



Estes Park
Light and Power

Fort Collins
Utilities

Longmont
Power &
Communications

Loveland
Water and
Power

Platte River
Power Authority

City of Fort Collins: Building Energy and Water Scoring Program

28 March 2019

Safety & Reminders

- Emergency exits
- Sign-in at the back of the room
- Feel free to stand or stretch
- Restrooms

Upcoming Events

- **April 17th – The simple path to water efficiency**
 - Learn what Fort Collins Utilities are considering for the next drought
 - Water efficiency programs to help improve business resiliency
- **May 15th - HVAC technologies for big savings**
 - HVAC is responsible for 40% of building energy use
 - Learn how to reduce HVAC costs by up to 50%
- **June 26th – A new way with new construction**
 - Take a tour of the new Platte River Power Authority headquarters campus
 - See the makings of a high efficiency building

Register for Efficiency Works Events: <https://efficiencyworks.org/resources/events/>


Kirk Longstein, BEWS Project Manager



Kirk leads the program and policy development for the Building Energy and Water Scoring initiative. He started with the City of Fort Collins in September of 2016.

Prior to joining the Fort Collins team, Kirk served with the Peace Corps in Malawi and then as the Agency's Sustainability Program Manager in Washington DC.

Kirk holds a Master of Science Degree in natural Resources and Environmental Sciences from the University of Illinois.



LEARN MORE AT
energystar.gov

ENERGY STAR® Progress & Goals Report

96

215 NM

Primary Property Type: Office
Gross Floor Area (ft²): 72,000
Built: 1999

For Year Ending: June 30, 2016
Date Generated: June 13, 2017

Property Address:
215 NM
215 north mason street
fort collins, Colorado 80524

Property ID: 1274576

ENERGY STAR®
Score¹

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Building Energy and Water Scoring Program

Kirk Longstein, Project Manager



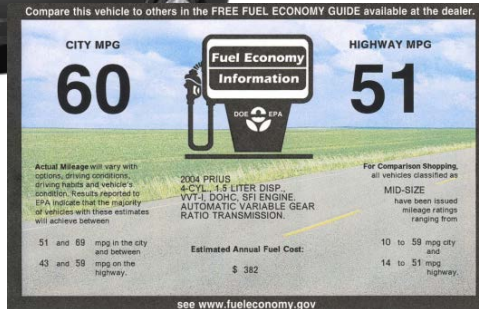
efficiencyworks.org

- **ENERGY STAR Portfolio Manager.**
- **Why Benchmarking?**
- **Value in the Market.**
- **Benchmarking and Efficiency Works.**
- **How To...**
- **Building Energy and Water Scoring Ordinance.**



1

Benchmarking



Fuel Efficiency: MPG



Building Score: 1 to 100

Why Benchmark with Portfolio Manager

- Since 1999, tens of thousands of buildings and plants across America -- such as schools, hospitals, skyscrapers, retail stores, and manufacturing plants -- have benchmarked with ENERGY STAR Portfolio Manager to learn more about their energy performance.
- All buildings receive Energy Use Intensity information (Energy/sf/yr), most building types can also receive a 1-100 ENERGY STAR score where 1 is the worst and 100 is the best.
- Buildings with a score over 75 on a 1-100 scale have the option to get ENERGY STAR certified.
- On average, **ENERGY STAR certified buildings use 35 percent less energy and cause 35 percent fewer greenhouse gas emissions than similar buildings.**

There are 69
Buildings in Fort
Collins with
ENERGY STAR
certifications.



