter

Supporting your clients with impactful solutions that keep life running smoothly and completing projects on time and within budget is no easy task. It requires a team of skilled contractors, integrators and trusted products from world-class suppliers, and a partner like Wesco Anixter to deliver on what you need, when, where and how you need it.

We take a collaborative approach to deliver a complete data centre offering, a broad portfolio of related products (safety, electrical, MRO and more), and value-added services designed to support partners like you.

The State of Data Centres

Building and supplying a data centre is very different today than it was five or ten years ago. Data centre operators are facing more competition and more pressure, creating a challenging business environment. How data centres are used, how their workloads are deployed, and how efficiently they operate are under immense scrutiny from governments and communities. Increased application usage, artificial intelligence, 5G expansion, sustainability requirements, staffing shortages, supply chain disruptions and global digitisation place greater demand on facilities and resources.

Powering these facilities has become a major challenge. Data centres can use a tremendous amount of power to operate and, increasingly, governments around the world are demanding more transparency and reporting about operational details, energy usage and environmental performance as they develop guidelines and requirements focused on the data centre industry.

All of these factors make the continuous, uninterrupted operations of your customers' data centre environments more difficult to achieve, while at the same time making it more critical to their business and their productivity.

How Data Centres Are Evolving

As the needs of data centres rapidly evolve, you must look beyond providing the needs of today and anticipate what the needs of the future will be — and deliver them.

As the technological expectations of connectivity and applications grow, other data centre construction issues arise. Data centre capacities and workloads are changing, and that means hardware configurations are changing. OEMs are adapting to these changes with new types of hardware, with new ways of managing, powering and cooling that hardware.

This era of evolution for data centres highlights the most important factor in designing a successful, future-ready data centre: planning.

SOLUTIONS IN ACTION

Key verticals driving data centre power and capacity concerns

- 5G
- Artificial intelligence
- AR/VR
- Autonomous vehicles
- Blockchain

- Connected devices
- Entertainment
- Finance/trading
- Gaming
- Healthcare/biotech
- Industrial IoT

- Machine learning
- Media
- Metaverse
- Retail/distribution
- Smart cities
- Telecoms

Three Key Aspects for Future-Ready Data Centres

We will focus on three elements of the data centre that must be considered to ensure a future-ready and optimised facility: **sustainability initiatives, infrastructure and technology.** All three of these elements work together and build upon each other to create smarter outcomes for data centre owners and operators.

Due to demands for reliable 24/7/365 connectivity, monumental expansion of mobile data traffic, exponential surges in data usage, global trends of remote collaboration and hybrid work environments, health and safety needs, as well as concern for Environmental, Social and Governance (ESG) commitments, data centre owners and operators must have future-forward sustainability initiatives to meet their customers' expectations. These initiatives establish sustainable business goals and a plan to achieve them.

Once the sustainability initiatives are set, designing a well-planned infrastructure layer is perhaps the most critical step for a successful, future-ready data centre. The infrastructure in a data centre must be efficient, robust and reliable in order to support the technology and applications needed for always-on connectivity today, while ensuring constant performance and scalability for the digital innovations of tomorrow. With ever-increasing data usage by the average smartphone user, it's essential that data centres, edge environments and IT closets can support 5G, private LTE and in-building wireless networks of all types.

With a future-ready infrastructure layer in place, owners can then implement the technologies and systems on that infrastructure to achieve those sustainability initiatives through optimisation and improved efficiency. Although keeping pace with technology and expanding network capacities can be a challenge, it's the most effective way to increase a data centre's efficiencies while achieving optimised results and outcomes for customers.

Efficiency takes on many forms and functions: it offers cost reduction on utilities, maintenance and operations, and it can simplify operational processes and automations to provide for increased power optimisation and improved functionality. Ultimately, each of these three key aspects leads to greater operational and budgetary efficiencies, which provide greater ROI while improving the data centre environment to meet and exceed customer expectations.

Sustainability Initiatives

Sustainability Is More Than a Buzzword

It's an opportunity to lower costs, innovate, build more resilient operations and make a difference. From the boardroom to the server racks, companies are rethinking how they impact people, society and the world. Some trends that are fueling sustainability efforts include:

- Energy costs continue to rise

- Net-zero emission targets and ESG commitments (more than 90% of S&P 500 and 70% of Russell 1000 companies publish ESG reports in some form)*

- Increase of climate-related laws, guidelines and policies since 2020 across the United States, the European Union, United Kingdom and APAC

- To meet the EU's 2030 target of reducing greenhouse gas emissions by at least 55% (compared to 1990), the European Commission has revised the Energy Efficiency Directive (EED) and other energy and climate rules. The revised directive introduces an obligation for the monitoring of the energy performance of data centres.

- 99% of survey respondents in an RE100 report indicated that renewable energy was a corporate and social responsibility

Like you, Wesco Anixter is on the journey to a more resilient and greener tomorrow. We are taking action to reduce our carbon footprint, and our strategy supports environmental, social and governance priorities. Part of our commitment is to ensure we can support our customers on their journeys as well.

Reducing Carbon Emissions Is a Business Imperative

As governments, businesses and communities increase their attention on sustainability and review their mission and purpose, it is clear that carbon emissions play a heavy role in their behaviour, now and going forward.

A significant way to reduce environmental impact is to reduce the carbon footprint. This begins with monitoring carbon emissions.

According to BDO, July 2023

The Greenhouse Gas Protocol

The Greenhouse Gas Protocol provides standards and tools that help countries, cities and businesses track progress toward climate goals. More than 9 out of 10 Fortune 500 companies reporting to CDP use the GHG Protocol.

Carbon emissions are responsible for 81% of overall GHG emissions, and businesses hold significant responsibility to contributing to that percentage. The rest of GHG emissions are: methane (10%), nitrous oxide (7%) and fluorinated gases (3%).

Businesses must monitor and report their CO_2 emissions, which is the key first step to reducing them. To do so, companies must classify their carbon footprint in three scopes, as defined by the Greenhouse Gas Protocol.

Scope 1	Scope 2	Scope 3
Direct emissions that are owned or controlled by a company. These are emissions created directly by your business, by daily operations, etc.	Indirect emissions a company causes indirectly that come from where the energy it purchases and uses is produced, such as a utility supplier.	Indirect emissions from a company's value chain, such as production of purchased products, transportation, waste, etc.
Example: From burning fuel in the company's fleet of vehicles.	Example: From the generation of electricity used in company's buildings.	Example: When the company buys, uses and disposes of products from suppliers.

To learn more about the GHG protocol, visit https://ghgprotocol.org/

How To Address the GHG Scopes

While addressing Scopes 1 – 3 of the GHG Protocol, it's important to note and track the emission reductions that occur outside of a value chain or the lifecycle of a product, such as when a company saves or reduces energy usage and/or emissions due to changes of behaviour or technology. These are considered the emissions avoided because of sustainable and conscientious decision making.

Though there currently aren't regulatory requirements to report emissions avoided, it can be beneficial for individuals and organisations looking to reduce their emissions, improve their sustainability, efforts and meet their climate goals.

