



Design & Build

End-to-end data center solutions

Engineering. Construction. Energy Solutions

Introduction

KFA has extensive experience in implementing data center projects and other secret or classified projects for local and international operators.

KFA has been a reliable civil construction partner for international clients and technology giants for years and has been involved in data center construction. Our experience covers Iraq and Syria.

The projects have required special precision, technological expertise, and high safety requirements.

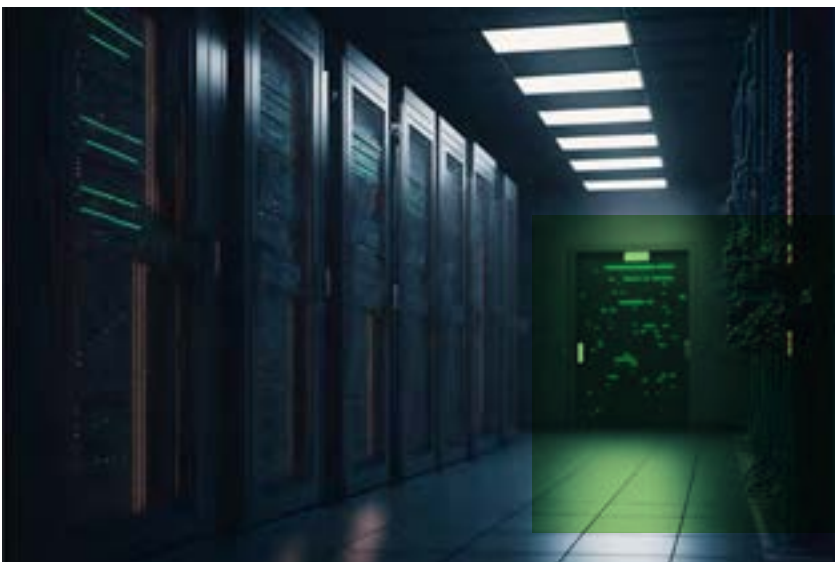
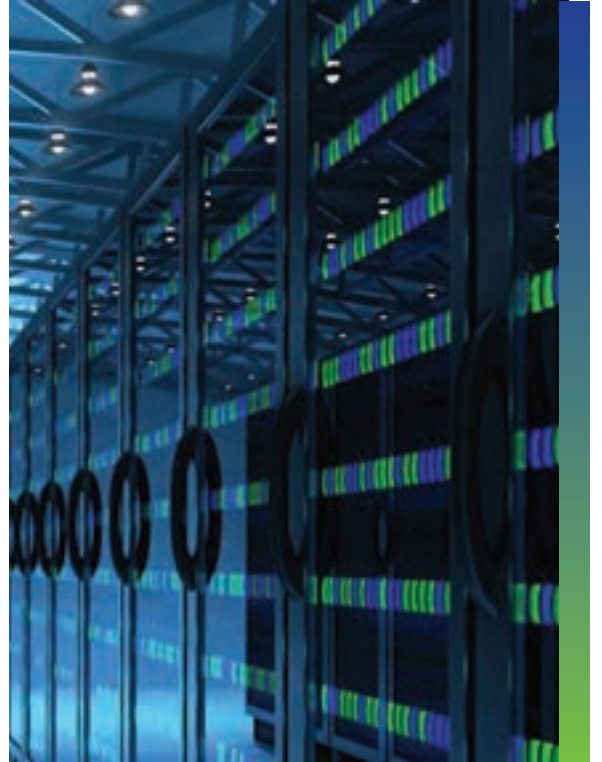
We deliver comprehensive civil works for data centers, including technical facilities, concrete structures, and power supply systems.

In our work, we combine precise project management, high data security, and the demanding quality standards of data center environments.

We can also deliver other construction techniques to the same high standard, including site clearing and structural framing, as well as shell construction and roofing.

KFA has highly skilled and experienced personnel who, in addition to their technical expertise, have extensive experience building data centers for international operators. We are familiar with the industry's special requirements and have received excellent feedback on reliability and customer satisfaction.

Our close cooperation with clients, developers, suppliers, other partners, and authorities ensures that every project built by KFA proceeds in a controlled, safe, and timely manner.



Engineering

Our advantages (Why KFA):

Your needs are the foundation for sustainable and future-proof data centers

Interdisciplinary expertise

We understand the requirements of the various parties in the planning project. This enables us to transfer your IT requirements to the structural architecture and TBE-planning.

