

# Premium HVAC Design Solutions

Discover industry-leading HVAC design services from CONSAC Engineering. Our comprehensive solutions adhere to the latest ASHRAE standards while leveraging cutting-edge calculation tools including E20, HAP, and Revit. With over three decades of experience across commercial, industrial, and residential sectors, we deliver exceptional mechanical systems that optimize comfort, efficiency, and sustainability. This document outlines our services, expertise, and commitment to excellence in HVAC engineering.

# About CONSAC Engineering

CONSAC Engineering stands at the forefront of HVAC design and engineering excellence with over 30 years of specialized experience. Our team of seasoned professionals has cultivated deep expertise across diverse building environments, from complex commercial developments to demanding industrial facilities and sophisticated residential projects.

Throughout our journey, we've established a robust reputation for delivering precise, efficient, and innovative HVAC solutions that consistently exceed client expectations. Our extensive portfolio demonstrates our versatility and technical proficiency in addressing unique climate control challenges across various sectors and building types.

At CONSAC, we recognize that every project represents both an engineering challenge and an opportunity to enhance sustainability. Our designs consistently prioritize energy efficiency without compromising performance, resulting in systems that reduce operational costs while maintaining optimal indoor environmental quality. This balanced approach has earned us the trust of architects, developers, and building owners who rely on our expertise for their most demanding projects.

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## Industry Experience

Over three decades of specialized HVAC engineering experience across diverse sectors, consistently delivering superior mechanical system designs.

2

## Proven Track Record

Established portfolio of successful implementations in commercial buildings, industrial facilities, healthcare institutions, and premium residential developments.

3

## Energy Efficiency Focus

Dedicated commitment to creating systems that optimize energy performance while maintaining ideal comfort conditions and reducing long-term operational costs.

# ASHRAE Standard Compliance

At CONSAC Engineering, strict adherence to ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards forms the cornerstone of our design philosophy. These internationally recognized guidelines represent the gold standard in HVAC engineering, establishing comprehensive parameters for system design, implementation, and performance that ensure optimal outcomes for building owners and occupants alike.



## Standard Implementation

We rigorously apply the latest ASHRAE standards and guidelines to every design project, including ASHRAE 90.1 for energy efficiency, 62.1 for ventilation, and 55 for thermal comfort parameters.



## System Priorities

Our designs meticulously balance system safety, environmental sustainability, and occupant comfort to create holistic solutions that perform optimally across all critical metrics.



## Compliance Assurance

We ensure all systems meet or exceed local building codes, international standards, and industry best practices, providing comprehensive documentation to verify compliance at every project stage.

By embracing these rigorous standards, CONSAC delivers HVAC systems that not only function efficiently but also create healthier indoor environments. Our compliance-focused approach minimizes operational risks while maximizing system performance, resulting in buildings that consume less energy, require less maintenance, and provide superior comfort for occupants.

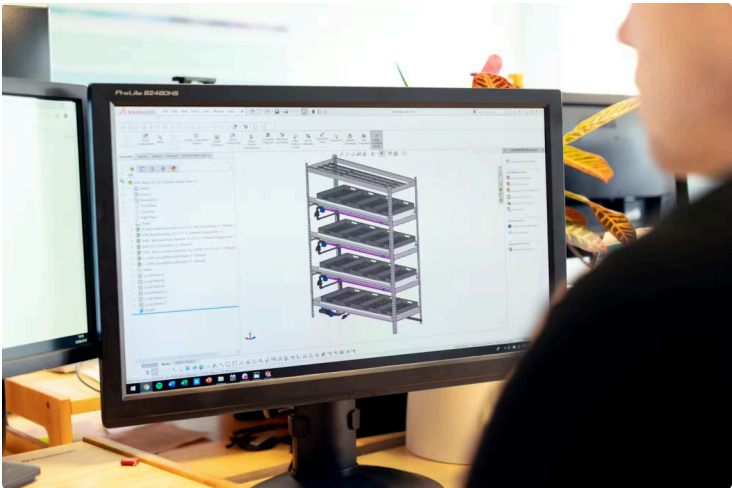
Our engineers maintain current certifications and continually update their knowledge of evolving ASHRAE standards, ensuring that our designs incorporate the latest advancements in HVAC technology and methodology. This dedication to standards-based excellence distinguishes our services and provides clients with confidence that their systems represent the pinnacle of industry best practices.