- Establishes the ability to measure emissions avoided
- Reflects proactive rather than reactive efforts
- Addresses the emissions avoided by:
  - New methods of materials production
  - Innovative approaches to construction and operations
  - Uses technology to drive carbon reduction efforts

- When it comes to data centres, there are four main pillars to avoiding emissions:
  - Methodology
  - Technology
  - Product selection
  - Design

The GHG Scopes 1 – 3 establish the foundation of a pathway to reducing carbon emissions and Wesco Anixter provides solutions and services that can assist in several of these areas, particularly in Scope 2 and 3. For more information, contact DataCenterSolutions@wesco.com.

Infrastructure

Network Infrastructure

The foundational element for all connectivity and the ability to provide a future-ready smart data centre comes from the network infrastructure. The infrastructure chosen will determine whether it will stand the test of time and outlive technology refreshes, or if it will need to be replaced every few years. Given the amount of workload on today's average data centre — and the accelerated pace of growing data usage — it's critical to get the network infrastructure right.

Network infrastructure is made up of physical hardware and structured cabling that enables network connectivity, communication, operations and management of a network to provide the communications pathways, spaces and transmission links between users, processes, applications and services. The network infrastructure is an interconnected building system supporting multiple subsystems and technology applications for internal and external communications, power, lighting, cooling, security and various data centre management tools.

7 Elements To Consider When Installing Network Infrastructure

1. Copper Cabling

Copper cabling lays the foundation for a future-ready communications network and is primarily comprised of category-rated, twisted-pair cabling and associated hardware that creates a structured cabling system. It is universal in application, serving a wide range of communication technologies such as Ethernet, wireless, professional AV, building controls and a variety of PoE applications.

2. Fibre Optic Cabling

Fibre optic cabling offers a high-bandwidth method of transmitting information through a local area network (LAN) or wide area network (WAN) over extended distances by sending pulses of light through an optical fibre. The fibre optic cabling system is primarily comprised of field-terminated and pre-terminated optical fibre and associated hardware as part of a structured cabling system within a building, campus or large geographic area.

3. Racks and Enclosures

Designed to protect critical network infrastructure from damage while optimising space, racks and enclosures are the frames, cabinets and housings that support passive components and active electronics across multiple technical spaces and environments. The cabinet is at the heart of the network infrastructure and needs to be designed for security, density, connectivity, administration, power and airflow.

4. Power and Thermal Management

Simplifying power and thermal component considerations begins by encompassing a total solution architecture with emphasis on delivery, reliability, efficiency and intelligence while addressing uptime throughout.

5. Cable Management and Pathways

Providing a blueprint for distribution systems, which allows networks to expand and evolve, a variety of routing, raceway and conveyance systems are available for distributing, supporting and protecting network infrastructure cabling. The type of system and the installation method depend on the media being supported and the environment it will traverse.

6. Wireless Networks

Reliable wireless networks are designed to grow along increasing device traffic and evolving standards. These collaborative networks have traditionally been used in data centres for practical purposes, such as inter-facility communications, security, monitoring and environment control. But, as these technologies advance, transmitting greater volumes of data over longer distances, some data centre operators are exploring the use of wireless networking to provide connectivity between servers. While installing wireless network interfaces in every server and device is not widespread, there are some potential benefits in the installation of wireless routers at the rack level, such as fewer cables, efficient network deployment, increased capacity and reduced costs.

7. IoT and Wireless Gateways

Physical objects that are embedded with sensors, processing ability, software and other technologies require IoT enablement and wireless gateways to exchange data with linked devices and systems over the internet or other communications networks. These devices can be connected via copper or fibre cable, fixed wireless access, near field communications (NFC), Wi-Fi, cellular or private LTE/CBRS.

IoT and wireless gateways provide real-time monitoring of connected devices, remote control and manipulation of mechanical and electrical systems and data to automate and help make decisions through the use of software, with less manual interaction.

Codes, Standards and Guidelines for Data Centre Infrastructure

Following appropriate codes and standards would seem to be an obvious direction when designing a new or upgrading an existing data centre. Data centre design and infrastructure standards can range from required national codes, like electrical codes and building regulations; to design standards, like the EN 50600-series; to market certification programs, such as the ones from Uptime Institute, and green certifications, such as LEED and BREEAM. Other additional programs and certifications exist and they all play a role in ESG, as well as environmental stewardship.

But mandatory codes are just the start. Within the data centre industry, there are several standards that should also be followed.

The three major data centre design and infrastructure standards developed for the industry include:

1. EN 50600 Series: Data Centre Facilities and Infrastructures

In 2012, the EN 50600 series of standards were first introduced to the market by the European Committee for Electrotechnical Standardization (CENELEC) and have since then been further developed. Members of CENELEC include the national electrotechnical committees from the European countries, which means all members publish the standard as a national standard without any alteration. This means that the European market has a harmonised set of standards when it comes to data centre design and key performance indicators.

The intent of the standards is to provide requirements and recommendations to support the various parties involved in the design, planning, procurement, installation, operation and maintenance of facilities and infrastructures within data centres. Some of these parties would be owners, project managers, main contractors, consultants, and building or system designers.

The EN 50600 series is designed as a framework of standards and reports that cover data centre design, operation, management and key performance indicators (KPIs) to define efficient operation of a data centre.

The series is grouped by these categories:

- EN 50600-2 series defines requirements for data centre design
- EN 50600-3 series defines operational elements and management of data centres
- EN 50600-4 series defines the key performance indicators for data centres

There are also published technical reports that cover recommended practices and guidance around data centre operations and design.

The EN 50600-series specifies a classification system based on the criteria of availability, security and energy-efficiency over the planned lifetime of the data centre. "Availability Classes" and "Protection Classes" are defined in a range of 1-4 and will dictate the specific requirements for building construction, power supply and distribution, environmental control, telecommunications cabling infrastructure and security systems. Energy efficiency enablement is defined in three different granularity levels, 1-3. Which level to adopt in these areas should be defined after conducting a business risk analysis.

EN 50600-1 Availability Classes and Power Distribution Design

Availability Class 1: Single path.

Availability Class 2: Single path with redundancy.

Availability Class 3: Multiple paths. Concurrent repair/operate solution.

Availability Class 4: Multiple paths. Fault tolerant except during maintenance.

2. ANSI/TIA-942: Telecommunication Infrastructure Standard for Data Centres

The ANSI/TIA-942 Telecommunications Infrastructure Standard for Data centres is historically considered the global benchmark for related infrastructure performance and reliability since its introduction in 2005. Developed, maintained and reviewed regularly by the TIA Engineering Committee TR-42 Telecommunications Cabling Systems, the TIA-942 standard covers all aspects of data centre physical infrastructure, including architecture and topology, environmental design, power systems, cooling systems, telecommunications, redundancy, fire protection, safety, monitoring and physical security. A key objective of the TIA-942 standard is to define how a data centre should be built and configured to provide the level of reliability and resiliency required by end users.

To help data centre owners and users define their expectations on the type of applications and data stored in their specific data centre, TIA provides four ratings of resiliency. These ratings also serve as the foundation of the TIA-942 Certification Program, which enables data centre facilities to be independently reviewed and certified for conformity to the standard, providing greater assurance to customers and stakeholders.

3. ANSI/BICSI 002-2019: Data Centre Design and Implementation Best Practices

This standard covers the major aspects of planning, design, construction and commissioning of the MEP building trades, as well as fire protection, IT and maintenance. It is arranged as a guide for data centre design, construction and operation. Ratings and reliability are defined by Class 0 to 4 and certified by BICSI-trained and certified professionals. The standard references both TIA, ISO and EN standards and includes guidance on implementing standards.