Requirement-based planning

By means of demand-oriented planning, we avoid expensive overcapacities. This applies both to the currently required performance and to future developments and changes.

Innovative and sustainable concepts

We use innovative concepts to plan for the future today. Our planning takes into account advanced, sustainable and ecological concepts such as photovoltaic systems, surplus heat recovery, facade greening and green roofing, as well as charging and supply infrastructures for e-mobility.

Latest technological standards

Using the latest CAD and BIM software (Building Information Modeling), you can view your data center in the form of a 3D model even before it is built. This digital twin not only serves as a visualization, but also allows you to identify and prevent potential collisions in the planning of the building even before the actual construction. Benefit from optimized workflows and a wide ranging all-in-one solution.

Overall assessment

With our own experienced architects and specialist engineers, we are able to provide complete general planning services, thus avoiding loss of knowledge and minimizing risks. We consider the entire value chain for security, efficiency and high availability of IT infrastructures in our planning and ensure that your data center is designed for the future.



Technical Building Equipment (TBE)

Planning of technical building equipment from a single source

The correct design and optimization of technical systems contribute to maximum energy efficiency. With professional planning of technical building equipment (TBE), optimal cost savings and safety can be achieved during execution.

Your dedicated global data center solutions partner

Building controls



- Building automation system
 - _ Provides 24-hour monitoring and management of connected devices
 - _ Ensures uptime through orchestrated staging and failover of thermal cooling equipment
 - _ Tracks thermal equipment performance through automated reporting and fault detection

Fire protection



- Fire detection and automatic protection
- Aspirating and point-type smoke detectors
- All portable extinguishers
- Multi-automatic protection :
 - _ Mist technologies
 - _ Clean extinguishing using halocarbon and inert gases, FM200 with world-class acoustic nozzles
- Lithium-ion fire suppression



Facility security



- Video surveillance, object recognition and tracking
- Command and control center
- Visitor access and management system
- Access control – building, cabinet or cage-specific
- Fire-rated, bunker, bullet-resistant doors
- Perimeter protection, intrusion
- Security lighting

Proactive services



- Dedicated partnerships with design, implementation and operations teams
- Collaborative engineering for tailored local solutions
- Remote monitoring and alerting
- On-site proactive and reactive maintenance and repair
- Embedded operation and service personnel
- Data center operations management
- Multiple aaS options to reduce capex
- Compatible implementations for instances of adjacent NOC/SOC

Thermal management



- Air-cooled chillers
- Air handling units
 - Direct evaporative cooling (DEC)
 - Computer room air handler (CRAH)
- Heat pumps/district heating
- Thermosiphon

Cold/Hot Aisle Containment System

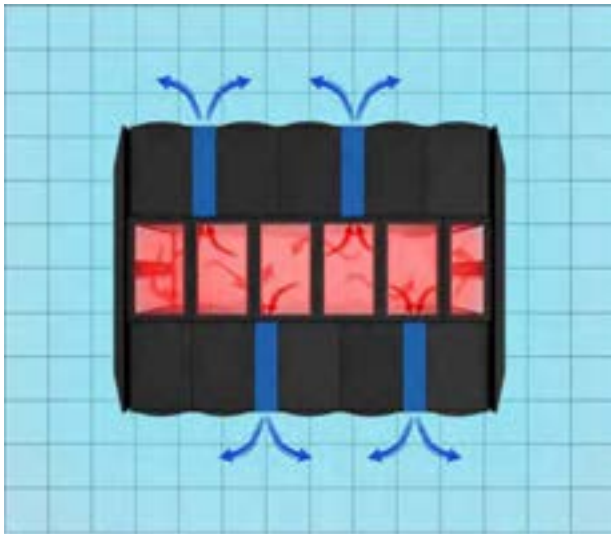


The Cold & Hot Aisle Containment solution is an Aisle Frame Containment system – effectively separating the cold supply air from the hot server exhaust. As a result, it maximizes the system’ s efficiency, minimizes its power consumption, and reduces its footprint, ultimately making it the perfect solution for medium- to large-scale data centers.

