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Can your Building comply with Colorado Building Performance Standards?

By Paul Kriescher
Building Science Specialist/Business Development Manager

What can you share about your Building?

Do you know where the comfort complaints are in your building(s)?

What can you share about your Building?

Do you know what the typical utility bills are for your building(s)?

What can you share about your Building?

Now, do you know what the Energy Use Index (EUI) is for your building(s)?

Metrics Comparison for Your Property & Your Target

Metric	Baseline (May 2011)	Current (May 2013)	Target*	Median Property*
ENERGY STAR score (1-100)	72	67	75	50
Source EUI (kBtu/ft²)	210.7	225.4	204.1	276
Site EUI (kBtu/ft²)	119.6	139.7	126.5	171.1
Source Energy Use (kBtu)	24073025.7	25750203.4	23315771.7	31529412
Site Energy Use (kBtu)	13657396.1	15954800.9	14450980.5	19545950.7
Energy Cost ($)	0	0	0	0
Total GHG Emissions (MtCO2e)	1439.5	1583.4	1433.78738412	1939.7964222

* To compute the metrics at the target and median levels of performance, we will use the fuel mix associated with your property's current energy use.

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What can you share about your Building?

And, do you know if your building(s) has been “Benchmarked” as of yet?

Colorado's Building Performance Standard (BPS)

- Are your buildings 50,000 sf or larger?
- A 7% reduction in building-sector wide greenhouse gas emissions by 2026*
- And a 26% reduction in building-sector wide greenhouse gas emissions by 2030*

*In comparison with a 2021 baseline Benchmarking

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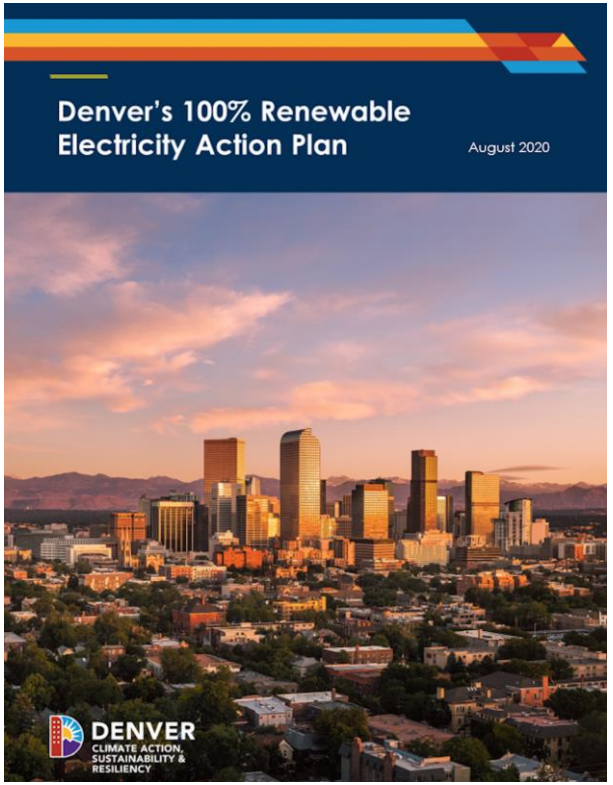
In Denver? How does it fit in Colorado's (BPS)?

- Are your buildings 25,000 sf or larger?
- Must meet a "Target EUI" by 2030
- ~20% of Denver buildings already meet 2021 baseline EUI
- If yours do not, they need to meet interim targets in 2024 and 2027
- Resulting in a 26% or better reduction in building-sector wide greenhouse gas emissions by 2030



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In Ft. Collins? How does it fit in Colorado's (BPS)?

- Are your buildings 5,000 sf or larger?
- Must Benchmark electricity, gas and water bills annually
- With 2021 data as the baseline…
- Must achieve 26% or better reduction in building-sector wide greenhouse gas emissions by 2030

In Boulder? How does it fit in Colorado's (BPS)?

- 20K to 30K sf buildings must have "Energy Assessments" (ASHRAE Level 1 energy audits)
- "Retrocommissioning" is required on buildings 30K to 50K sf.
- And, buildings 50K sf and larger must have an ASHRAE Level 2 energy audit
- Must meet Colorado's 26% or better reduction in building-sector wide greenhouse gas emissions by 2030

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So, how do you reduce your building(s) emissions to meet Colorado Building Performance Standards ?

You need to figure out where, how and why your buildings are wasting energy…

You need an Energy Audit!