KOHL'S



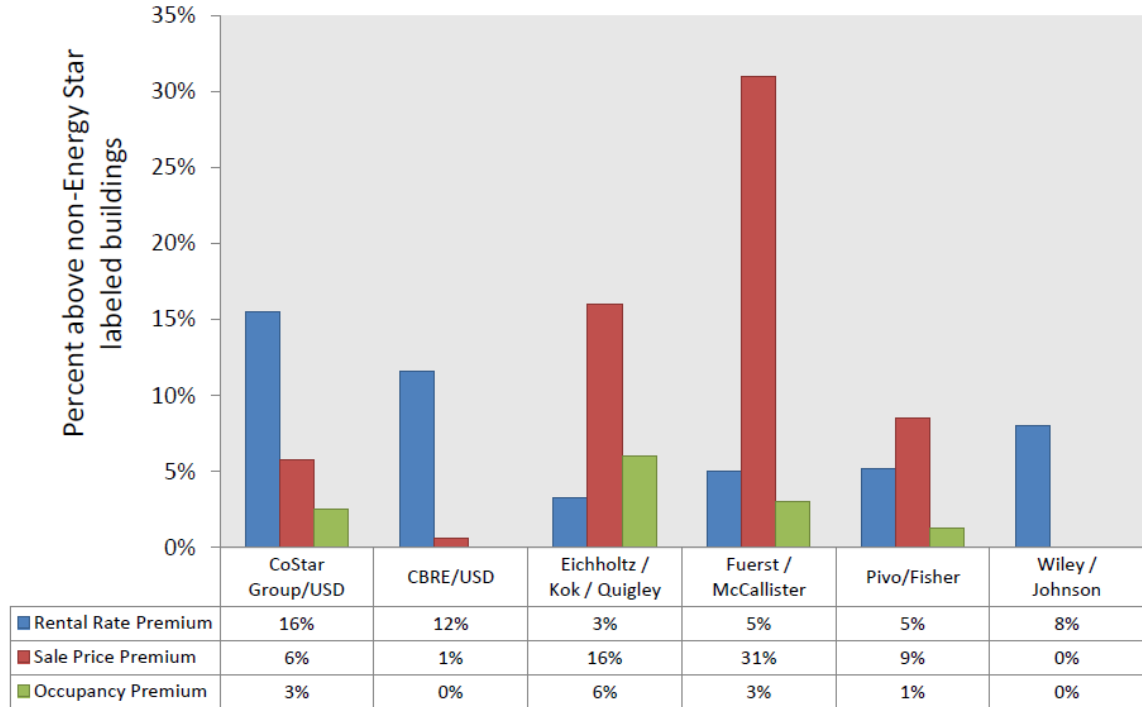
Benchmarking with Portfolio Manager is
the industry standard

- ~500,000 properties and 50% of commercial buildings square footage benchmarking energy use
- ~30,000 properties are ENERGY STAR certified



Studies have shown that ENERGY STAR certified buildings:

- Have lower operating costs
- Are more marketable
- Have increased asset value
- Lower risk of loan default



Parks, Forestry and Cemeteries Shop

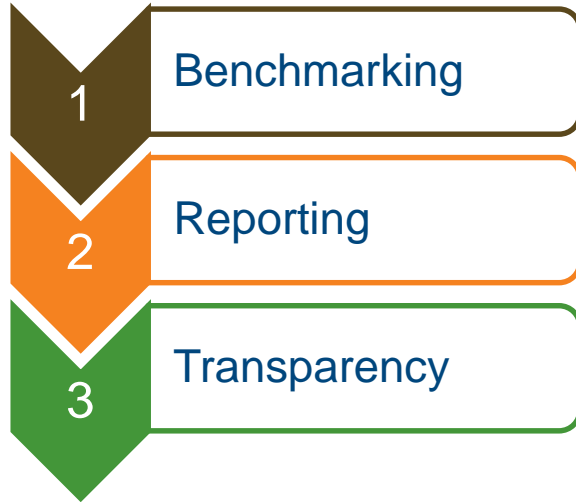


Initial Building Energy Score*	61
Improvements	Rooftop HVAC units, automated building controls
Cost	\$64,000
Fort Collins Utilities Rebate	\$4,913
ROI	10.8%
Estimated Electricity Savings	\$6,400/year
Current Building Energy Score*	89