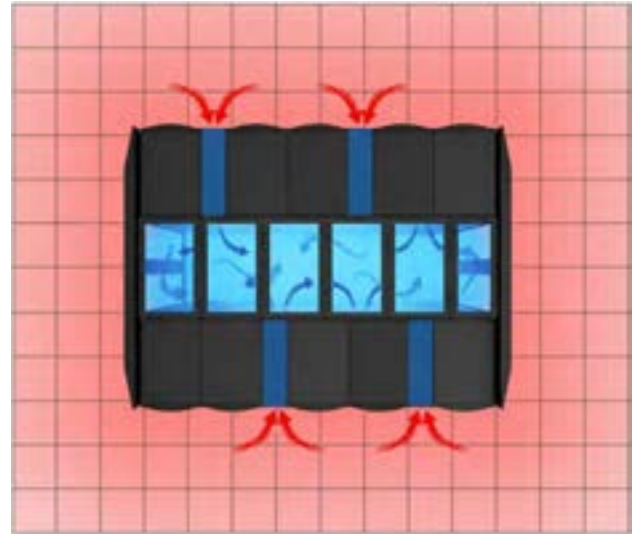
Furthermore, the Cold & Hot Aisle Containment system is retrofittable, which makes it an ideal option for improving the performance of older server rooms facing upgrades. In addition, it’ s modular and scalable, offering a valuable advantage by helping future-proof investment against growing needs. Therefore, as demand on your system increases, and your data center expands, our Cold & Hot Aisle Containment solution can grow proportionally.

- Enables the isolation of hot and cold aisles, thereby maximizing cooling system efficiency and minimizing cooling energy requirements.
- Highly modular, scalable, expandable, and retrofittable, offering flexibility to adapt to changing needs.
- An optimum cooling solution for both large and medium-scale Data Centers, especially when coupled with CRAC or Inrow cooling units, to significantly increase the efficiency of the cooling system.
- Provides moderate efficiency, energy savings, and free cooling capabilities, contributing to overall operational cost reduction.

HOT AISLE CONTAINMENT WITH INROW COOLING SOLUTIONS



COLD AISLE CONTAINMENT WITH INROW COOLING SOLUTIONS



COLD AISLE CONTAINMENT WITH INROW COOLING SOLUTIONS

It is indeed possible to implement a cold aisle containment structure with Inrow precision air conditioners in a Maxi DC (Data Center) environment. This setup helps in achieving higher energy efficiency (measured by Power Usage Effectiveness or PUE) and effective cooling performance by separating the hot and cold air streams.

HOT AISLE CONTAINMENT WITH INROW COOLING SOLUTIONS

In-room based air conditioning solutions, commonly known as CRAC (Computer Room Air Conditioner) or CRAH (Computer Room Air Handler) units, are often preferred for aisle containment systems in data centers. These units play a crucial role in maintaining optimal temperatures within the facility.

- Cable Tray pass through panels



Container Data Center Solution

From private 5G networks to AI hubs, KFA's modular data centers are engineered to meet next-generation demands. With plug-and-play architecture, factory-tested reliability, and a low environmental footprint, we enable faster, smarter deployments across industries. Our modular systems are tailored for your location, workload, and scale, with sustainability and compliance built in.



The containerized outdoor prefabricated data center solution supports various ISO-standard container specifications, meeting land and maritime transportation needs worldwide. It has excellent protection capabilities and can adapt to a wide range of outdoor applications. The container integrates key IT infrastructure, including racks, UPS power supply and distribution systems, integrated precision air conditioners, monitoring systems, cabling systems, security systems, fire protection systems, and lighting systems. It can be plugged in and used immediately on-site. It supports in-depth customization to meet the specific requirements of various application scenarios.

● Product Description

The containerized outdoor prefabricated data center solution supports various ISO standard container specifications, meeting the land and maritime transportation needs worldwide. It has excellent protection capabilities and can adapt to a variety of outdoor application scenarios. The container integrates key IT infrastructure such as racks, UPS power supply and distribution systems, integrated precision air conditioners, monitoring systems, cabling systems, security systems, fire protection systems, and lighting systems. It can be plugged and used immediately on-site. It supports in-depth customization to meet the specific requirements of various application scenarios.

● Product Features



Safe and Reliable

- All components follow domestic and international standardized production standard to ensure product quality.
- IP55 protection, with excellent waterproof performance, suitable for a variety of complex scenes.
- Redundant design of key components to improve system reliability.
- Integrated video, access control and intelligent monitoring management system to ensure safe and reliable equipment operation.



Rapid Installation

Power supply and distribution, air conditioner, cabinets system fast on the concrete floor of the building or outdoor, simple and easy. No need for professional server room, can be installed directly on land transportation conditions, worldwide reachable. Standard container, in line with domestic and international sea freight factory prefabricated and pre installed, plug-and-play. Closed access, monitoring system and fire protection system.



