ChecklistGuro

HVAC System Efficiency Audit Checklist

Preliminary Assessment & Data Gathering

Initial review of building information, system documentation, and operational data to establish a baseline and identify areas for further investigation.

Date of Last HVAC System Inspection

Enter date...

Brief Description of HVAC System (e.g., Type, Age, Capacity)

Write something...

Total Building Square Footage

Enter a number...

Number of Occupants (Typical)

Enter a number...

Type of Building (Office, Retail, Healthcare, etc.)

- [ ] Office
- [ ] Retail
- [ ] Healthcare
- [ ] Educational
- [ ] Industrial
- [ ] Other

Existing Energy Bills (most recent 12 months) - summary of usage and costs.

Write something...

Building HVAC System Layout/Schematics (if available)

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Building Envelope & Load Calculation

Evaluate the building's thermal performance, insulation, windows, and doors. Verify or recalculate peak heating and cooling loads.

Building Year of Construction

Enter a number...

Description of Building Envelope Materials (walls, roof, windows)

Write something...

U-Value of Exterior Walls (BTU/hr·ft²·°F)

Enter a number...

R-Value of Roof Insulation

Enter a number...

Window U-Factor

Enter a number...

Solar Heat Gain Coefficient (SHGC) of Windows

Enter a number...

Condition of Window Seals (drafty, good, deteriorating)

- [ ] Drafty
- [ ] Good
- [ ] Deteriorating

Notes on shading (overhangs, landscaping, etc.) and its impact on heating/cooling loads.

Write something...

Equipment Inspection & Performance Evaluation

Detailed inspection and testing of all HVAC equipment (chillers, boilers, AHUs, pumps, fans, etc.) to assess operational efficiency and identify degradation.

Chiller COP (Coefficient of Performance)

Enter a number...

Boiler Thermal Efficiency (%)

Enter a number...

AHU Fan Power (kW)

Enter a number...

Visible Signs of Water Leaks on Equipment?

- [ ] Yes
- [ ] No
- [ ] Unsure

Notes on compressor noise or vibration (if applicable)

Write something...

Condition of belts and pulleys (if applicable)

- [ ] Good
- [ ] Fair
- [ ] Poor
- [ ] N/A

Supply Air Temperature (°C)

Enter a number...

Return Air Temperature (°C)

Enter a number...

Additional observations/comments on equipment performance

Write something...

Control System Analysis

Review and analyze the building automation system (BAS) and its control strategies to ensure optimal operation and identify potential improvements.

BAS Version Number

Enter a number...

BAS Manufacturer

- [ ] Siemens
- [ ] Honeywell
- [ ] Johnson Controls
- [ ] Tridium
- [ ] Other

Which of the following control strategies are implemented?

- [ ] Demand Limiting
- [ ] Optimal Start/Stop
- [ ] Economizer Control
- [ ] Night Purge
- [ ] Supply Air Temperature Reset
- [ ] Chilled Water Temperature Reset

Describe any observed anomalies or unexpected behavior in the BAS.

Write something...

Is trend data readily accessible and usable for analysis?

- [ ] Yes
- [ ] No
- [ ] Partially

Number of schedules actively utilized

Enter a number...

Note any issues with point naming conventions or documentation quality.

Write something...

Ductwork & Air Distribution

Inspection of ductwork for leaks, insulation issues, and proper airflow distribution. Assessment of air terminal devices (registers, diffusers).

Overall Ductwork Condition Notes

Write something...

Duct Leakage Assessment

- [ ] No Visible Leaks
- [ ] Minor Leaks (Easily Sealable)
- [ ] Significant Leaks Requiring Repair
- [ ] Pressure Decay Test Performed (Results: _____)

Average Duct Static Pressure (inches of water)

Enter a number...

Duct Insulation Condition

- [ ] Excellent
- [ ] Good
- [ ] Fair
- [ ] Poor

Air Terminal Device (Register/Diffuser) Observations

Write something...

Airflow Balancing Issues?

- [ ] No Issues
- [ ] Some Areas Over-Supplied
- [ ] Some Areas Under-Supplied
- [ ] Requires Balancing Report Review

Ductwork/Air Distribution Photos

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Duct Material Type

- [ ] Galvanized Steel
- [ ] Aluminum
- [ ] Fiberglass Ductboard
- [ ] Flexible Ductwork
- [ ] Other (Specify: _____)

Water Systems (Chilled/Hot Water)

Evaluation of water systems including piping, pumps, valves, and heat exchangers. Check for leaks, proper flow, and temperature differentials.

Chilled Water Supply Temperature (Entering)

Enter a number...

Chilled Water Return Temperature

Enter a number...

Chilled Water Flow Rate (GPM)

Enter a number...

Hot Water Supply Temperature (Entering)

Enter a number...

Hot Water Return Temperature

Enter a number...

Hot Water Flow Rate (GPM)

Enter a number...

Water Treatment Type (e.g., Chemical, Ion Exchange)

- [ ] Chemical
- [ ] Ion Exchange
- [ ] Reverse Osmosis
- [ ] Other

Observations regarding water treatment performance and any recent adjustments.

Write something...

Visible Signs of Corrosion?

- [ ] Yes
- [ ] No
- [ ] Uncertain

Energy Metering & Data Analysis

Review energy consumption data, identify trends, and compare performance against benchmarks. Evaluate existing metering infrastructure.

Total HVAC Energy Consumption (kWh)

Enter a number...

Peak HVAC Demand (kW)

Enter a number...

Date of Last Energy Bill Review

Enter date...

Metering System Type (e.g., building automation, submetering)

- [ ] Building Automation System (BAS)
- [ ] Submetering
- [ ] Utility Bills Only
- [ ] Other

Which parameters are currently being monitored?

- [ ] Temperature
- [ ] Humidity
- [ ] Energy Consumption
- [ ] Water Flow
- [ ] Pressure
- [ ] Equipment Runtime

Summary of Energy Consumption Trends (Past 12 Months)

Write something...

U-Factor (if available - HVAC specific)

Enter a number...

Does the facility have baseline data for comparison?

- [ ] Yes
- [ ] No

Reporting & Recommendations

Compile findings, prioritize recommendations, estimate cost savings, and present a comprehensive report to facility management.

Executive Summary of Findings

Write something...

Estimated Total Cost Savings (Annual)

Enter a number...

Estimated Return on Investment (ROI)

Enter a number...

Prioritized Recommendations (Select all that apply)

- [ ] Equipment Upgrades
- [ ] Control System Optimization
- [ ] Ductwork Sealing/Insulation
- [ ] Building Envelope Improvements
- [ ] Operational Adjustments
- [ ] Energy Management System Implementation

Detailed Recommendations & Justification (for each prioritized item)

Write something...

Supporting Documentation (e.g., energy modeling reports, vendor quotes)

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Recommended Implementation Start Date

Enter date...

Additional Notes or Comments

Write something...

Auditor Signature