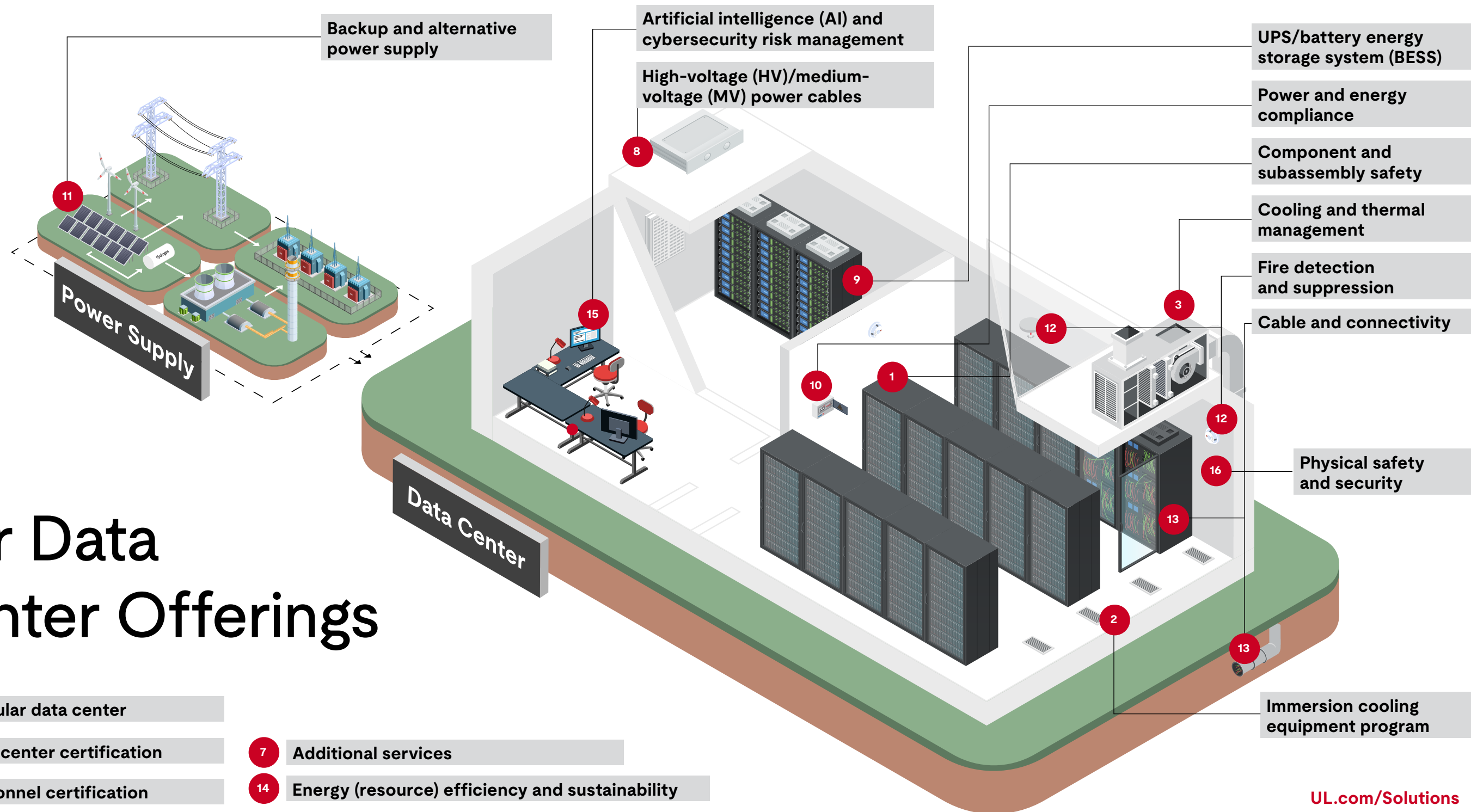


# Our Data Center Offerings

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## 1. Component and subassembly safety