Efficiency and Energy Saving

- All-in-one design, hot and cold aisle isolation, fully enclosed design, improve the efficiency of cooling capacity and save energy.
- Adopt full inverter precision air conditioner, output cooling capacity on demand, precise cooling and save more energy.
- Adopt energy-efficient modular UPS with intelligent sleeping function, more energy-saving.
- Integrated design of power distribution cabinet and UPS, saving space.



Intelligent Management

- Intelligently monitor the working status of power and environmental system.
- Real-time alerts can be made in time via SMS, telephone voice, email, sound and light.
- Provide a variety of human-machine interaction methods such as O&M screen, remote APP, local LCD and Web.
- Provide ModbusTCP, MQTT and other northbound interfaces to facilitate system integration.

● Applicable Scene

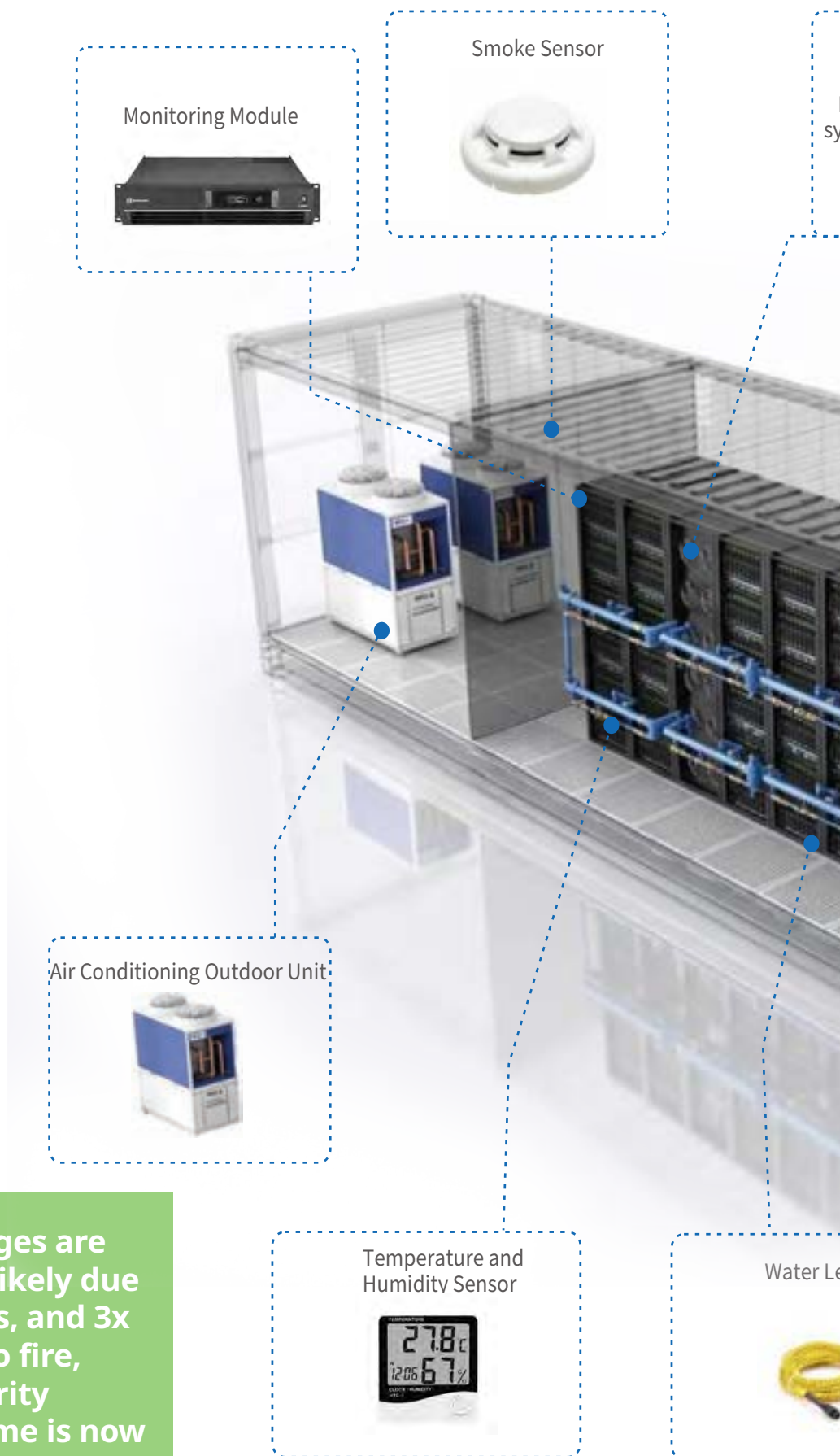
Large-scale data center, campus data center and other core business server room, suitable for Government, medical, education, finance, telecom and other leasing and self-use businesses.