*Energy Score from ENERGY STAR® Portfolio Manager®

LIVE DEMO of ENERGY STAR Portfolio Manager

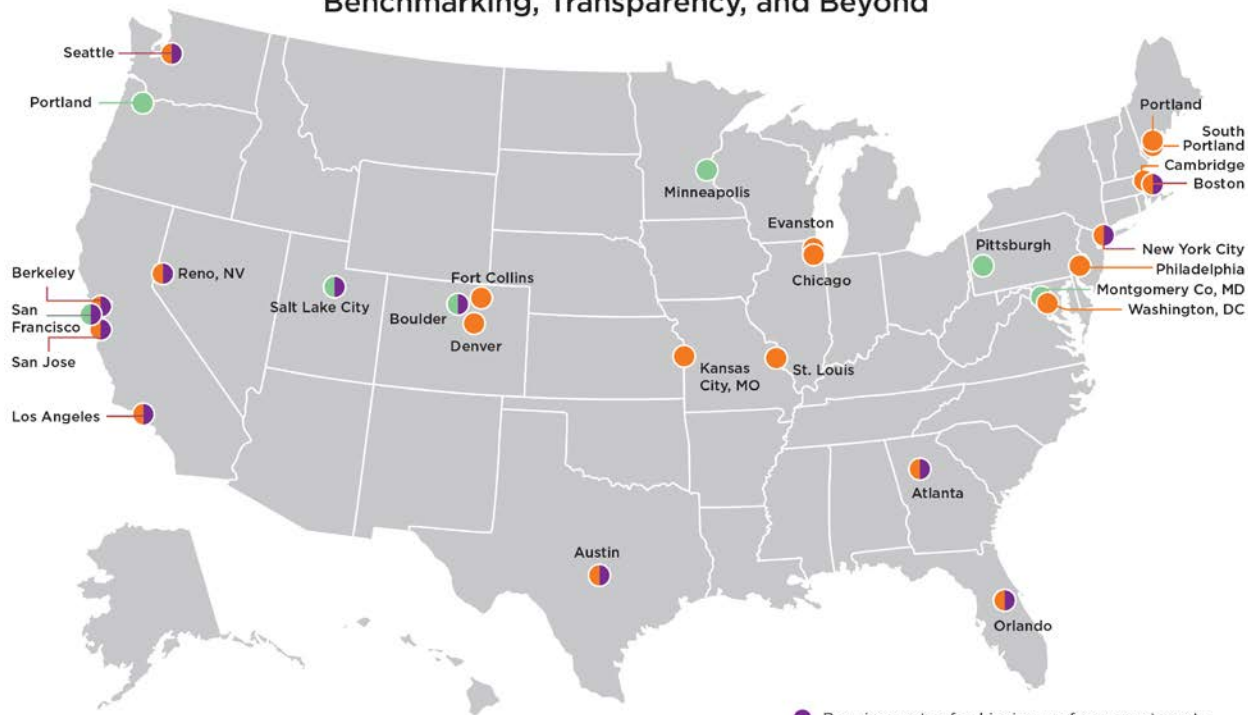
BEWS Ordinance Overview



- National Approaches.
- Alignment with City Goals.
- Who needs to Comply?
- What is Required?
- Notifications, Exemptions, Citations.

Nationwide Approaches

U.S. City and County Policies for Existing Buildings: Benchmarking, Transparency, and Beyond



