

HVAC Design Build

www.hicsa.com.mx

Data Center

Division



HICSA[®]

¡Hecho Bien!

Project / Construction / Commissioning / Maintenance

contacto@hicsa.com.mx

HICSA is a leading Mexican engineering firm with over **30 years** of experience delivering high-performance **HVAC solutions.**

We specialize in the **Design-Build** of cooling, heating, and industrial ventilation systems, along with specialized preventive and corrective maintenance.

WHO WE ARE

We integrate engineering, **installation**, and **specialized maintenance** for:

- **Industrial Cooling**
- **Process Heating**
- **Critical Ventilation**

OUR STRATEGY

- **Operational Bottlenecks**
Resolving critical system issues.
- **Energy Inefficiency**
Detecting and eliminating energy waste.
- **Process Optimization**
Designing bespoke solutions for maximum performance.

THE COMMITMENT

- **Zero Downtime**
Implementation without interrupting production.
- **Attractive ROI**
Sustainable financial and operational returns.
- **Technical Reliability**
Preventive and corrective specialized support.



Turnkey delivery & Technological Innovation

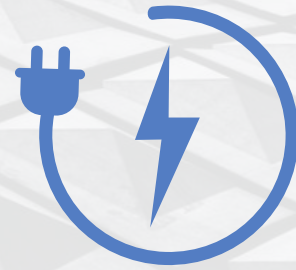


Turnkey HVAC Projects

HICSA delivers fully integrated *Design-Build solutions*, coordinating multiple engineering disciplines:



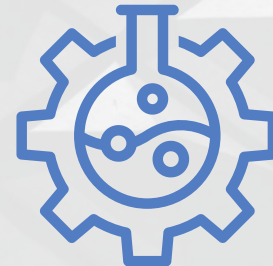
Civil & structural
engineering



Mechanical &
electrical systems



Controls and
automation



Chemical
engineering support

Technological Innovation

We are a cutting-edge engineering firm **specialized in HVAC process design** and **retrofit projects** that enhance system performance and operational efficiency.

From concept to commissioning
we manage the entire lifecycle
to ensure reliable,
high-performance results.

Strategic Partnerships & Mission - Critical Support



Global Technology Partners

As a trusted distributor in México, we integrate **world-class technologies into our projects:**

Alliance Air Products

Custom engineered air handlers designed for high-performance environments.

Innotech Controls

Advanced control systems with smart BMS compatibility.

These **partnerships strengthen** our ability to deliver **tailored, future-ready HVAC solutions.**

Mission-Critical Experience

Long-term client relationships built on trust and results

Specialized maintenance services

24/7 emergency support

Onsite multidisciplinary technical teams

Engineered solutions designed to **keep critical operations running** without interruption.

Our Services



Turnkey HVAC Projects

Design - Build

solutions covering all engineering disciplines

- Mechanical systems
- Air distribution & ductwork
- Water & piping systems (steel, HDPE and others)
- High-efficiency equipment specification
- Civil & structural works
- Electrical & mechanical installations

HVAC Controls & Commissioning

- Building Management Systems (BMS) integration
- Instrumentation and control solutions
- Electrical & mechanical commissioning
- Testing, Adjusting & Balancing (TAB) to support efficient commissioning (performed in-house, non-NEBB certified)

CFD Analysis For Data Centers

- Computational Fluid Dynamics analysis
- Airflow optimization and thermal performance modeling
- Risk reduction and energy efficiency improvement

Our Services



Maintenance Services

Predictive, preventive and corrective maintenance for installed equipment

- HVAC equipment servicing
- 24/7 technical support
- Water treatment for open-loop cooling tower systems
- Specialized maintenance programs for mission-critical facilities

Water Reuse Projects

Advanced **wastewater treatment** for HVAC applications

- Treatment of sanitary and commercial wastewater
- Supply of conditioned water for cooling towers
- Reduction of capital and operating costs through sustainable solutions



Design of pumping systems and **cold-water piping** for comfort or industrial processes.

Design of ventilation systems, extraction, ducts, grilles, and dampers.

Design - Built Turnkey Project for HVAC and Electromechanical Systems



Automation controls for HVAC equipment and lighting.

Refrigeration equipment, heat exchangers, and other related components.

Industrial HVAC Maintenance



We provide preventive and corrective maintenance for mission-critical HVAC infrastructure in Data Centers, including **24/7 emergency support** to ensure continuous operation.

HVAC Systems Designed, Installed & Maintained by HICSA

- + 9,500 TR across chilled water plants (Centrifugal chillers, cooling towers, pumps and auxiliary equipment).
- + 6.5M CFM in Custom Air Handling Units (Alliance® brand – precision climate control).

Fully automated control systems integrated across all installations for optimized performance, energy efficiency and 24/7 reliability.

Additional Systems Under Maintenance

- + 2.5M CFM in Custom Air Handling Units (Alliance® brand).
- Ongoing maintenance and technical support for high-demand mission-critical infrastructure.

Market Position Statement

All equipment operates within Mexico's largest Data Centers, reinforcing HICSA as a trusted partner for resilient and energy-efficient digital infrastructure.

Designed to meet Mexico's growing demand for energy-efficient HVAC solutions.