TIA-942 Data Centre Ratings

Rated-1: Basic Site Infrastructure
The data centre has single-capacity components; a single, nonredundant distribution path for all equipment; and limited protection against physical events.

Rated-2: Redundant Component Site Infrastructure
The data centre has redundant capacity components, but nonredundant distribution path that serves the computer equipment.

Rated-3: Concurrently Maintainable Site Infrastructure
The data centre has redundant capacity components and redundant distribution paths that serve the computer equipment, allowing for concurrent maintainability of any piece of equipment. It also includes improved physical security.

Rated-4: Fault Tolerant Site Infrastructure
The data centre has redundant capacity components, active redundant distribution paths to serve the equipment, and protection against single failure scenarios. It also includes the highest level of security.

Other Standards

The following highlighted data centre standards help operators limit the problems they experience. Significant issues with data centre operations could arise if they aren't adhered to, potentially including regulatory violations, increased downtime, security risks and equipment damage.

Regardless of the standards chosen, documentation and record keeping of your operation and maintenance activities is one of the most important parts of the process.

International Standards:
There are international ISO/IEC standards that may be referenced. The ISO/IEC 22237 series would be the international equivalent to the EN 50600 standard series and contain similar requirements and recommendations.

Structured Cabling Standards:
In addition to the data centre specific standards, it should be noted that EN 50600 references structured cabling standards such as;

- EN 50173-series and EN 50173-5 for computer rooms spaces
- EN 50174-series for installation and specification requirements
- EN 50310 for telecommunications bonding networks for buildings and other structures

Common Regulatory Organisations:
Further, the following organisations are commonly referenced:

- Institute of Electrical & Electronics Engineers (IEEE) and their network application standards
- American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) with their thermal envelope recommendations

Uptime Institute's Tier Ratings:
This framework and certification program develops a performance-based methodology for the data centre during the design, construction and commissioning phases to determine the resiliency of the facility with respect to four tiers or levels of redundancy and reliability. The tiers can be found in greater definition in UI's white paper TUI3026E. The origins of the Uptime Institute as a data centre users group established it as the first group to measure and compare a data centre's reliability.

Other standards include, but are not limited to:
- International Standards Organization (ISO)
- ISO 11801 (formerly ISO 24764)
- ISO 30129

CEN/CENELEC

The European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC) are two European organisations that author standards which satisfy industry and legislative requirements for electric and electronic goods sold in Europe, including European Norms (EN). To the right you'll find some examples of the EN 50600 standards, which focus on information technology and data centre products.

Overview of Published EN 50600 Series of Standards

| Reference	Title	Year of Revision
EN 50600-1	Information technology - Data centre facilities and infrastructures – Part 1: General concepts	2019
EN 50600-2	Information technology - Data centre facilities and infrastructures – Part 2: Building construction	2021
EN 50600-3	Information technology - Data centre facilities and infrastructures – Part 3: Environmental control	2019
EN 50600-4	Information technology - Data centre facilities and infrastructures – Part 4: Telecommunications cabling infrastructure	2023
EN 50600-5	Information technology - Data centre facilities and infrastructures – Part 5: Security system	2021
EN 50600-3-1	Information technology - Data centre facilities and infrastructures – Part 3-1: Management and operational information	2016
EN 50600-4-1	Information technology - Data centre facilities and infrastructures – Part 4-1: Overview of and general requirements for key performance indicators	2016
EN 50600-4-2	Information technology - Data centre facilities and infrastructures – Part 4-2: Power usage effectiveness	2016/AC:2017/A1:2019
EN 50600-4-3	Information technology - Data centre facilities and infrastructures – Part 4-3: Renewable energy factor	2016/A1:2020
EN 50600-4-6	Information technology - Data centre facilities and infrastructures – Part 4-6: Energy reuse factor	2020
EN 50600-4-7	Information technology - Data centre facilities and infrastructures – Part 4-7: Cooling efficiency ratio	2020
EN 50600-4-8	Information technology - Data centre facilities and infrastructures – Part 4-8: Carbon usage effectiveness	2022
EN 50600-4-9	Information technology - Data centre facilities and infrastructures – Part 4-9: Water usage effectiveness	2022

In addition to EN 50600, please also see EN 50173 part 5 and EN 50310.

Value at Every Phase of Data Centre Development and Operations

Your Strategic Data Centre Partner

Consolidating the right products, services and solutions takes time and focus away from delivering on business-critical needs and customer demands. As your partner, Wesco Anixter can help you:

- Be more flexible and scalable to stay competitive
- Develop partnerships with best-in-class contractors and integrators
- Expedite product ordering and delivery so you can react quickly
- Access top equipment and pricing for better cost-efficiency
- Maintain uptime without sacrificing performance or quality
- Reliably provide the best service at the best total value

