Energy Benchmarking
How Could it Impact the Sheet Metal Industry

Presented by
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Agenda

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What is ACCO?

ACCO Engineered Systems is the Largest Mechanical/Plumbing Contractor in the Western United States.

Our Mission is to Provide customers with the most Cost-Effective Mechanical systems for their facilities through the integration Knowledge of Engineering, Construction, and Service.

ACCO’s Building Services Division specializes in the Service and Maintenance of HVAC, Plumbing, Industrial Refrigeration, and Building Automation systems.

We regularly work in the Office Space, Healthcare, Retail, Hospitality, Science, and Technology industries. We have completed projects of All Sizes in all vertical markets.

We’ve been in business Since 1934 and have grown to include 22 Offices throughout California, Idaho, Nevada, and Washington.
Energy Benchmarking

- What is Benchmarking?
  - EPA Energy Star:
    - When you’re looking to improve, the first question you or your management might ask is, “How are we doing?” The next is, “how do we know?”
    - Benchmarking helps answer these important questions. Put simply, benchmarking is the process of comparing a facility’s energy performance to something similar. “Something similar” might be internal, like performance at the same time last year. Or it might be external, like performance compared to similar facilities elsewhere.
  - U.S. Department of Energy:
    - Benchmarking is the practice of comparing the measured performance of a device, process, facility, or organization to itself, its peers, or established norms, with the goal of informing and motivating performance improvement. When applied to building energy use, benchmarking serves as a mechanism to measure energy performance of a single building over time, relative to other similar buildings, or to modeled simulations of a reference building built to a specific standard (such as an energy code).
Energy Benchmarking

- **The Importance of Benchmarking:**
  - Benchmarking is useful for property owners and facility operators, managers, and designers. It facilitates energy accounting, comparing a facility's energy use to similar facilities to assess opportunities for improvement, as well as quantifying/verifying energy savings.

  - Energy performance benchmarking is a foundational element of an organization's energy management strategy *because you can't manage what you don't measure*. Across many commercial building markets, the practice has become standard operating procedure, as energy costs and associated environmental and sustainability issues have raised awareness around the importance of energy management.
Energy Benchmarking

- Why Benchmarking?
  - It’s not Just a Number!
  - What are the Goals / Objectives?
    - Establishing a Facility’s Baseline Energy Profile?
      - [Link](http://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager)
    - Energy Codes’ Compliance, Disclosure, Mandates?
      - CA Title 24:
        - New required Minimum Performance Standards as of August 1, 2014
    - Sustainability Prerequisites / Requirements?
      - LEED Certification:
        - Existing Buildings – Energy & Atmosphere:
          - Energy Star Portfolio Manager Benchmark
Energy Benchmarking

- What are the Goals / Objectives?
  - Energy Codes’ Compliance, Disclosure, Mandates?
    - AB-1103:
      - State wide building energy use benchmarking and public disclosure program. Building energy use disclosure at the time of sale, lease, finance, or refinance.
      - To be Repealed as of January 1, 2016
      - Remains in effect until December 31, 2015
      - There will be no statewide energy use disclosure requirement in 2016. During this time, Energy Commission staff will engage in a public process to develop regulations and establish the reporting infrastructure for the new program.
    - AB-802:
      - Replaces AB-1103
      - The Energy Commission anticipates that regulations for the new program will be in effect January 1, 2017.
Energy Benchmarking

- What are the Goals / Objectives?
  - Energy Codes’ Compliance, Disclosure, Mandates?
    - SF Energy Performance Ordinance – Adopted in 2011:
      - For existing nonresidential buildings 10,000 square feet and larger, the ordinance requires:
        - **An Actionable Plan**: An energy efficiency audit once every 5 years identifying specific cost-effective measures that would save energy.
        - **A Benchmark**: Annually summarize the energy used by the entire building. This enables tracking trends and understanding how your building is performing compared to similar buildings.
        - **Transparency**: Annually share an overview of energy benchmarking results with tenants and the City. San Francisco Department of Environment is required to make this information available to the public.
Energy Benchmarking

- How to Benchmark?
  - 1st Step:
    - Preparation for Data Analysis / Input
    - What are the Metrics?
  - 2nd Step:
    - Choosing which Database to Evaluate the Energy Data
  - 3rd Step:
    - Analyzing / Understanding the Meaning of the Results
  - 4th Step:
    - What To Do with the Benchmarking Reports?
    - How to Improve the Benchmarking Score?
Energy Benchmarking – Level of Skills

- If the objective is to determine a Score:
  - Anyone with good analytical skills can Benchmark a building performance by entering energy data into a Benchmarking Tool.