# Advanced Calculation Tools

CONSAC Engineering leverages industry-leading software platforms to ensure unparalleled precision and efficiency in HVAC system design. Our technical arsenal includes E20, Carrier's Hourly Analysis Program (HAP), and Autodesk Revit—a powerful combination that enables comprehensive analysis, detailed modeling, and seamless coordination throughout the design process.

These sophisticated tools allow our engineers to perform intricate load calculations that account for all relevant variables affecting system performance. From solar heat gain and occupancy patterns to building envelope characteristics and equipment specifications, our calculations consider every factor that influences thermal conditions. This meticulous approach ensures that systems are neither undersized (risking comfort and performance) nor oversized (increasing costs and reducing efficiency).

Through detailed simulations, we can predict system behavior under various conditions, optimizing equipment selection and control strategies before implementation. This predictive capability significantly reduces the risk of post-installation issues and enables us to fine-tune systems for maximum efficiency and comfort.



## **E20 Excel**

Specialized HVAC calculation tool that provides precise load analysis and system sizing, enabling optimal equipment selection and performance predictions.

## **Carrier HAP**

Comprehensive hourly analysis program that simulates building energy consumption, allowing for detailed comparisons of system alternatives and energy-saving strategies.

## **Autodesk Revit**

Advanced Building Information Modeling (BIM) platform that facilitates 3D system visualization, clash detection, and coordinated documentation across all building disciplines.

Our proficiency with these tools translates directly to project benefits, including faster design development, more accurate documentation, and optimized systems that deliver exceptional performance while minimizing resource consumption. The integration of these platforms within our workflow ensures that all design elements remain coordinated throughout the project lifecycle.

# Comprehensive HVAC Services

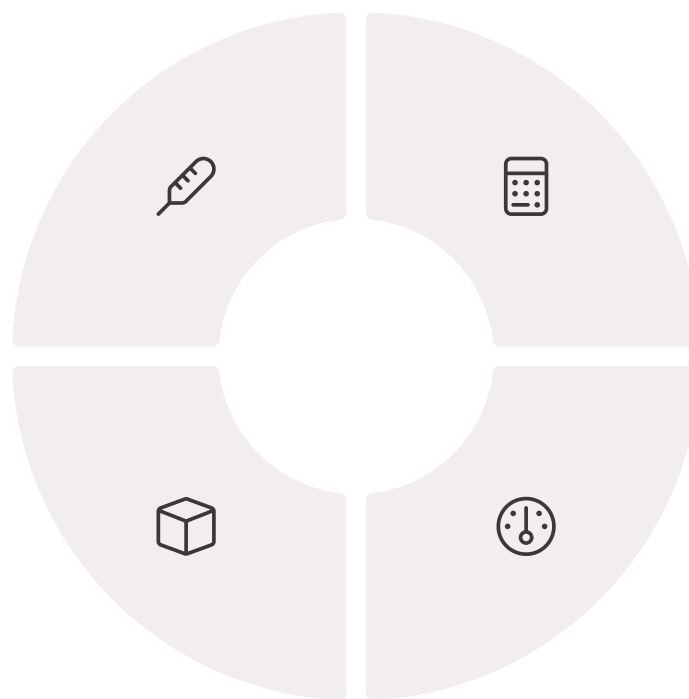
CONSAC Engineering offers end-to-end HVAC design services that address every aspect of climate control and air quality management for your building. Our holistic approach ensures that all system components work in harmony to deliver optimal performance, efficiency, and comfort.

## System Design

Complete heating, cooling, and ventilation system engineering with emphasis on integration, efficiency, and sustainability. We design everything from chilled water plants and VRF systems to geothermal solutions and specialized laboratory ventilation.

## 3D Modeling

Detailed BIM-based 3D modeling that enhances visualization, facilitates coordination, and minimizes field conflicts. Our models enable precise prefabrication and streamlined installation processes.



## Analysis & Sizing

Comprehensive load calculations, equipment selection, and system sizing based on building use, occupancy patterns, and local climate conditions. Our precise analysis prevents under/over-sizing issues that compromise efficiency and comfort.

## Control Strategies

Sophisticated HVAC control system design that optimizes operation through intelligent sequencing, zoning, and automation. We implement strategies that balance energy efficiency with occupant comfort and system longevity.