Advisory Services

Contractors and Integrators

Design Partners

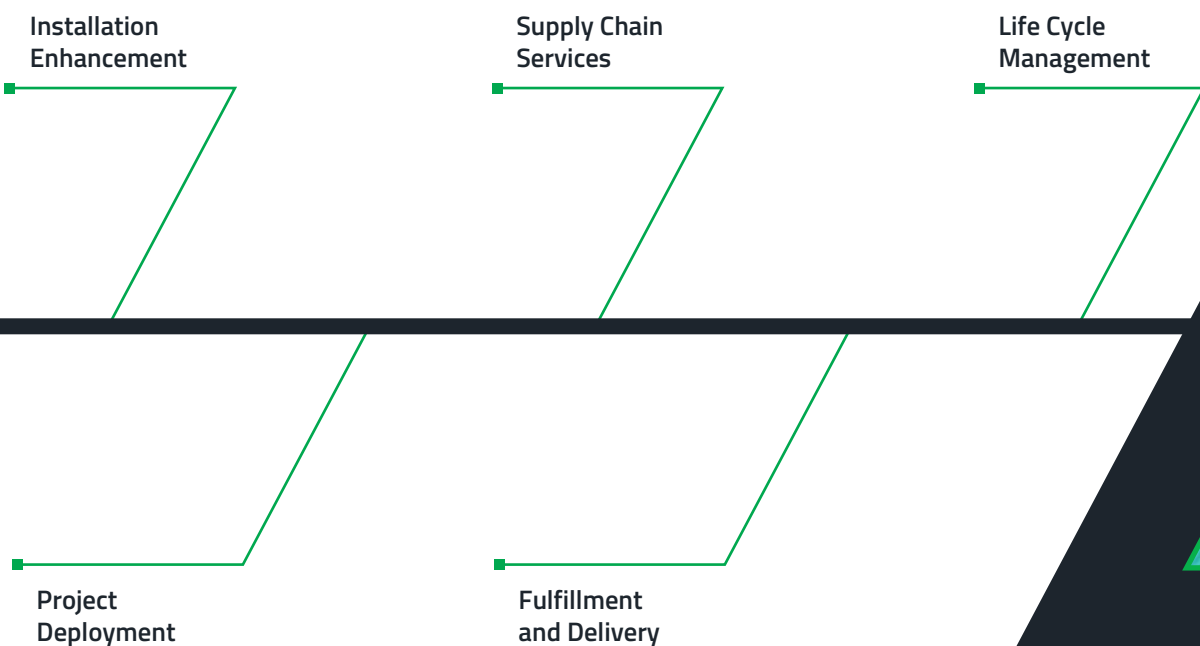**Supplier Partners and Procurement**
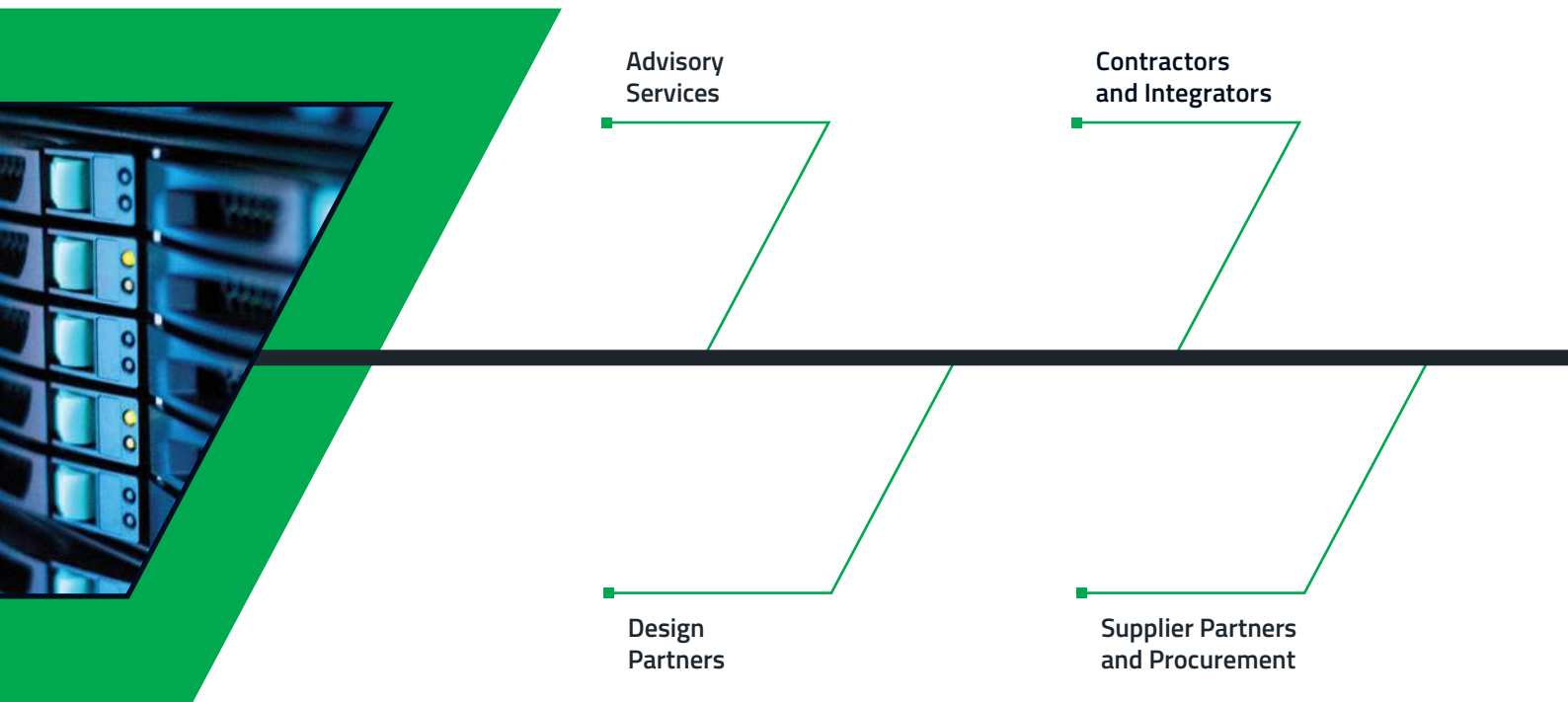
A Global Ecosystem of Strategic Partners

Wesco Anixter couldn't do what we do without our worldwide network of strategic partners. From assessment, design and permitting, to product selection, procurement, delivery, supply chain coordination, installation and IT management, Wesco Anixter works closely with our partners at every phase of a data centre's life cycle. Our global partnerships include:

- Contractors
- Integrators
- Installers

Our relationships with best-in-class suppliers, technologists, integrators and contractors allow us to offer exemplary solutions, products and services for data centres in dozens of countries around the world. Wesco Anixter's global scale provides focused knowledge of local practices, regulatory processes and expands our partners' reach. And our industry standing helps ensure that products and solutions will arrive when they're needed, where they're needed.

Installation Enhancement

Supply Chain Services

Life Cycle Management

Project Deployment

Fulfillment and Delivery

Technology

Data Centre Solutions, Products and Services

By thoughtfully planning, selecting and upgrading the technology and day-to-day assets needed to build or operate a data centre, you can create a converged network that works together across nearly every aspect of the data centre to improve overall operational efficiency, reduce emissions and manage energy usage.

Comprehensive Data Centre Capabilities in the Gray Space, the White Space and Everywhere In Between

Communications Infrastructure

- Cable management and pathways
- Copper and fibre cabling systems
- Grounding and bonding
- High-speed interconnects
- Racks and enclosures
- Tools and test equipment

Electrical Infrastructure

- Building wire
- Cable tray
- Conduit
- Flexible batter cable
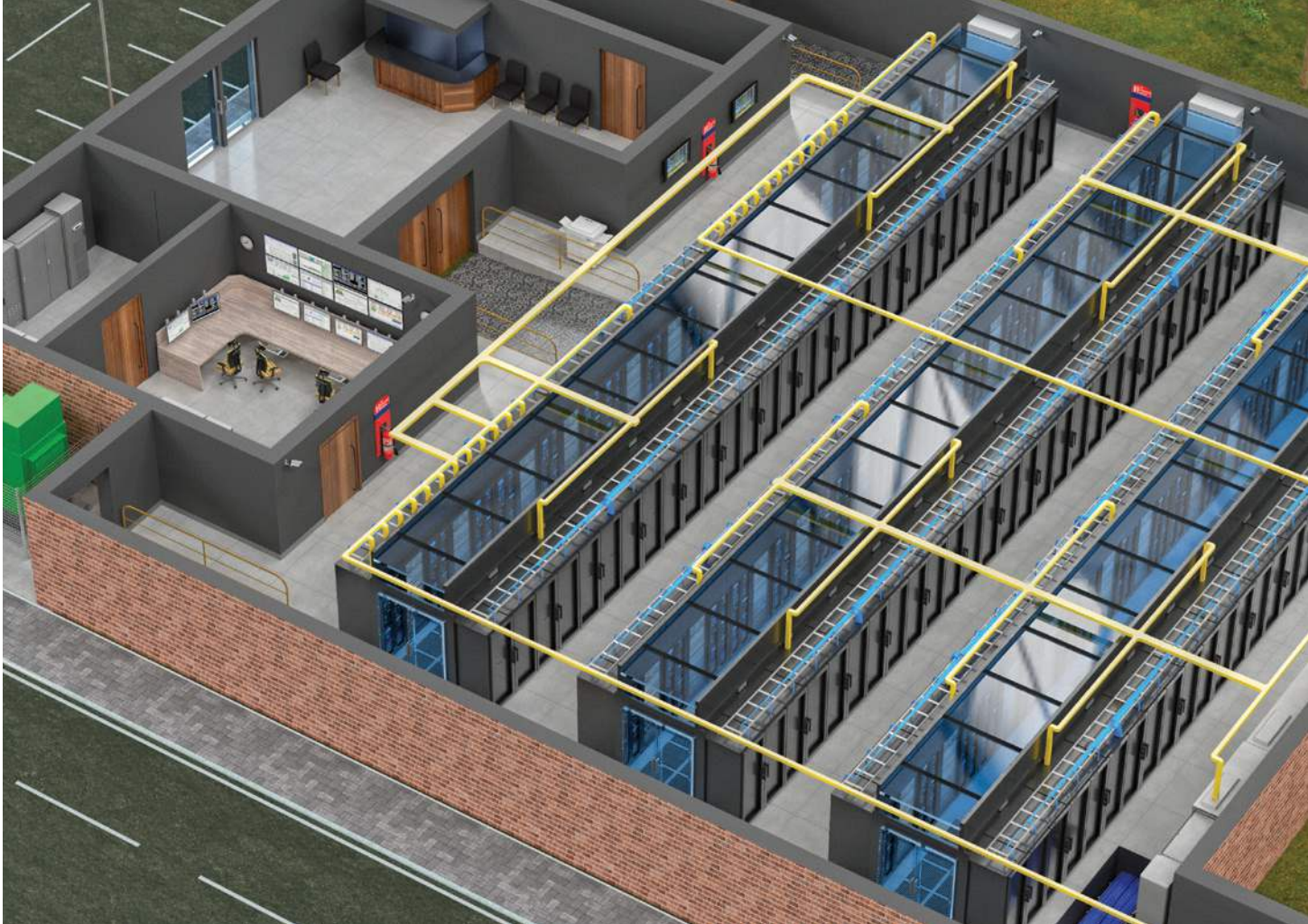- Grounding
- Lighting