- Must have the following skills:
  - Comprehensive knowledge of the preferred Benchmarking Tool / Site
    - Please Refer to Resources

- Skills can be attained by taking Training Courses from various organizations:
  - Local Utilities’ Training Programs specifically developed for Benchmarking
  - Associations, Universities, Colleges, etc.
Energy Benchmarking – Level of Skills

- If the objective is to determine a Score to Establish a Baseline, Develop a List of EEMs (Energy Efficiency Measures) & Perform Energy Analysis:

  - Must have the following skills:
    - Analytical skills to perform various Benchmarking & Energy Analysis
    - Comprehensive knowledge of Auditing Techniques - ASHRAE Levels I, II & III
    - Extensive Technical & Practical knowledge as well as application of HVAC Systems
    - In-Depth knowledge / understanding of Utilities’ Incentive Programs

  - Level of Expertise / Education:
    - Engineering Degrees or Certification from Accredited Energy Organizations
    - Tenure in HVAC Systems Operation & Maintenance
How Could it Impact the Sheet Metal Industry?

- Energy Efficiency Benchmarking & Analysis offer many opportunities to the Sheet Metal Industry.

- Whether it is New Construction, TI (Tenant Improvements), Upgrades / Retrofits, or Repairs & Maintenance projects, the opportunities are directly related to the Contactor’s ability to Quantify & Justify the Energy attributes of various Ventilation Systems:
  - It is all related to Resistance:
    - Are the Air Delivery Systems Round, Square, Mixed, etc.
    - How many Ups, Downs, Turns, etc.
  - Where are the Distribution Systems Located:
    - Roof, Below Roof, Interstitial Spaces, etc.
How Could it Impact the Sheet Metal Industry?

- The ability to provide an in-depth analysis of a system’s performance is dependent on a business’ multi-disciplined levels of knowledge:
  - General Contractor:
    - Multi-Disciplinary Engineering Staff, Project Management, Construction, Service, etc.
    - Responsible for the Engineering & Performance of HVAC Systems
  - Construction Sheet Metal Contractor:
    - Constructs and Installs Air Delivery Systems as per Designed Prints.
    - May not have internal engineering resources specific to Energy Analysis.
  - Service Sheet Metal Contractor:
    - Repairs / Retrofits Damaged Air Delivery Systems
How Could it Impact the Sheet Metal Industry?

**Small / Medium Sized Sheet-Metal Contractors**

- For Small to Medium Sized businesses contemplating growth, they could explore the concept of offering additional services, which compliments their core business. Energy Benchmarking offers this opportunity, but it depends on the following:

  - The ability to invest on Internal Resources:
    - Learn the intricacies of Benchmarking.
    - Hire / Partner with someone knowledgeable of Benchmarking Techniques.

  - Investment on External Resources:
    - Develop a network of professional organizations specializing in Energy Efficiency, which can provide the support and services to achieve the project’s goals.
How Could it Impact the Sheet Metal Industry?

- Industry Segments that Benefit by providing Energy Benchmarking Services:
  - New Construction:
    - Comparative Energy Analysis of Innovative Air Distribution Systems.
  - Tennant Improvements & Upgrades / Retrofits:
    - Comparative Energy Analysis of Existing vs Proposed Air Distribution Systems.
  - Repairs & Maintenance:
    - Energy Analysis demonstrating the Energy Savings benefit of repairing a Less Than Optimal Air Distribution System.
Benchmarking Samples

Please Refer to the following Presentation’s Handouts:

- Utility Bills’ Analysis Samples:
  - Annual Summary
  - Electric Analysis Summary
  - Gas Analysis Summary

- Benchmark Analysis’ Samples:
  - Energy Star’s Portfolio Manager Target Finder Analysis
  - Energy IQ
  - CBECS – Commercial Buildings Energy Consumption Survey
Resources

Energy Star:
- Portfolio Manager:
  - https://portfoliomanager.energystar.gov/pm/login.html
- Target Finder:
  - https://portfoliomanager.energystar.gov/pm/targetFinder?execution=e1s1

U.S. Department of Energy:
- CBECS – Commercial Buildings Energy Consumption Survey:
  - http://www.eia.gov/consumption/commercial/
- Free Buildings Benchmark:
  - http://www.buildingbenchmarks.com/
Resources

Energy.gov:
  - EERE – Office of Energy Efficiency & Renewable Energy:
  - Building Performance Database:

LBNL – Lawrence Berkeley National Laboratory:
  - Energy IQ – Action Oriented Energy Benchmarking:
    - http://energyiq.lbl.gov/EnergyIQ/index.jsp
Final Remarks

- Energy Benchmarking is more than a Score. It is a reference number, with the intent to take action to improve the operating characteristics of a business / facility’s energy use.

- Energy Efficiency has the Highest Return of any investment:
  - There is a Direct Correlation of Energy Savings vs Cost To Produce a Product:
    - How much of a Product’s Profit does a business have to Sell to make-up for the inefficiency of energy operating costs?

Questions?
Thank You!

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