**Information technology (IT) and audio/video (AV) products (including servers), server racks:**

- **UL/IEC 62368-1**, the Standard for Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements
- **UL 2416**, the Standard for Audio/Video, Information and Communication Technology Equipment Cabinet, Enclosure and Rack Systems
- **UL 2695**, the Outline of Investigation for DC Rated Attachment Plugs and Outlet Devices Intended for Use with Information Technology and Telecommunication Equipment Installed in Restricted Access Locations

## 2. Immersion cooling equipment program

**Immersion cooling system and components:**

- **CSA/IEC/UL 62368-1**, the Standard for Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements
- **UL 2417**, the Outline of Investigation for Immersion Cooling Fluids for Use with Information and Communication Technology Equipment
- **UL 2416A**, Outline of Investigation for Immersion Cooling Cabinets and Enclosures

## 3. Cooling and thermal management

**Heating, ventilation and air conditioning (HVAC):**

- **IEC/UL 60335-2-40**, the Standard for Household and Similar Electrical Appliances – Safety – Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
- **EN 378**, Refrigerating Systems and Heat Pumps – Safety and Environmental Requirements
- **ISO 5149**, Refrigerating Systems and Heat Pumps – Safety and Environmental Requirements
- **ISO/IEC 17025:2017** – Data Acceptance Program (DAP) or Witness Test Data Program (WTDP)

**Coolant distribution unit (CDU):**

- **CSA/IEC/UL 62368-1**, the Standard for Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements
- **UL/CAN/60335-2-40**, the Standard for Household and Similar Electrical Appliances – Safety – Part 2-40: Particular Requirements for Electrical Heat Pumps, Air Conditioners and Dehumidifiers

## 4. Modular data center

**Prefabricated/modular (PFM) data center:**

- **UL 2755**, the Outline of Investigation for Modular Data Centers: Compliance path toward meeting requirements under Article 646 of NFPA 70, the National Electrical Code®

## 5. Data center certification

- **UL 3223**, the Outline of Investigation for Data Center Certificate
- **ISA/IEC 62443** certification for OEMs, system integrators and asset owners/operators.

## 6. Personnel certification

**Installer/integrator certification:**

- **DCIQ** program
- **ISA/IEC 62443 training** for original equipment manufacturers (OEMs), system integrators, asset owners/operators

## 7. Additional services

- Electromagnetic compatibility (EMC) (IEC 61000 series, International Special Committee on Radio Interference (CISPR) and ISO 11452)
- Wireless (5G, specific absorption rate (SAR), radio frequency (RF), IEC 62368-1, ETSI EN 300 328 V2.2.2)
- Interoperability/Internet of Things (IoT)
- Market access
- Global Compliance Management (GCM)
- Smart Systems Rating Program (SSRP)

## Power infrastructure

### 8. HV/MV power cables

#### HV/MV cable systems:

- High Voltage Cable Field Testing Program (HVCFTP) – Test to numerous standards, including IEC 60840, IEC 62067, AEIC CS9, ICEA S108-720, IEEE 400.2
- Medium Voltage Cable Field Testing Program (MVCFTP)
- HV/MV cable systems laboratory testing

### 9. UPS and battery energy storage

#### UPS and BESS:

- **UL 1778**, the Standard for Uninterruptible Power Systems
- **IEC 62040-3**, Uninterruptible Power Systems (UPS) – Part 3: Method of Specifying the Performance and Test Requirements, for movable, stationary and fixed electronic UPS
- **UL 9540**, the Standard for Energy Storage Systems and Equipment
- **ANSI/CAN/UL 1973**, the Standard for Batteries for Use in Stationary and Motive Auxiliary Power Applications
- **UL 1008**, the Standard for Transfer Switch Equipment
- **UL 1008A**, the Standard for Transfer Switch Equipment, Over 1000 Volts
- **UL 1008B**, the Outline of Investigation for Source Interconnection Switches
- **UL 1008S**, the Standard for Solid-State Transfer Switches
- **IEC 60947-6-1**, Low-Voltage Switchgear and Controlgear – Part 6-1: Multiple Function Equipment – Transfer Switching Equipment