- Lugs and connectors
- Medium-voltage cable
- Medium-voltage term kits
- Term kits

IT Infrastructure

- Compute and high-performance computing
- KVM and console management
- Media converters
- Networking
- PoE switches and injectors
- Storage
- Wireless technologies

MRO and Safety

- Communications devices
- Cones
- Ergonomics
- Fall protection

- Fire safety
- First aid
- Hand protection
- Hearing protection
- Hi-vis vests
- Janitorial
- Lockout/tagout
- Matting
- Safety training
- Signs and labels

Physical Security, IoT and Pro AV
- Access control
- Analytics
- Asset track and RFID
- Cabinet electronic locking
- Command and control
- Data centre infrastructure management (DCIM)
- Digital signage
- Intercom, sound and paging
- Mass notification

- Perimeter detection
- SaaS
- Security consoles
- Sensors and gateways
- Sound reinforcement
- Unified communications and collaboration
- Video displays
- Video surveillance

Power Generation and Distribution
- Automated switches
- Circuit protection
- Control house equipment
- Switch gear
- Transformers

Power and Thermal Solutions
- Environmental monitoring
- High-airflow dispersion floor tiles
- High-density and liquid cooling
- Hot and cold aisle containment

- Network monitoring
- Power busway
- Rack PDUs
- Surge protection
- Thermal management
- UPS systems

Renewable Energy
- Battery storage
- EV charging
- Microgrid
- Solar
- Sustainability services

Services
- Global supply chain services
- Rack and roll services
- Managed services
- Cloud infrastructure
- Data centre design and construction advisory services
- Next-gen cooling design and deployment

Wesco Anixter Business Segments

Wesco Anixter provides best-in-class products and innovative solutions to meet customer needs for commercial and industrial businesses, contractors, government agencies, institutions, telecommunications providers and utilities.

Communications and Security Solutions (CSS)

We partner with leading manufacturers to deliver comprehensive solutions that provide 24/7 connectivity and enable security and safety in commercial buildings, data centres and parking facilities around the world.

Electrical and Electronic Solutions (EES)

We are a leading distributor of electrical products and services, and have been in business for over a century. From automation and control to relays, sensors and switches, we have the products and solutions to meet all of our customers' electrical needs.

Utility and Broadband Solutions (UBS)

We serve a diverse customer portfolio in the utility, broadband and industrial segments, with one of the broadest product offerings in the industry — all while helping customers optimise their network deliverables for subscribers and minimise operational expense.

Wesco Anixter Services

Drive efficiency and profitability with innovative and customisable services. Our portfolio includes advisory services, supply chain management, logistics and transportation, procurement, warehousing and inventory management, as well as kitting and labelling, limited assembly of products and installation enhancement.

Advisory Services

Engage our experts on an array of value-added and billable advisory services to support every industry we serve, helping channel partners and customers with technology, infrastructure and sustainability solutions.

Installation Enhancement Services

Wesco Anixter will help keep projects running on time and manufacturing facilities running smoothly by optimising products for use.

Project Deployment Services

Wesco Anixter can prepare a coordinated, customised program to help secure jobsite materials, prevent loss, improve efficiency, reduce jobsite waste and provide product availability, keeping you well-stocked and your project on time and within budget.

Supply Chain Services

Strengthen your operational resiliency and drive cost improvements in direct and indirect spend through supply chain assurance with Wesco Anixter.

Wesco Anixter can design, implement and manage your purchasing and inventory program, consolidating your supply base into a single-source solution to deliver documented savings and improved supply chain performance.

Global Technology and Support Services

Our technical specialists and expert engineers help you harness information for data-driven intelligence and better business outcomes. Our team has expertise in connected devices and IoT, network infrastructure, sensors, wireless, cloud and edge computing, broadband, 5G and wireless.

Areas of expertise:

- IoT advisory service
- Digital solutions advisory service
- Technology roadmap and specification development
- Solution and application engineering
- Proof of concept (POC) testing
- Application drawings
- Codes and standards interpretation
- Installation recommendations and technology testing
- Education and training

Strategic Solutions and Products of Interest

The following pages provide examples of solutions and products from our strategic supplier partners that can help optimise a data centre.

APC Netshelter Rack PDU Advanced

Data Centre Power Needs Keep Increasing

From one of the world's most trusted brands in power distribution units (PDUs) comes a more reliable, intelligent and faster to deploy PDU. APC's advanced rack PDU solutions are designed for data centres and remote edge computing environments experiencing rising power densities that demand always-on IT infrastructure. IT devices in these environments need certainty, and the rack PDUs provide it with features that make them faster to deploy, enhance their reliability, and make them easier to manage on-site or remotely anywhere in the world with EcoStruxure IT.

4-in-1 outlet for increased flexibility:
Acts as C13, C15, C19 and C21

More power:
Up to 48 outlets and 43.5kW* of power on one PDU

1% metering accuracy:
Know exactly how much power each outlet uses

Slim design:
Add more PDUs to the same rack

60°C operating temperature:
Can operate at higher temperatures to protect equipment from downtime

Environmental sensors:
Optional sensor support that monitors for temperature, moisture and unwanted access

Alternating phase and colour-coded outlets:
Quickly see which breaker protects which outlets; simplify installation and setup, including load balancing

Fast, flexible mounting:
Toollessly mount in APC and most industry standard racks.

Optional side mounting for narrow racks

*43.5kW in 63A, 3ph 400V models

Rack Solutions

Power

Security

Airflow

Sensor

LCD

KVM

IT Solutions

Screens

Reboot

Rack Mount and IT Solutions

An extensive range of enterprise-level single-phase and three-phase rack power distribution units (PDUs) encompassing intelligent, metered and basic PDUs. Offered in many sizes and configurations, Austin Hughes rack PDUs provide the voltage, current, outlet number and type of connections required to fit any need. Also available, automatic transfer switches (ATS), SmartCard access for third party racks, environmental sensors, airflow solutions, LCD drawers with optional integrated KVM.