Level 1, 2 and Level 3 ASHRAE energy audits

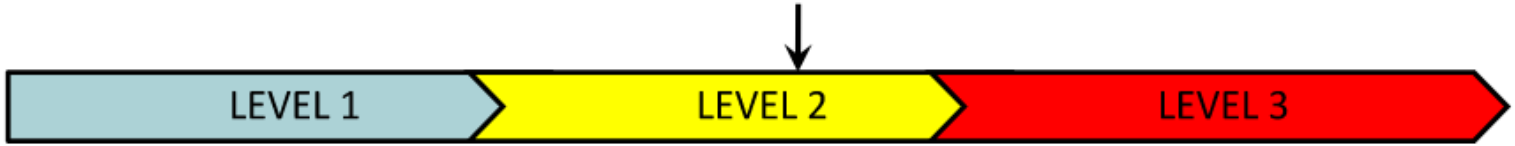
- Level 1 – Overview of Whole Building (Walk-thru Analysis)
- Level 2 – Energy Survey and Analysis (Review of Individual Systems)
- Level 3 – In Depth Study of Selected Options (Detailed Analysis of Capital Intensive Modifications)

Level 1 – Energy Audit – Walk-thru Analysis

- Site Visit/Survey
- Interview Building Owner Maintenance Staff and Occupants
- Determine Building Space Usage
- Identify Low Cost/No Cost ways to save energy
- Identify potential capital improvements for further study

Level 2 – Energy Survey & Engineering Analysis

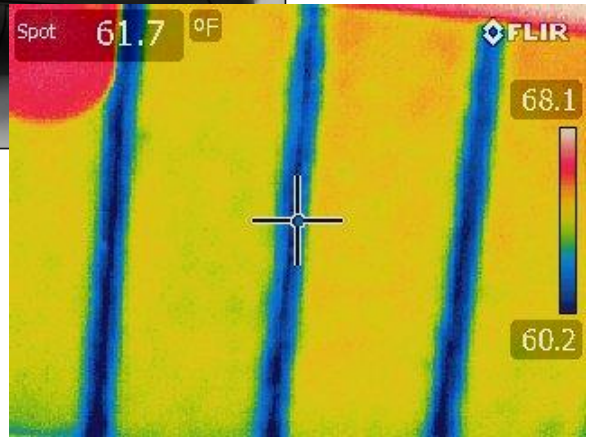
- Perform Diagnostic Testing
- Review Individual Systems in greater detail
- Provide simple payback for each measure
- Provide list of potential high cost measures that require further analysis
- Perform calculations or Energy Modeling



Diagnostic Tools of the Trade

Left: "Blower Door" for air-tightness testing

Above: Infrared Camera



Right: Infrared Camera Photo (Underside of roof)

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Level 3 – Rigorous Engineering Analysis

- Tracking/Measuring energy use of equipment
- Detailed energy simulations (from energy modeling)
- Detailed cost and savings calculations (from energy modeling)
- Schematic Design (on thermal envelope, lighting and HVAC improvements)

More Tools of the Trade

Above: Light Meter

Right: Manometer and Air Flow Hood

Energy Audits provide the “roadmap” you need

- You’ll know the big, and many small, areas where energy is wasted across your building(s)
- With Level 2 energy audits, you’ll have cost/benefit data to make decisions
- With detailed “energy modeling” (Level 3, and sometimes Level 2) who’ll have the information to project savings into 2030 and beyond!

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So, if you don’t have a firm who performs Energy Audits already working with you…

Bowman is here to help!

Bowman: We have more than 25-years of experience working on Sustainability in Buildings

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How Bowman helps…

- We perform Level 1,2 and 3 Energy Audits
- Energy Modeling
- Project Management (e.g., identifying quality improvement contractors and screening proposals)
- Quality Assurance (e.g., inspecting and testing to be sure you get what you paid for)

How Bowman helps…

- We Energy Audit buildings of ALL sizes and construction types
- We perform “Retrocommissioning” of HVAC, thermal envelope and electrical systems
- If you haven’t “Benchmarked” yet, we can do that for ANY building across the U.S.
- And, we help connect you with tax credits and rebates…

Incentives for Sustainable Buildings (Bowman helps connect you!)

- Xcel Energy, Black Hills, Platte River Power, Uniter Power all offer rebates!
- Inflation Reduction Act (IRA)
  Federal Law from August 2022

Wrap-up…

- Colorado requires your building to reduce emissions by 26% by 2030!

- We have 25+ years of experience delivering:
- Energy Audits/Energy Modeling
- Retrocommissioning
- Project Management/Quality Assurance
- Connecting you with Tax Credits and Utility rebates, AND “Direct Pay” for non-profits
- Now, identifying the road-map for your building(s) to meet Colorado’s Building Performance requirements!

Q&A

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Bowman is here to help you get on the most cost-effective path !