Climate Action PLAN

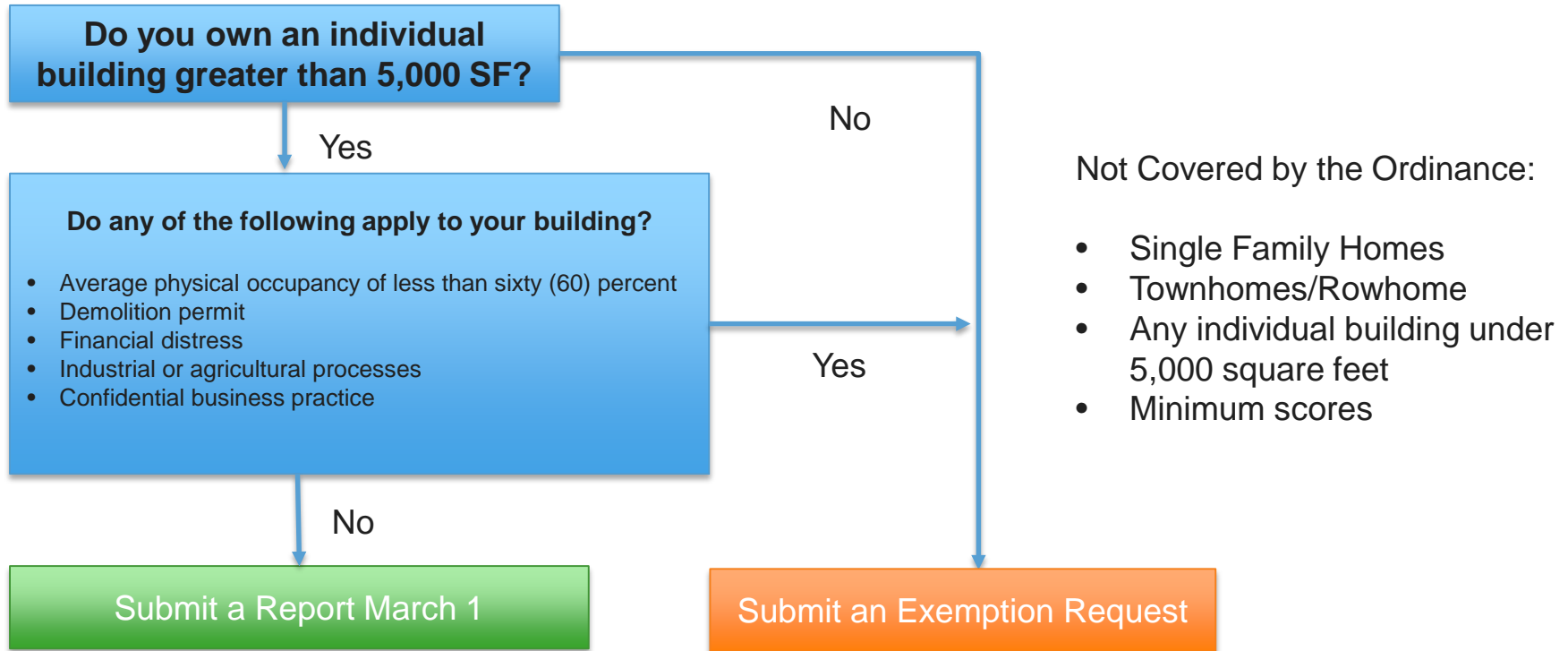
Commercial Buildings represent 70%
of the Fort Collins' Carbon Inventory

Fort Collins Utilities estimates
2.4% Savings =

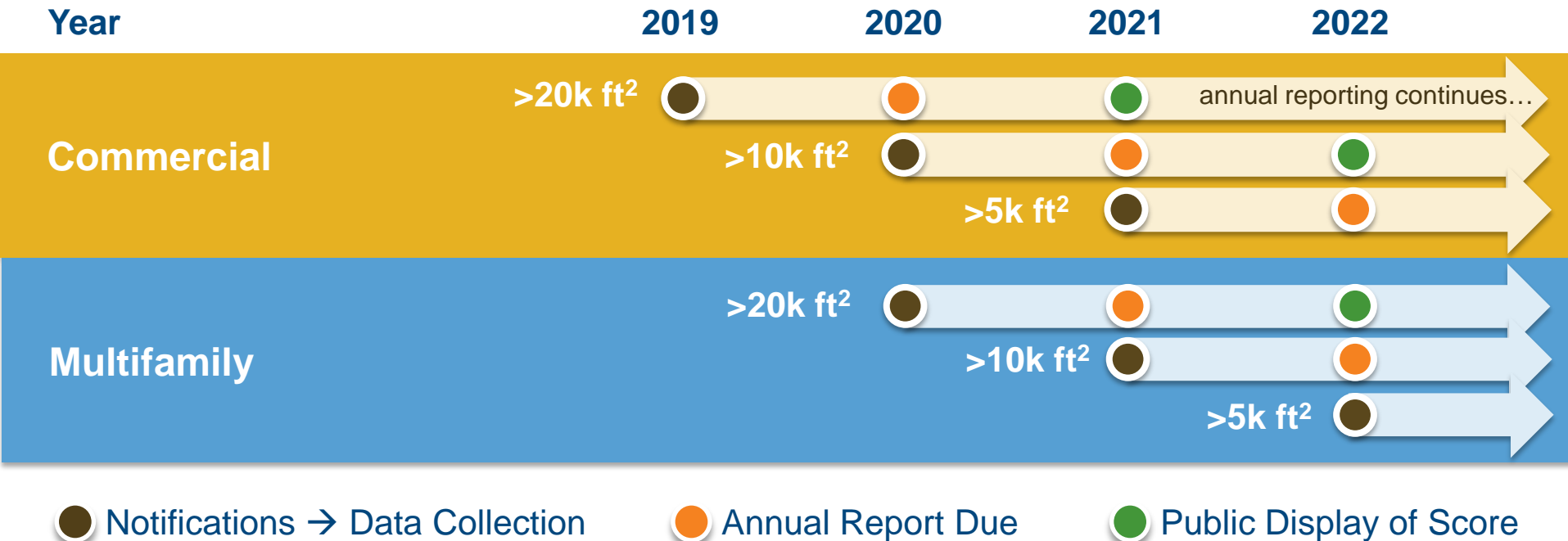
- ✓ 11,000 MWh Electricity*
- ✓ 33 M Gallons Waters*