Protecting the World's Data Centres

## Video surveillance with audio, analytics and 100% coverage

Data centres are incredibly high value sites, demanding zero downtime operations. The key to securing data centres is a multi-layered approach to integrated security. Cameras play a pivotal role in securing sites from internal and external threats through deterrence, real-time analysis, response and documentation. With intrusion a leading threat, overcoming this by installing thermal and visual cameras along perimeters combined with radar and audio solutions are a powerful and comprehensive line of defense.

Thermal cameras are a valuable addition, triggering temperature-based events, to help avoid unwanted downtime. Without being on-site it is possible to know if your equipment is getting close to overheating.

Alarms and supporting audio capabilities are a necessary complement to surveillance systems. IP-based solutions allow for automated announcements and alerts both to deter intruders and to inform staff. It also plays a vital role in emergency and evacuation situations, broadcasting alerts, instructions and guidance.

SPECS

- **Visual cameras , thermal cameras and radar** can deter, verify and identify potential intruders and monitor equipment.

- **Audio solutions** allow for automated announcements and alerts both to deter intruders and to inform staff.

- **Access control** helps identify, authenticate and authorize entry, allowing you to track movement within the building.

- **Smart analytics** trigger warnings and alert your staff, saving time and money spent on routine patrols and attending to false alarms.
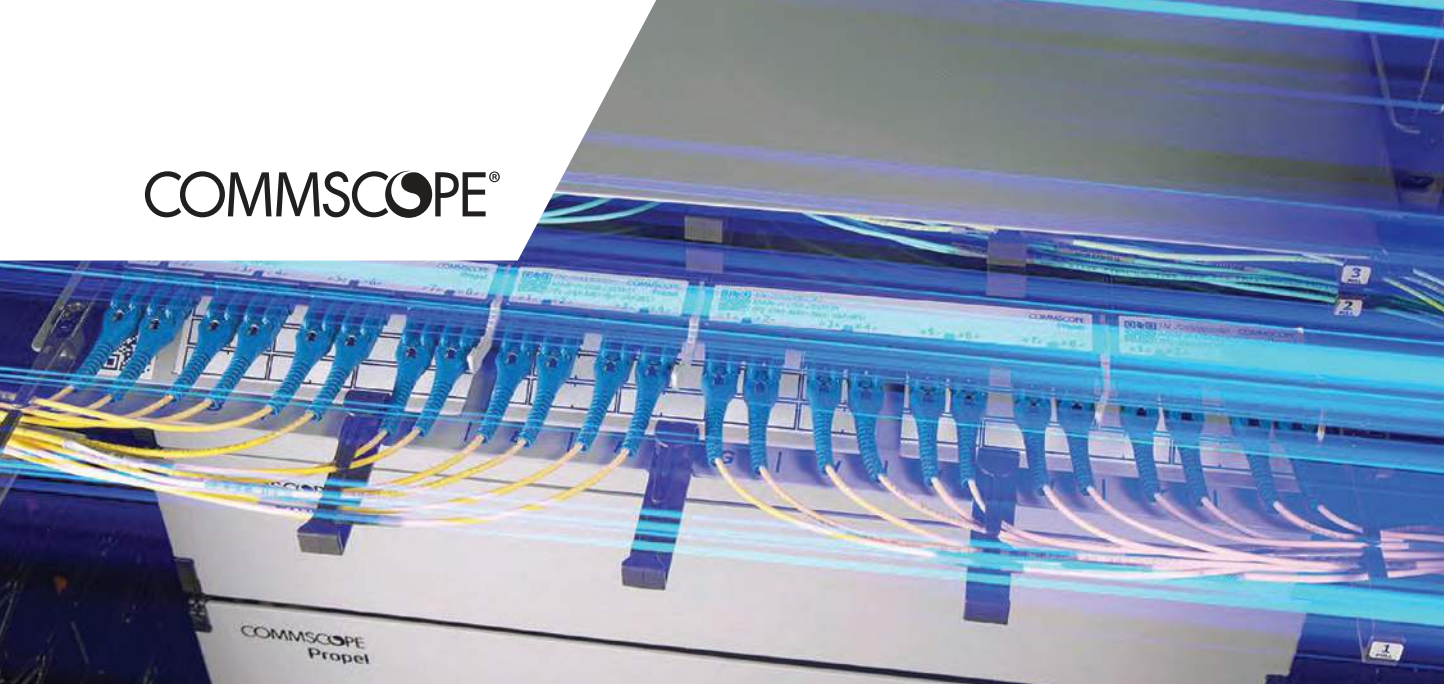
Save Your Valuable Time With Free Data Centre Configuration Tools From CommScope

CommScope offers free, cutting-edge tools to help you effortlessly:

- Streamline planning and design
- Save valuable time, labour and expertise
- Elevate your data centre's infrastructure
- Optimise your data centre efficiency
- Ensure peak performance without the hassle

Transform your data centre sustainably with CommScope's game-changing tools and resources.

Scan the QR code to learn more.

Corning EDGE™ Distribution System

Pre-Engineered To Go Faster

Corning EDGE™ Distribution System streamlines server row cabling by replacing many patch cords with a single assembly that is pre-engineered to your customers' exact specifications with access points at defined locations along the assembly, dropping fibre legs for connectivity required at each cabinet. The EDGE Distribution System provides faster installation, reduced risk and less congestion along with reduced packaging and simpler inventory management.

Work with your Corning expert to explore and configure the EDGE Distribution System for your customer and simplify their installation with custom labelling, colour coding and our new EDGE Lockable Uniboot Jumpers. Start with the EDGE Distribution Guide to learn more.

SPECS

- **Pre-Engineered for Fast, Easy Installation** – Compared to a traditional patch cord deployment, EDGE Distribution System is one assembly, one SKU and one box, installed in approximately 45 minutes.

- **Personalised to Your Exact Needs** – Custom fibre count, access points and dimensions designed for the customer's specific data centre design. Plus custom labelling and colour coding help simplify installation.

- **Minimise Risk** – Simplified installation means less ladder time and less skilled labour needs, reducing the risk associated with server row cable deployments.

CPI Power and Cabinet Ecosystem

CPI's Strongest, Most Advanced, Configurable Cabinet

The ZetaFrame® Cabinet from Chatsworth Products (CPI) is a highly engineered data centre cabinet solution that delivers fast built-to-order configurability and industry-leading strength and scalability, regardless of the application. ZetaFrame Cabinet is a total, turnkey solution that integrates with power, cable and thermal management accessories to support next-generation compute. The CPI eConnect® PDUs can be ordered and preinstalled in a ZetaFrame Cabinet under one part number.

- Part Number: ZB45-A121B-E1 – ZetaFrame Cabinet Glacier White

- Part Number: 10003113 – eConnect Switched PDU, Switch Pro Econ Intelligent Redundant, 42U, 120-208V, 3 Phase, 20A, L21-20, black and white, 18-C13, 6-C19, 3 5-20 Pack includes 1 black and 1 white PDU

EAT•N

Optimise Your Data Centre for the Digital Future

Comprehensive product portfolio:
Versatile solutions for all needs and sizes, from securing workstations to large data centres.

