

As the saying goes -

“You can’t manage what you don’t measure”

Christ Church Detroit



Issac Agree Downtown Synagogue

Dear Houses of Worship Green Team Member:

Understanding how much energy your building is using is the start to creating a reduction strategy and a healthier building.

This toolkit contains a basic overview of energy audits and the beginning steps to starting an Energy Management Plan for your building and links to sustainability programs and initiatives in the Detroit area.

Please note this document will be updated often with the date of latest version located in the document.

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Part A: What is an Energy Audit?

An energy audit is the foundation to a systematic approach for energy management. The primary function of an energy audit is to identify where and how energy is used in a facility. The four main objectives of an energy audit are as follows:

- establish an energy consumption baseline;
- quantify energy usage according to its end use;
- benchmark with similar facilities under similar weather conditions;
- identify existing energy cost reduction opportunities.

Before beginning an energy audit for a building or portfolio of buildings, a Preliminary Energy Use Analysis (PEA) must be carried out. This analysis requires access to energy usage and cost data for the last 24-36 months (if possible). The purpose of this analysis is to compare the Energy Usage Index (EUI) of each building with other similar type buildings and to identify both high and low energy performers. This analysis once completed can provide insight on whether an energy assessment should be conducted, what type of audit should be pursued and what buildings should be prioritized. Energy audits can vary in depth based on the clients' needs and objectives.

PART B: What are the different levels of an ASHRAE audit?

ASHRAE Level 1- Walkthrough Survey



First, the building's energy cost and efficiency are assessed by analyzing energy bills, compiled in the PEA (Preliminary Energy Use Analysis), and conducting a brief on-site survey of the building. A Level 1 energy survey will identify low-cost/no-cost measures for improving energy efficiency and provide a listing of potential capital improvements that

merit further consideration. Because calculations at this level are minimal, savings and costs are approximate.

A Level 1 analysis is applicable when the desire is to establish the general energy savings potential of a building or to establish which buildings in a portfolio have the greatest potential savings. Level 1 results can be used to develop a priority list for conducting Level 2 and 3 audits.

ASHRAE Level 2 - Energy Survey and Analysis

A Level 2 audit involves a more detailed building survey, including energy consumption and peak demand analysis. A breakdown of energy end uses within the building is developed.

A Level 2 energy analysis will identify and provide the savings and cost analyses of all practical energy efficiency measures (EEMs) that meet the owner's/operator's constraints and economic criteria, along with proposed changes to operation and maintenance (O&M) procedures. It may also provide a listing of potential capital-intensive improvements that require more thorough data collection and engineering analysis as well as an assessment of potential costs and savings. This level of analysis will provide adequate information for the owner/operator to act upon recommendations for most buildings and for most measures.



ASHRAE Level 3 – Detailed Analysis of Capital-Intensive Modification

The third level of engineering analysis focuses on potential capital-intensive projects identified during a Level 2 analysis. It requires more rigorous engineering and economic analyses, including modeling (simulation) of the annual energy performance of the building and vendor pricing. It provides detailed project cost and savings calculations with a high level of confidence sufficient for major capital investment decisions. It goes beyond the economic analysis of a Level 2 audit and uses a comprehensive life-cycle cost analysis (LCCA) as a decision-making tool.

Part C. Recommended actions to starting an Energy Management Plan:

1. Engage with an Energy Consultant:

Work with consultant to develop a scope of work based on the following:

1. Determine what level of audit is the best fit (ASHRAE Level 1,2,3)
2. Review data (24-36 months of utility bills, equipment lists, etc.)
3. Request proposal for defined scope of work, i.e. ASHRAE Level 1,2,3
4. Review proposal and if acceptable assign a purchase order
5. Coordinate & hold a kick off meeting with all stakeholders



6. Begin assessment process

PART D: Detroit 2030 District Professional Stakeholders

This is a list of Detroit 2030 District Professional stakeholders who offer services as of July 2018. Please visit our website www.2030districts.org/Detroit for an up-to-date list and more information on services with contact information.

Architects

[Redstone Architects](#)
[HKS](#)
[OHM](#)
[Hamilton Anderson](#)
[AIA Detroit](#)

Builders/Construction

[Architectural Building Components](#)
[LLP Designs](#)

Energy Management Consultants:

[Johnson Controls](#)
[Energy Sciences](#)
[Trane](#)

Engineers

[FTC&H](#)

Commercial Roofing & Insulation Consultants

[Commercial Roofing Specialists](#)
[Carlisle Syntec](#)
[Duro-Last](#)
[Tremco](#)

HVAC

[Fontanesi & Kahn](#)

Lighting Consultants

[Interactive Energies](#)

Geothermal

[Geothermal Innovations](#)
[Trane](#)

Utilities:

[DTE Energy](#)