*Buildings Covered by the Building Energy and Water Scoring Ordinance represent 30% of the total square footage of buildings across the City's built environment and represent 60% of the total electricity delivered by Fort Collins Utilities. Additionally, the covered buildings account for approx. 47% of the total water delivered by Fort Collins Utilities

Who Needs to Comply?

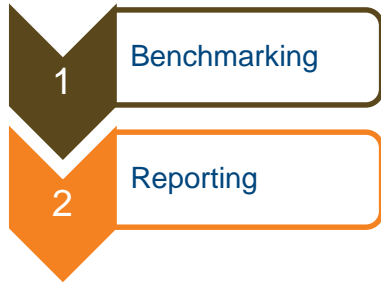


Compliance Deadlines



Step 1: Get Started

- ✓ Identify a benchmarking leader and start compiling the necessary information.



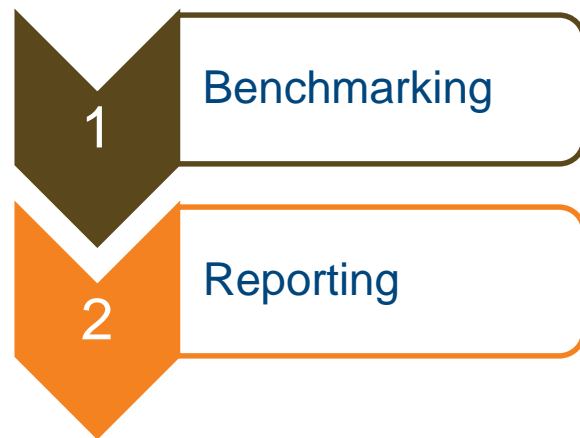
Step 2: Benchmarking your buildings covered by the ordinance

- ✓ Create a free account
- ✓ Identify the property use type defined by ENERGY STAR Portfolio Manager
- ✓ Request 12months of Utilities usage data and upload into Portfolio Manager

Step 3: Reporting to the City

- ✓ Submit your report to the City of Fort Collins starting March 1, 2020
- ✓ A unique URL will become available online at fcgov.com/BEWS

Non-compliance



- Notifications
- Non-Compliance letter 12th month following the previous year's deadline
- \$1,000 citation, each year of non-compliance

Data Request & Portfolio Manager Support

- Call: **970-416-2733**
- Email: **BuildingScoring@fcgov.com**



efficiencyworks.org

- ✓ Find a Trade Ally to support your needs
- ✓ Connect with an Energy Advisor to improve your score

Building Energy and Water Scoring Resources

Fort Collins Utilities offers resources and services to support building owners required to report building benchmarking information to the City, including energy and water consumption data access, ENERGY STAR® Portfolio Manager® technical support, and incentive and rebates for building owners interested in improving their buildings' score. For more information, email BuildingScoring@fcgov.com or call 970-416-2733.