## Construction Documentation

We produce comprehensive, highly detailed construction documents that clearly communicate design intent to contractors and facility managers. Our documentation includes:

- Detailed mechanical plans and sections
- Equipment schedules and specifications
- Control diagrams and sequences of operation
- Coordination drawings for interdisciplinary integration
- Energy compliance documentation

## Additional Specialized Services

- Energy modeling and system optimization
- Retrofit and system upgrade designs
- Commissioning support and performance verification
- LEED and green building certification assistance
- Life-cycle cost analysis and equipment evaluation
- Existing system assessments and improvement recommendations

# Project Excellence and Case Studies

CONSAC Engineering has established a distinguished portfolio of successful HVAC implementations across diverse and demanding environments. Our project history demonstrates our technical capabilities and commitment to excellence in mechanical system design.

500K

Medical Facility

Square footage of our flagship healthcare project, featuring specialized ventilation systems that maintain critical pressure relationships while achieving 18% energy savings compared to baseline.

10MW

Data Center

Cooling capacity designed for a tier-4 mission-critical facility, incorporating redundant systems and innovative free cooling strategies that reduced PUE to 1.15.

42

Mixed-Use Tower

Stories in a LEED Platinum high-rise featuring integrated mechanical systems serving diverse occupancy types with centralized plant efficiency and zone-level comfort control.

✔ **Featured Project: Memorial Regional Healthcare Center**

This 500,000 square foot medical facility represented a significant challenge due to its diverse usage requirements—from standard patient rooms to specialized surgical suites and laboratory spaces. CONSAC delivered a comprehensive HVAC solution that:

- Maintained precise temperature and humidity control in critical areas
- Implemented advanced air filtration and UV disinfection systems
- Incorporated heat recovery to capture and repurpose waste energy
- Achieved 18% reduction in annual energy consumption vs. baseline
- Earned LEED Gold certification for sustainable design excellence

Our portfolio includes numerous LEED-certified buildings and high-performance facilities that demonstrate our ability to balance technical requirements with sustainability goals. From precise temperature and humidity control in sensitive healthcare environments to efficient cooling solutions for data centers, our designs consistently deliver exceptional performance while minimizing resource consumption.

Each project in our portfolio represents a unique set of challenges successfully addressed through innovative thinking, technical expertise, and meticulous attention to detail. We leverage lessons learned across diverse building types to bring best practices and proven solutions to every new engagement.

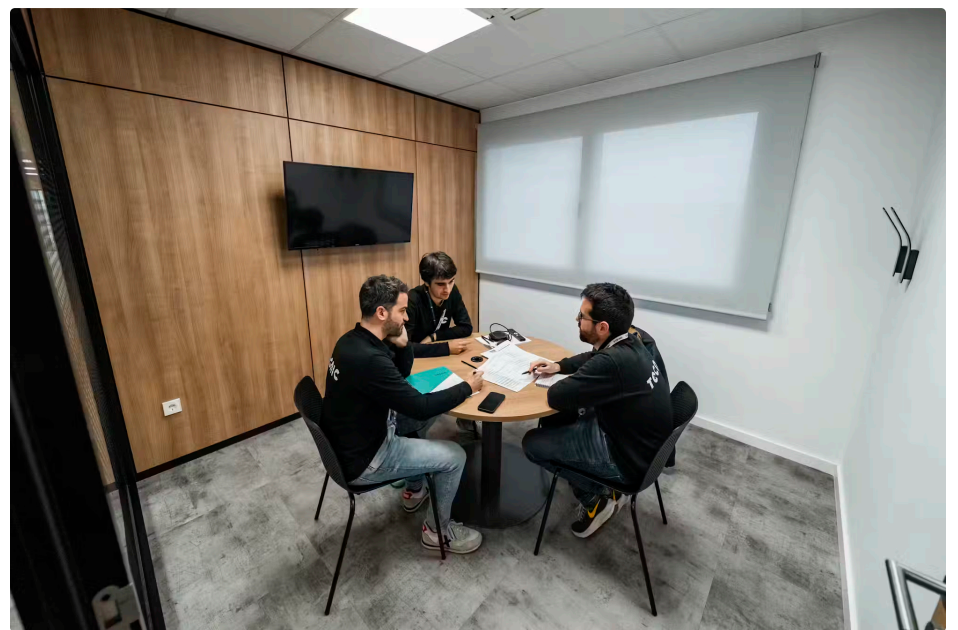


# Why Choose CONSAC?

Selecting the right HVAC engineering partner is a critical decision that impacts building performance, operational costs, and occupant satisfaction for decades to come. CONSAC Engineering offers distinctive advantages that elevate our services above industry standards and ensure exceptional outcomes for your project.