#### Regulatory Services:

- UL Solutions field evaluation services

### 10. Power and energy compliance

#### Low-voltage power distribution equipment and systems:

- **IEC/EN 61439-2**, Low-Voltage Switchgear and Controlgear Assemblies – Part 2: Power Switchgear and Controlgear Assemblies
- **IEC/EN 61439-6**, Low-Voltage Switchgear and Controlgear Assemblies – Part 6: Busbar Trunking Systems (Busways)
- **UL 67**, the Standard for Panelboards
- **UL 891**, the Standard for Switchboards
- **UL 1558**, the Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
- **UL 845**, the Standard for Motor Control Centers
- **UL 857**, Busways

#### Direct current (DC) power distribution equipment and systems:

- **UL 1801**, the Outline of Investigation for Power Distribution Centers for Communications Equipment
- **UL 3001**, the Standard for Distributed Energy Resource Systems

#### Advanced metering (AI-driven power optimization):

- **UL 61010-1**, the Standard for Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements
- **IEC 61511**, Functional Safety – Safety Instrumented Systems for the Process Industry Sector

### 11. Backup and alternative power supply

#### Microgrid system:

- **UL 3010**, the Outline of Investigation for Single Site-Energy Systems
- **UL 3001**, the Standard for Distributed Energy Resource Systems
- **UL 3005**, the Outline of Investigation for Distributed Energy Resource Management Systems (Microgrid Controls)

#### More options for backup and alternative power supply:

- Generator set
- Solar, including rooftop photovoltaic (PV)
- Wind – EC 61400 series; GL Guidelines; UL 6141, the Standard for Wind Turbines Permitting Entry of Personnel; International Electrotechnical Commission (IEC) System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications (IECRE)
- Hydrogen energy

## 12. Fire detection and suppression

#### Fire detection products and systems:

- **UL 864**, the Standard for Control Units and Accessories for Fire Alarm Systems
- **UL 521**, the Standard for Heat Detectors for Fire Protective Signaling Systems
- **UL 268**, the Standard for Smoke Detectors for Fire Alarm Systems
- **UL 464**, the Standard for Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories; or UL 1480, Standard for Speakers for Fire Alarm and Signaling Systems, Including Accessories
- **UL 1971**, the Standard for Signaling Devices for the Deaf and Hard of Hearing
- **UL 38**, the Standard for Manual Signaling Boxes for Fire Alarm Systems
- **UL 2075**, the Standard for Gas and Vapor Detectors and Sensors
- **EN 54-2**, Fire Detection and Fire Alarm Systems – Part 2: Control and Indicating Equipment
- **EN 54-3**, Fire Detection and Fire Alarm Systems – Part 3: Fire Alarm Devices – Sounders
- **EN 54-5**, Fire Detection and Fire Alarm Systems – Part 5: Heat Detectors – Point Heat Detectors
- **EN 54-7**, Fire Detection and Fire Alarm Systems – Part 7: Smoke Detectors – Point Smoke Detectors that Operate Using Scattered Light, Transmitted Light or Ionization
- **EN 54-11**, Fire Detection and Fire Alarm Systems – Part 11: Manual Call Points
- **EN 54-20**, Fire Detection and Fire Alarm Systems – Part 20: Aspirating Smoke Detectors
- **EN 54-23**, Fire Detection and Fire Alarm Systems – Part 23: Fire Alarm Devices – Visual Alarm Devices