[ENERGY STAR Portfolio Manager](#)

[Data Request](#)

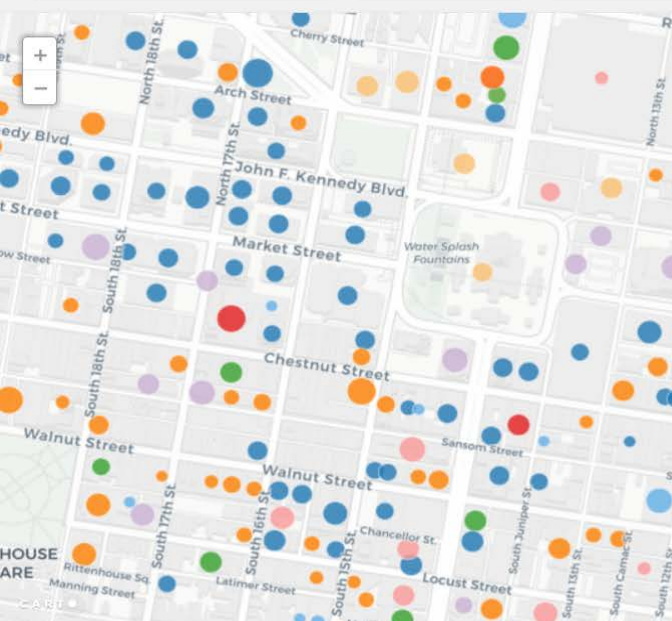
[Beyond Benchmarking](#)

[Trainings](#)

- [ENERGY STAR Portfolio Manager Guide](#)
- [Portfolio Manager Data Quality Checker](#)
- [Building Scenario - How to Benchmark](#)

fcgov.com/BEWS



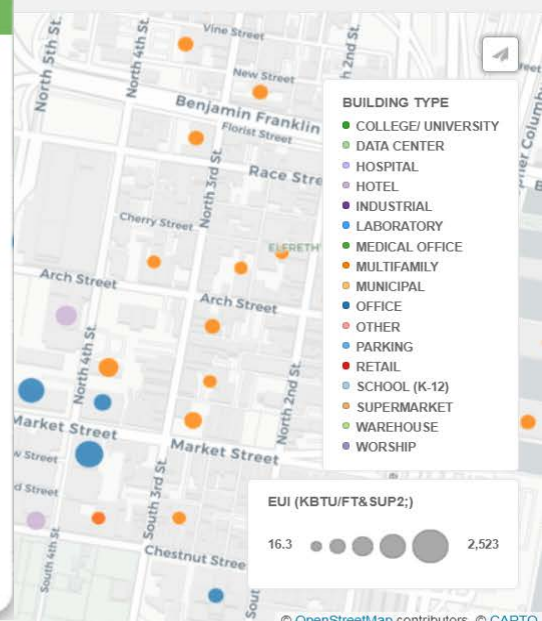


OPA Number: 883313700
917-33 CHESTNUT ST
262,308 sq ft

2015		2016	
Site EUI:	120	Site EUI:	119
Emissions:	3,426	Emissions:	2,985
Energy Star:	62	Energy Star:	63

☐ **Compare**

Full Report



Help Center

Monday-Friday 8am-5pm

(970) 416-2733

BuildingScoring@fcgov.com

Additional Resources

How to Benchmark



- Create a Portfolio Manager Account at [EnergyStar.gov](https://energy.gov/energy-star)
- Add Buildings to your Portfolio
- Add Energy Meters and Data
- Add 13 months of data to get benchmark for 2019

CBECS Overview

EPA's 1 – 100 ENERGY STAR score

Nationally representative survey - CBECS gathers data on building characteristics and energy use from thousands of buildings across the US



EPA analyzes & filters the data - ensuring data robustness and quality

Variable	Full Name	Mean	Minimum	Maximum
SqFtTot	Square Footage per Square Foot	108.4	19.45	1155
YearBuilt	Year of Construction	9.533	6.515	13.85
PCType	Number of Computers per 1000 sq ft	2.201	0.2473	11.11
Lighting	Number of Lighting Fixtures per 1000 sq ft	3.475	0.811	13.26
HVACType	Number of HVAC Units per 1000 sq ft	0.5616	0.002	2.403
WaterHeater	Water Heating Degree Days per Person per Year	4611	0.0000	9717
Cooling	Cooling Degree Days per Person per Year	1151	0.0000	1766

Note:
 - Statistics are computed over the final data set after all quality checks.
 - Values are weighted by the CBECS sample weights.
 - The mean values are used as input variables for the regression.

