

Sustainable Turnkey Solutions

Audit Overview

ASHRAE Level 1 Energy Audit

Commonly referred to as a “walk-through Analysis”. This audit is a preliminary and basic assessment of the building’s energy performance. This audit is designed to identify straightforward energy-saving opportunities and provide a clear understanding of the building’s energy consumption patterns. Generally, this involves a brief review of the facility’s utility bills and other operating data to get an overview of energy use trends. Following this, an auditor conducts a walk-through of the facility to inspect systems and operations visually. Based on these initial findings, the auditor will then provide a report that highlights areas of inefficiencies and recommends low-cost or no-cost measures to improve energy efficiency. Certain turn-key proposals may be provided but there is normally a second visit required. This is called a Level 2 audit.

Level 1 Audit Fee

The general Fee for the Level 1 audit is 0.01 cent per square ft for lighting, and 0.01 cent per square ft for mechanical. For hotel owners, the square ft. of the guest rooms would be deducted as only a baseline visit into a couple of rooms is required.

ASHRAE Level 2 Energy Audit

This audit is termed “Energy Survey and Analysis”. It offers a more detailed and comprehensive evaluation of the building’s energy performance compared to a Level 1 audit. This audit dives deeper into understanding the building’s energy consumption by meticulously analyzing its systems, operations, and energy use patterns.

The process begins with a thorough review of utility bills, equipment specifications, and operating data. Following this, on-site surveys are conducted to identify a broader range of energy conservation measures. Each of these identified measures is then assessed for potential savings, costs of implementation, and payback periods. The Level 2 audit is finalized with a detailed report that provides the building owners with actionable insights, a clear path for energy-saving initiatives, and a cost-benefit analysis for each recommended measure.

Level 2 Audit Fee

Fees are negotiated based on what the building owner would like to capture. A budget fee is 0.02 cents per square ft. For hotel owners, the square ft. of the guest rooms would be deducted as only a baseline visit into a couple of rooms is required.

ASHRAE Level 3 Audit

Known as a “Detailed Analysis of Capital-Intensive Modifications” this audit is the most in-depth and comprehensive of the three audit types. This audit is specifically geared towards a large-scale, capital-intensive project delving into intricate details of potential retrofits or modifications highlighted in Levels 1 and 2.

The focus is on providing a clear and detailed analysis of specific energy-saving measures, often involving complex simulations, advanced engineering calculations, and detailed energy modeling to validate potential energy conservation measures. The financial evaluation in a Level 3 is also more granular, considering factors like longer-term energy price projections, equipment lifecycle costs, and maintenance implications. The resulting report from this audit provides a detailed roadmap for major upgrades, ensuring building owners have all the necessary data to make informed investment decisions.

Level 3 Audit Fee

This level of audit is best suited for facilities considering substantial infrastructure changes or upgrades to drastically enhance energy efficiency. Fees vary based on the facility and the direction the building owner would like to go in.

STS generally focuses on Level 1 and 2 Audits that capture savings components with quick ROI's.

General Lighting Audit Scope

STS will conduct a pre-audit interview with the site to capture data to determine if a lighting upgrade could generate savings. Once it is determined that there is potential a Full Level 2 audit will be scheduled. For lighting only, a .01 cent fee will be charged per square ft. for a Level 2 lighting-only audit.

1. Mapping every room, exterior wall, and parking lot utilizing SnapCount software.
2. Counts on every lighting fixture mapped per room, per floor, and per parking area.
3. Pictures of all lighting fixtures and control components will be included.
4. Pictures of all areas for installation will be included.
5. Light-level readings will be taken in each area.
6. Complete details and specifications for each fixture type will be provided.
7. Color temperature readings will be listed to maintain or improve existing areas.
8. Capturing existing LED in case there is a more efficient solution, LED, existing LED is failing prematurely, or having other issues.

General Lighting Engineering

1. A complete design will be provided for each fixture type that adheres to IES current lighting standards and specifications.
2. Recommendations and design will be provided for building controls.
3. IES guidelines will be followed for all lighting level designs as well as company-specific standards.
4. A detailed scope of work will be provided for each fixture, each room, each floor, and each building.
5. Specification sheets and complete details of all fixture types will be provided as well as all the initial mapping and pictures of the fixtures.
6. Rebate estimates will be provided for any utility incentives available in that area.
7. Determine the potential for controls after a site visit.

Level Mechanical Systems Efficiency Audit

STS will coordinate and conduct an energy overview with the following items typically in scope:

RTUs (Rooftop Units): General condition, run cycles, economizer positions, outside air situation, controls package, VFDs, evaporation and condenser assessment, space temps, return and supply air temps, etc.

Chiller Plant/Boiler Plant: General conditions, outside air reference, efficiencies, turn down ratios, delta Ts on chilled water, cooling tower operation, staging, pump packages, VFDs/AFDs, refrigerant type, controls sequence of operation, trends, and historical analysis if controls front end present, etc.

AHUs (Air Handlers): General condition, evaporator condition, and delta T across coils, damper positions, outside air references, controls analysis, corrosion checkup, VFDs, motors, valves, and associated plumbing

Cooling Towers: General condition, corrosion, fill condition, heat exchange efficiency, staged or VFD fans, water loop chemical treatment, piping, and drainage, overflow/refill sensors, electrical disconnects and supply, tower basin conditions, structural condition, safety concerns (ladders, lines, hoses, and similar minor hazards)

Controls: Brand, age, and version. System software and hardware checkout, point-to-point analysis of critical components, sequence of operations, signals from sensors, communication speed, staff usage habits, alarm logs, trending analysis, remote or mobile access,

Water: Check mains and evaluate for turbulence and cavitation. Assess for compression valve fitment. Analyze water bills (usage and sewer).

Data Centers: General conditions, aisle arrangements, airflow management, cable management, hot spots/cold spots, server inlet temps, discharge temps, power distribution efficiency, ceiling/floor temp stratification, subfloor management, CRAC unit assessment, controls assessment, backup cooling assessment, and UPS systems.

These are some of the baseline mechanical items STS will capture. Many other systems will also be looked at for a Level 1 and Level 2 audit.

The STS team can provide your team with more information on the specific types of audits, and the potential cost of each for your facility. To find out more information, please contact us to schedule an initial discovery call.



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