Team & software support

Maintenance services are supported by on-site multidisciplinary personnel, specialized in:

- Controls
- Electrical
- Mechanical
- Chemical disciplines

We utilize a Maintenance Management Program (MMP) and specialized software to ensure traceability, efficiency and operational continuity.

Equipment Specifications & Energy Efficiency

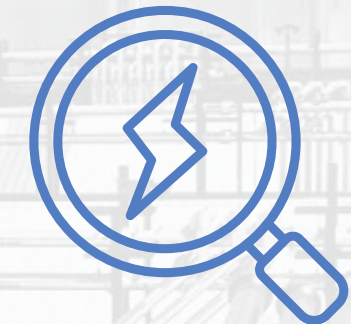


Industrial & Commercial HVAC Equipment

- Heat Exchangers & Heat Recovery Systems
- Custom-designed & Standard Air Handling Units (AHUs)
- Centrifugal & Air-Cooled Screw Chillers
- Conventional HVAC & VRV systems

Energy recovery & ROI studies

Comprehensive **HVAC energy audits**



Energy recovery and optimization analysis



Thermal load and capacity calculations



Sustainable HVAC Projects



Sustainable Cooling Strategy

The most sustainable HVAC solutions combine Chilled Water Plants + Cooling Towers, delivering:

- Lower energy consumption
- Reduced carbon footprint
- High reliability for mission-critical facilities

Their impact is significantly enhanced when integrated with Water Reuse Projects, making water efficiency as critical as energy efficiency in modern infrastructure.

Water Reuse & Cost Optimization

Treating reused water for cooling towers can cost up to 75% less than potable water, depending on project location within Mexico.

This approach allows our clients to achieve:

- Lower operational costs
- Reduced environmental impact
- Long-term resource sustainability

Integrated Water Treatment Solutions

Through our strategic partnership with H&D Aqua Solutions Inc.,

HICSA incorporates water treatment subprojects into turnkey HVAC solutions, including:

- Wastewater treatment systems
- Reverse osmosis (RO)
- Ultrafiltration
- Water softening
- Advanced filtration
- Chemical dosing & advanced treatment technologies

CFD Analysis for Data Centers



Computational Fluid Dynamics Validation

At HICSA, we perform Computational Fluid Dynamics (CFD) studies to validate the performance of air management systems in Data Centers, analyzing temperature, airflow velocity and pressure drop to mitigate thermal loads.

These studies are developed using Autodesk CFD® dynamic simulation software, which enables highly detailed modeling of airflow behavior, faster computation and reduced error margins.

Key Benefits of Dynamic Flow Analysis

Avoid oversizing → Significant CAPEX savings

Reduce energy consumption → Improved operational efficiency

Optimize white space utilization → Better rack layout and airflow strategy

Accelerate project timelines → Faster and safer decision-making

Risk-free virtual testing → Simulate multiple scenarios before construction

Ideal during the design phase to define the most efficient and reliable solution.

Case Study - Energy Efficiency Project



Data Center HVAC Retrofit

HICSA executed the replacement of an aging DX CRAC cooling system composed of 150+ units totaling 4,300+ tons, with more than 17 years of operation and low efficiency under full and partial loads.

The objective was to transform the cooling infrastructure into a high-efficiency chilled water solution while maintaining full data center operation.

New High-Efficiency Cooling Plant

The retrofit implemented a Variable-Volume Chilled Water System including:

- Centrifugal chillers
- Cooling towers
- Pumping systems for open and closed loops

For air distribution, custom Air Handling Units (AHUs) were installed featuring:

- Variable Air Volume (VAV) operation
- Precision temperature and humidity control
- Proprietary controls for plant and AHUs

Energy Performance Results

- 50% reduction in full-load energy consumption
- Significantly lower partial-load energy use under the same IT thermal load
- Major improvement in operational efficiency and reliability

Project Complexity

The retrofit was executed without shutting down the data center.

This required highly detailed logistics to ensure:

- Continuous temperature and humidity control
- Zero interruption to IT operations
- Seamless transition between systems

Skilled Professional Team



Our greatest investment is the continuous training and development of our people, ensuring the highest quality service for every project.

Engineering Expertise

We take pride in our multidisciplinary engineering team:

- Mechanical engineers specialized in thermodynamics & fluid mechanics
- Electrical engineers
- Civil & structural engineers

Our Team

+ 20 Engineers

+ 30 HVAC & Controls Technicians

Why Choose HICSA



Proven Experience

More than 25 years delivering industrial and mission-critical HVAC solutions in Mexico.

Turnkey Approach

Single partner from engineering and design to construction, commissioning and maintenance.

Mission-Critical Expertise

Extensive experience in Data Centers and high-reliability environments with 24/7 support.

Energy & Water Efficiency Focus

Solutions designed to reduce OPEX, improve sustainability and maximize ROI.

Strategic Partnerships

Strong alliances with leading international manufacturers and technology providers.

Long-Term Relationships

Trusted partner for clients requiring reliable, scalable and future-ready infrastructure.



Meet our brands

Contact Us

HICSA – HVAC Engineering & Mission-Critical Solutions

We design, build and maintain high-efficiency HVAC systems for industrial and data center applications across Mexico.

Let's discuss your next project.



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San Andrés. Apodaca, Nuevo León, C.P 66640



Cerrada de la ordeña #5, esquima con Blvd.C.Quintero Arce,
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