#### Firefighting and suppression products and systems:

- **NFPA 75**, Standard for the Fire Protection of Information Technology Equipment
- **ANSI/UL 154, CAN/ULC-S503**, the Standard for Carbon-Dioxide Fire Extinguishers; or ANSI/UL 2129, CAN/ULC-S566, the Standard for Halocarbon Clean Agent Fire Extinguishers
- **NFPA 12**, Standard on Carbon Dioxide Extinguishing Systems
- **UL 2166**, the Standard for Halocarbon Clean Agent Extinguishing System Units
- **UL 2127**, the Standard for Inert Gas Clean Agent Extinguishing System Units

#### Regulatory Services:

- UL Solutions field evaluation services

## 13. Cable and connectivity

### Optic fiber and cables:

- **GR-20**, Generic Requirements for Optical Fiber and Optical Fiber Cable
- **GR-326**, Generic Requirements for Single-Mode Optical Connectors and Jumper Assemblies
- **GR-409**, Generic Requirements for Indoor Fiber Optic Cable
- **IEC 60794-2-20**, Optical Fibre Cables – Part-2-20: Indoor Cables – Family Specification for Multi-Fibre Optical Cables
- **IEC 60794-3-11**, Optical Fibre Cables – Part 3-11: Outdoor Cables – Product Specification for Duct, Directly Buried, and Lashed Aerial Single-Mode Optical Fibre Telecommunications Cables
- **IEC 61753-021-3**, Fibre Optic Interconnecting Devices and Passive Components – Performance Standard – Part 021-3: Single-Mode Fibre Optic Connectors for Category U – Uncontrolled Environment
- **UL 2404**, the Outline of Investigation for Active and Passive Optical Cable Assemblies and Connectors
- **UL 758**, the Standard for Appliance Wiring Material
- **UL 9703**, the Outline of Investigation for Distributed Generation Wiring Harnesses
- **UL 444**, the Standard for Communications Cables
- Optical fiber performance and reliability assessment
- **UL 817**, the Standard for Cord Sets and Power-Supply Cords
- **UL 157**, the Standard for Gaskets and Seals
- **UL 62**, the Standard for Flexible Cords and Cables

### Category 8 cables:

- **ANSI/TIA 568 C.2-1** for commercial building cabling for telecommunications products and services
- **IEC/ISO 11801**, Information Technology – Generic Cabling for Customer Premises, which specifies general-purpose telecommunication cabling systems (structured cabling) suitable for a wide range of applications
- **IEC 61156-9**, Multicore and Symmetrical Pair/Quad Cables for Digital Communications – Part 9: Cables for Channels with Transmission Characteristics Up to 2 GHz – Sectional specification
- **IEC 61156-10**, Multicore and Symmetrical Pair/Quad Cables for Digital Communications – Part 10: Cables for Cords with Transmission Characteristics Up to 2 GHz – Sectional Specification

### Networking equipment and accessories:

- **IEC/UL 62368-1**, the Standard for Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements
- **UL 2416**, the Standard for Audio/Video, Information and Communication Technology Equipment Cabinet, Enclosure and Rack Systems

## 14. Energy (resource) efficiency and sustainability

### Energy efficiency:

- ENERGY STAR® certification
- ECOLOGO certification to UL Environment 2854, the Standard for Sustainability for Renewable Low-Impact Electricity Products
- Resource efficiency/sustainable building:
- SPIRE™ Smart Building Program
- UL Verified Healthy Buildings Mark
- Energy services for healthy buildings
- Green building services – Leadership in Energy and Environmental Design (LEED), Building Research Establishment Environmental Assessment Methodology (BREEAM), WELL and Fitwell

### Waste/circularity:

- **UL Environment 2799**, the Environmental Claim Validation Procedure (ECVP) for Zero Waste to Landfill
- Electronic Product Environmental Assessment Tool (EPEAT)

### Product sustainability:

- **UL Environment 2809-2**, the Environmental Claim Validation Procedure (ECVP) for Recycled Content
- Regulatory compliance toward Restricted Substance List (RSL) or substance of concern – Restriction of Hazardous Substances (RoHS); Registration, Evaluation, Authorization and Restriction of Chemicals (REACH); Proposition 65; etc.