Innovative and efficient technologies:
R&D and strongly committed to innovative products and efficient technologies.

Secure by design:
Cybersecurity is at the core of Eaton "secure by design" philosophy, and it's embedded in all the Intelligent Power products and platforms.

Tailored solutions:
Tailored solutions according to customers' needs, offering comprehensive concepts from power supply to control.

Partner support:
Custom support to partners from project planning to execution.

Customer support:
Ongoing support and maintenance to ensure that your systems remain secure and up-to-date.

A – IT Racks
B – Cables and connectivity
C – UPS Systems
D – Power Distribution Units (Rack PDUs)

E – KVM Switches
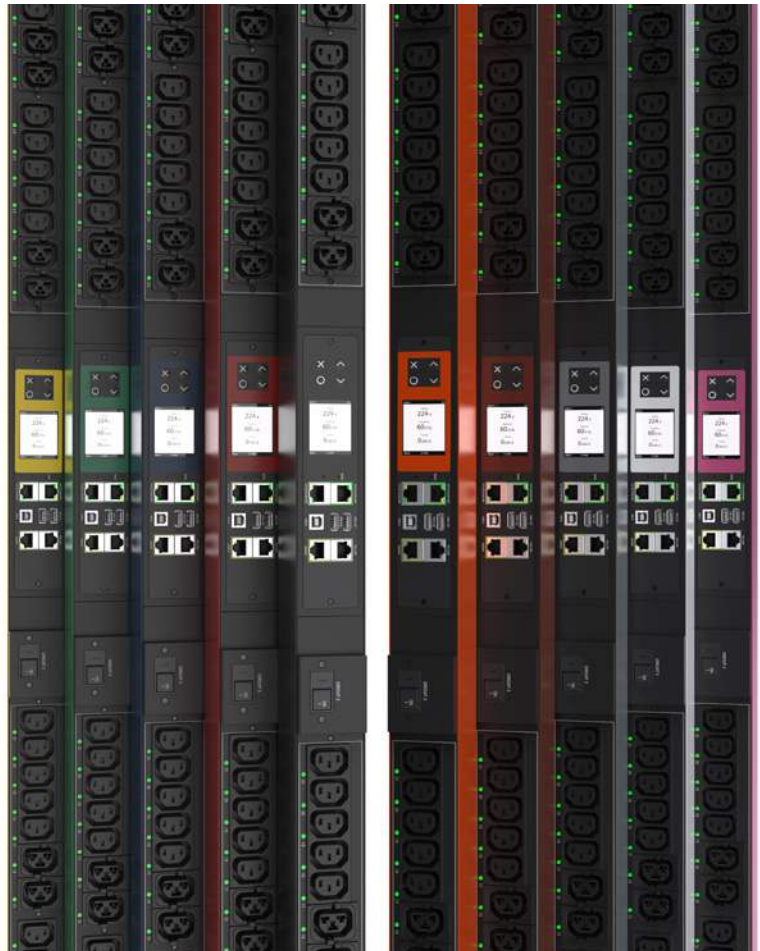**F** – D-IT Performance Management Software
G – Cooling solutions

Say Hello to Tomorrow

All New Raritan and Server Technology Rack PDUS

Main Benefits of PX4 and PRO4X

- Real-time visibility
- Best-in-class flexibility
- Engineered for mission-critical
- Easy data collection
- Secure encrypted communication

The Trusted Liquid Cooling Experts

500,000 kW of coolant distribution units provided globally in 2023

A Coolant Distribution Unit (CDU) is exactly what it says it is: a device to pump the liquid at the desired temperature directly onto the chip or server. CDUs serve as the vital core of liquid-cooled data centres, functioning as the beating heart that sustains optimal operating conditions.

Why do we need two loops for liquid cooling?

- Helps achieve the highest quality of water while optimising water use efficiency
- Offers precision control of the coolant
- Improves performance of the CDU in controlling the pressure, flow and temperature.

Panduit UPS Systems: Highly Efficient and Reliable Power Protection and Backup

Ensure uninterrupted operation of your critical IT infrastructure with Panduit uninterrupted power supply (UPS) systems. Designed to meet the escalating power needs of data centres, enterprises and edge IT environments, our UPS systems offer unparalleled efficiency and reliability.

- Benefit from intelligent battery management, secure network functionality and seamless integration with Panduit DCIM Cloud Next Generation Software Solution.

- Compliant with ENERGY STAR® 2.0, EMC and safety standards, Panduit UPS safeguards your data and equipment with long-lasting lithium units.

Scan to view
Panduit solutions

RiMatrix Micro Data Centre

Customisable Micro Data Centre Solutions

Prompted by the trend towards decentralisation, Rittal has devised a new type of data centre. RiMatrix Micro Data Centres offer globally standardised, complete, open-platform OT solutions to meet your data centre requirements, including those in the edge sector.

BENEFITS

Your benefits at a glance:

- An easy-to-implement data centre solution for edge applications
- Complete OT solution from a single source
- Globally standardised
- Compliant with all relevant safety standards
- Modular and easy to configure
- Error-free configuration saves time and minimises the risks
- Easy to operate
- Tried-and-trusted Rittal quality
- Fast delivery

Meet the Power and Cooling Needs of Your Critical Workloads

Experience peace of mind and solution security with Vertiv, empowering you to achieve your sustainability goals.

Let us support your business growth while safeguarding your critical server assets.

Benefit from Vertiv's swift order processing and seamless installation services, allowing you to focus on your core operations.

Count on our global reach and round-the-clock expert support to meet your needs effectively, tailored to your specific requirements.

Vertiv.com/ChallengeUS

Remote Management

Rack PDUs

UPS

Racks and Integrated Solutions

Services

Software and Controls

Rack and Storage Cooling
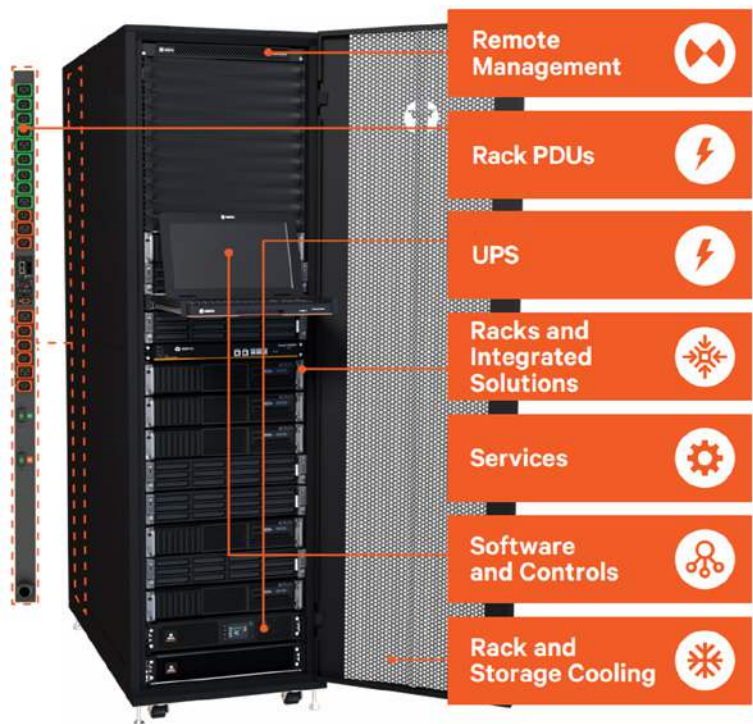
Wesco Anixter's Technical Facilities

Wesco Innovation Center

Enter With Opportunities, Leave With Innovations
Located in Glenview, Illinois, USA, the 4,000-square-foot, world-class Wesco Innovation Center serves as our flagship centre of excellence, bringing together highly-tailored technology, the latest product options from strategic suppliers, and industry expertise so you can design and test solutions before implementation. With technical subject matter experts on-site to assist you, applications for electrification, automation and IoT, green energy and grid modernisation, 24/7 connectivity and security can all be tested to current standards, including ANSI/TIA-568, ISO 11801 and IEEE 802.3. Most importantly, the entire experience is tailored to your specific needs.