Our team consists exclusively of ASHRAE-certified engineers and specialized BIM professionals who bring both theoretical knowledge and practical expertise to every assignment. This qualified team ensures that designs not only meet code requirements but also reflect industry best practices and innovative approaches that maximize system performance.

We understand that timely delivery is essential to project success. Our streamlined processes and advanced tools enable us to produce accurate, comprehensive deliverables within aggressive schedules without compromising quality. When questions or issues arise, our responsive support ensures prompt resolution, minimizing delays and keeping projects on track.



CONSAC maintains complete transparency throughout the design process, providing clients with clear visibility into progress, decisions, and outcomes. Our straightforward pricing structure eliminates surprises, while our quality standards ensure that every aspect of the design meets our exacting criteria for excellence.

## Expert Team

Our engineers maintain current ASHRAE certifications and specialized credentials in mechanical system design, energy modeling, and BIM coordination. This expertise translates directly to superior system performance and project outcomes.

## Responsive Service

We pride ourselves on exceptional communication and support throughout the project lifecycle. Our typical response time for technical queries is under 24 hours, and we maintain availability for urgent issues that require immediate attention.

## Quality Assurance

Every design undergoes rigorous internal review processes that examine technical accuracy, constructability, energy performance, and compliance with applicable standards. This multi-layer quality control ensures exceptional results.

## Value Engineering

We identify opportunities to optimize systems for cost-effectiveness without compromising performance, providing clients with options that balance initial investment against operational benefits and long-term savings.

By choosing CONSAC, you gain a dedicated partner committed to your project's success—not just through delivery of design documents, but through realization of systems that perform as intended and provide lasting value for building owners and occupants.

# Contact Us for Consultation

Ready to elevate your building's HVAC performance with industry-leading design expertise? CONSAC Engineering offers personalized consultations to discuss your specific project requirements and explore how our services can deliver exceptional value for your development.

Our initial consultations provide an opportunity to assess your needs, answer questions about our approach, and outline potential solutions tailored to your building's unique characteristics and performance goals. Whether you're planning a new construction project or considering system upgrades for an existing facility, our team can provide insights that help guide decision-making and establish a solid foundation for success.

## Schedule a Consultation

Contact our team to arrange a personalized discussion of your project requirements and objectives. We offer both in-person and virtual consultation options to accommodate your preferences and schedule.

## Request Portfolio Examples

Ask to review specific examples from our project portfolio that relate to your building type or technical requirements. These case studies provide valuable insights into our capabilities and approach.

## Discuss Timeline and Process

Learn about our typical project workflow, milestone expectations, and how we collaborate with other design team members to ensure seamless integration of mechanical systems.

We look forward to discussing how CONSAC Engineering can contribute to the success of your next project through innovative, efficient, and standards-compliant HVAC design solutions. Contact us today to take the first step toward mechanical systems that deliver exceptional performance, energy efficiency, and occupant comfort.



## Contact Information

**Website:** [www.consac.com](http://www.consac.com)

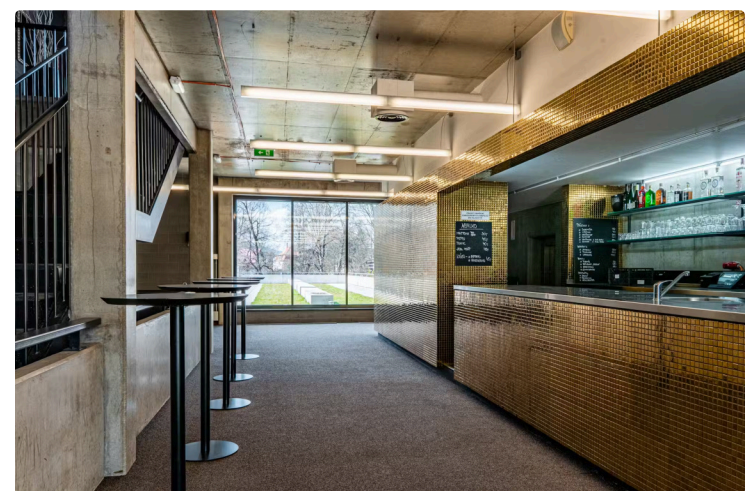
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