## 15. AI and cybersecurity risk management

### Cybersecurity services:

- **ISA/IEC 62443**, Security for Industrial Automation and Control Systems
- Common Criteria
- IoT Security Rating
- **UL 2900-2-3**, the Standard for Software Cybersecurity for Network-Connectable Products, Part 2-3: Particular Requirements for Security and Life Safety Signaling Systems
- Security development life cycle (SDL) gap analysis
- Supplier security assessment
- Network and Information Security Directive 2 (NIS2) (Directive (EU) 2022/2555)
- EU Cyber Resilience Act (CRA)
- European Commission's (EC) Radio Equipment Directive (RED) 2014/53/EU
- **ISO/IEC 27001**, Information Security, Cybersecurity and Privacy Protection – Information Security Management Systems – Requirements

### AI:

- UL Marketing Claim Verification Mark for your edge devices



## 16. Physical safety and security

### Disaster risk management (preparedness) and response:

- **Storm** – Field evaluation services for assistance with water-damaged equipment
- **Windstorm (hurricane and tornado)** – ASTM E1996; E1886; ICC 500; UL 580, the Standard for Tests for Uplift Resistance of Roof Assemblies; UL 1897, the Standard for Uplift Tests for Roof Covering Systems

### Emergency responder communication enhancement systems (ERCES):

**ANSI/CAN/UL 2524**, the Standard for Emergency Responder Communication Enhancement Systems

### Bullet-resisting assemblies:

**UL 752**, the Standard for Bullet-Resisting Equipment

### Building envelope product and on-site services:

- American National Standards Institute (ANSI)
- Door and Access Systems Manufacturers Association (DASMA)
- American Society for Testing and Materials (ASTM)
- Window and Door Manufacturers Association (WDMA)
- American Architectural Manufacturers Association (AAMA)
- Canadian Standards Association (CSA)
- International Code Council (ICC)
- National Fenestration Rating Council (NFRC)
- Builders Hardware Manufacturers Association (BHMA)
- National Standards for Canada (CAN)
- Testing Application Standard (TAS)
- Europe – BS 6375, PAS 24 and EN (European standards)

### Lighting protection systems:

- **UL 96**, the Standard for Lightning Protection Components
- **UL 96A**, the Standard for Installation Requirements for Lightning Protection Systems
- **NFPA 780**, Standard for the Installation of Lightning Protection Systems
- **IEC 62305**, Protection Against Lightning
- **AS/NZS 1768**, Lightning Protection

### Building access control management:

Devices like monitoring systems, robotics, energy storage systems, inverters, circuit protection devices, industrial automation devices and semiconductors

- **CSA/IEC/UL 62368-1**, the Standard for Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements
- **UL/CSA/IEC 60730**, the Standard for Automatic Electrical Controls
- **IEC 60335-1**, Household and Similar Electrical Appliances – Safety – Part 1: General Requirements
- **UL 916**, the Standard for Energy Management Equipment
- **UL 293**, the Outline of Investigation for Performance of Access Control System Units Intended for Use in the UK
- **IEC 60839-11-1**, Alarm and Electronic Security Systems – Part 11-1: Electronic Access Control Systems – System and Components Requirements
- **IEC 60839-11-2**, Alarm and Electronic Security Systems – Part 11-2: Electronic Access Control Systems – Application Guidelines
- **ULC 60839-11-1**, the Standard for Alarm and Electronic Security Systems – Part 11-1: Electronic Access Control Systems – System and Components Requirements
- **UL 294**, the Standard for Access Control System and Units
- **UL 2900-2-3**, the Standard for Software Cybersecurity for Network-Connectable Products, Part 2-3: Particular Requirements for Security and Life Safety Signaling Systems
- **IEC 61508**, Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems
- **UL 991**, the Standard for Tests for Safety-Related Controls Employing Solid-State Devices
- **UL 1998**, the Standard for Software in Programmable Components

### Regulatory Services:

- UL Field Evaluation Services