The Wesco Innovation Center brings it all together for you:

- See live customised demos
- Connect with Wesco Anixter technical subject matter experts
- Test solutions in our labs before implementation
- See best-in-class installation practices in several environments including smart buildings, data centres and industrial facilities
- Get hands-on with nomadic displays of the latest products
- Experience 3D touchscreen interaction
- Share ideas using advanced AV technology
- Recharge in our café with espresso, lattes, cappuccino and cold beverages

Scan to take a virtual tour

Watch a short video that takes you inside the Wesco Innovation Center

Regional Solutions Briefing Centres

In addition to our Innovation Center, we have five regional Solutions Briefing Centres, each of which offers an immersive technology environment where you can test and experience products and end-to-end solutions in a real-world setting, gaining insight to help solve your unique application challenges. These regional facilities give Wesco Anixter a place to share our industry knowledge and demonstrate the latest technologies from our world-class vendor partners.

Experienced technical specialists are on hand and ready to listen to your needs, answer questions and offer expert advice when you need to propose available technologies and possible solutions for your customers' key decision makers. By providing the ability to see the whole system and not just the parts, these centres allow better purchasing decisions centered on interoperability, total cost of ownership, and specific corporate and IT strategies.

Locations

Brazil
- São Paulo

Mexico
- Mexico City

United Kingdom
- St Paul's, London

United States
- Annville, PA
- Miami, FL

Arrange a Visit

Whichever facility you visit, our goal is simple: Educate. Demonstrate. Evaluate. Our technical experts use these principles to help you select the right solutions to meet your current and future application needs.

We are pleased to offer in-person visits as well as live virtual tours or product presentations from our London Solutions Briefing Centre, via Zoom or Microsoft Teams.

We Help Life Run Smoothly

As a leading provider of business-to-business distribution, logistics services and supply chain solutions, Wesco Anixter is ready and able to help you navigate business complexities.

$22+ Billion
2023 net sales

Operations in 50+ Countries
to serve you wherever you are

3 Strategic Business Units
with dedicated focus and expertise

Environmental, Social & Governance
corporate focus and commitment

Digital Investments
to build for the future

Fortune 500® Corporation
to lead through challenging supply chain and economic conditions (#181)

We serve those who drive productivity and progress, meeting business challenges with innovation and solutions that keep our world running and advancing.

For over 100 years, our combination of scale and local expertise has provided focus and speed to transform the way you do business and, in turn, the way people work and live.
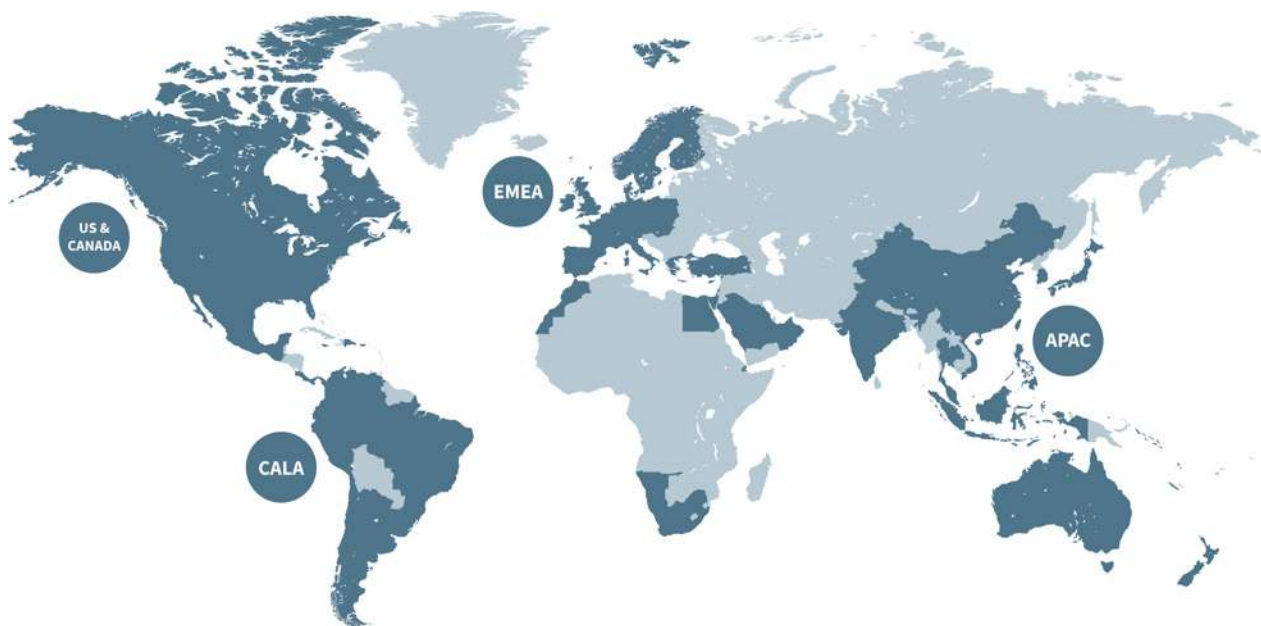
Expertise Wherever You Operate

With 20,000 employees in nearly 800 branches, warehouses and sales offices in more than 50 countries, we serve you with the continuity and quality you trust, wherever your business takes you.

We proudly support approximately 150,000 customers worldwide. As your partner, you gain access to our broad portfolio of millions of products from approximately 50,000 suppliers.

Our Global Data Centre Partners Include:

3M · ABB · AcuityBrands · ANORD MARDIX (A Flex Company) · APC (Life Is On Schneider Electric) · Appleton · ARISTA

aruba (a Hewlett Packard Enterprise company) · AUSTIN HUGHES · AXIS COMMUNICATIONS · BELDEN · BOSCH Invented for life · CISCO Meraki · COMMSCOPE

COOPER Lighting Solutions · CORNING · CPI CHATSWORTH PRODUCTS · Current · dormakaba · EATON

FORTINET · FLUKE · GREAT LAKES DATA RACKS & CABINETS · HUBBELL Hubbell Premise Wiring · JUNIPER NETWORKS · legrand · Lenovo

LEVITON · MacLean POWER SYSTEMS · MaxCell INNERDUCT Productivity Redefined · MINKELS A brand of legrand · NetApp · nVent · paloalto NETWORKS

PANDUIT · ProLabs Unlock your connectivity · Raritan A brand of legrand · RITTAL · prysmian · Server Technology A brand of legrand · Signify the meaning of light

SIEMON · Southwire · SUPERIOR ESSEX · TE connectivity · VERTIV · zpe

Wesco.com/emea