● Green Free Cooling Systems

Indirect Free Cooling with Refrigerant Pump Technology

- PUE low to 1.2
- Peak EER goes up to 28.9 in cooler seasons.
- Independent internal and external loops, no dust / moisture concern.

● Structure and Composition



Data center outages are nearly 20x more likely due to cooling failures, and 3x more likely due to fire, than a cybersecurity incident* – the time is now for data centers to act accordingly.



Containerized Battery Energy Storage System (BESS) 1MW+ Scalable Industrial & Commercial ESS Solution

As global energy demand rises, businesses need power systems that are smarter, cleaner, and always-on. KFA Global's Battery Energy Storage Systems (BESS) offer just that: reliable, scalable, and intelligent energy battery solutions ranging up to 5 MW, built in-house to support mission-critical processes.

The containerized Battery Energy Storage System (BESS) is a turnkey solution designed for industrial parks, communities, and utility-scale projects.

Built on a modular architecture, it ensures flexible deployment and rapid installation, reducing project lead time by up to 50% compared with traditional BESS structures.

Equipped with both AC and DC coupling, this system integrates seamlessly with PV, wind, and diesel generators and supports EV charging stations.

Its advanced DC BUS grid-forming (GFM) technology guarantees 100% availability of battery cluster capacity, ensuring an uninterrupted energy supply.

With modular O&M design, operators can service individual units without affecting other modules, lowering costs while maximizing uptime.

This containerized ESS delivers efficient charging/discharging performance, making it ideal for grid ancillary services, commercial operations, and renewable energy integration.



Applications / Use Cases

- **Industrial Parks & Communities** – Peak-shaving, demand management, power backup.
- **PV + BESS + EV Charging Station** – Supports renewable-powered mobility ecosystems.
- **Grid Ancillary Services** – Frequency regulation, voltage support, capacity reserve.





High Efficiency

Optimized charging & discharging cycles



Modular O&M

Service without disrupting other modules



AC & DC Coupling with PV System

Seamless hybrid integration



EMS Compatibility

Works with leading inverter brands



Design Optimization

Cuts lead time by 50% vs. traditional BESS.

Key Features Selling Points



Flexible Energy Sources

Supports solar, diesel generator, and wind turbine



Full Global Certifications

IEC62619, IEC62477, EN50549, UN38.3, VDE4105, etc



DC BUS Grid-Forming Technology

Ensures 100% battery cluster availability

Solar Farm EPC Solutions

At KFA, we dedicate ourselves to providing innovative Engineering, Procurement, and Construction (EPC) solutions for solar farms.

We are experienced throughout the project life cycle, delivering effective, sustainable, and cost-effective solar energy solutions to clients. We deliver end-to-end EPC solutions for solar farms—from precision engineering and quality procurement to safe, on-time construction—ensuring high-performance, utility-scale projects built for long-term reliability and maximum energy yield.

Through a multidisciplinary approach, we enable integration across all project stages. We provide turnkey solutions with the highest standards of quality and efficiency.

Solar EPC Across Industries

KFA delivers specialized solar EPC services across a broad range of industries, including utility-scale solar farms, commercial and industrial rooftops, agrivoltaics projects, and hybrid energy systems. We tailor our approach to address the unique challenges of each sector, ensuring optimized design, efficient procurement, and reliable construction.

Our solutions are built to handle diverse project complexities, delivering dependable performance and maximizing energy output for every client.



OUR TRUSTED PARTNERS

Collaborating with globally recognized brands
to deliver reliable and scalable data center solutions.

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Design & Build

www.kfa-design.com

IRAQ

Tel: 07508188196 - 07761661199

Iraq, Erbil, Empire business bay, T5 tower, office 101

SYRIA

Tel: +963-11-2125759 Fax: +963-11-2125167

Syria, Damascus, P.O.Box: 11340