EPA creates a **statistical model** that correlates the energy data of the property use details to identify the key drivers of energy use, accounting for weather variations



Compares the actual energy data for a building to the modeled estimate to determine where the building ranks relative to its peers



Single Structure



- Buildings should be benchmarked as single structures.
- **Why:** EPA's national energy performance model and scale is based on a statistical analysis of individual buildings, not campuses of buildings.
- For Fort Collins' ordinance, owners of multiple buildings that share one energy meter for one or more of their energy sources may comply with the ordinance by benchmarking those buildings together as a single building.
- **Most Common Property Use Types:**

Office
Retail



Gross Floor Area



- Total Property **Gross Floor Area**
 - The total property square footage, as measured between the exterior walls of the building.
 - Does not equal Leasable Space
 - Do not include parking

Building Types of Use



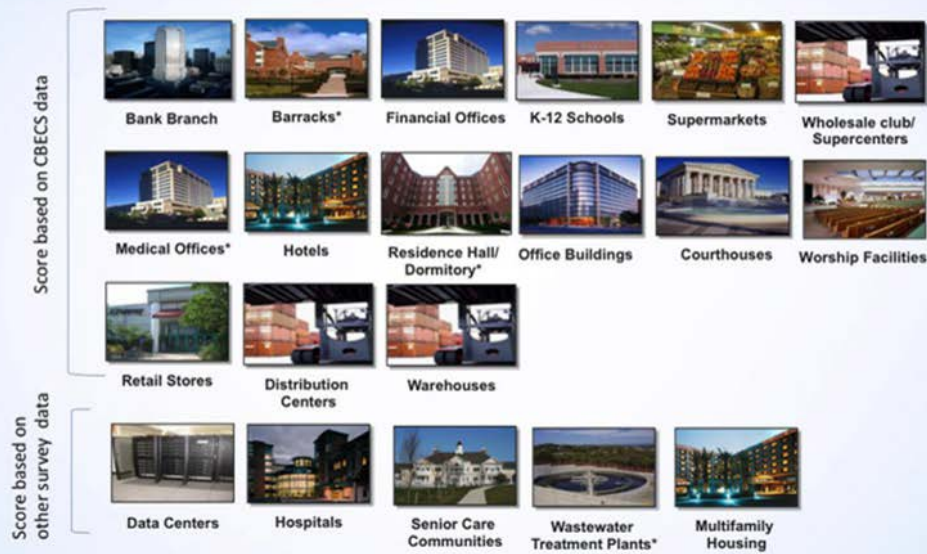
- EPA recommends that you enter your buildings according to the primary use and that you enter as few additional Use Types as possible.
- When you **should** create an additional Use Type:
 - If it is a Use Type that can get an ENERGY STAR Score. (Note: Retail can only get a score if it is greater than 5,000 sq ft)
 - If the Use Type accounts for more than 25% of the property's GFA
 - If the Use Type is a vacant/unoccupied space (and the vacancy is greater than 10% of the property's GFA)
 - If the Weekly Hours for the Use Type differ by more than 10% for the same Property Type AND that Property Type can get a score (ex: you have two Office tenants, and their hours differ by more than 10%)
 - If Parking Areas are metered with another Use Type



Use Types that can receive an ENERGY STAR score



Property types with 1-100 ENERGY STAR scores



*These building types are not eligible for ENERGY STAR certification.

7



These Use Types cannot be excluded even if they are under 10% of the GFA



Office Building Type

- Office applies to facility spaces used for general office, professional, and administrative purposes.
- The total gross floor area should **include all supporting functions** such as kitchens used by staff, lobbies, atria, conference rooms and auditoria, fitness areas for staff, storage areas, stairways, elevator shafts, etc.





Office - Attributes

Number of PCs

Indicates the total number of personal computers and servers in this office space. It includes desktop computers, laptops, and servers. It does **not** include display monitors, flat screen TVs, tablets, fax machines, etc.

Workers on Main Shift

Indicates the number of employees who are present during the main shift. **Not the total number of employees or visitors who are in a building during an entire 24 hour period.**

- Visitors to the building should **not** be included in the count of workers.
- A call center with multiple shifts should only count the employees there on the main or peak shift.

Weekly Operating Hours

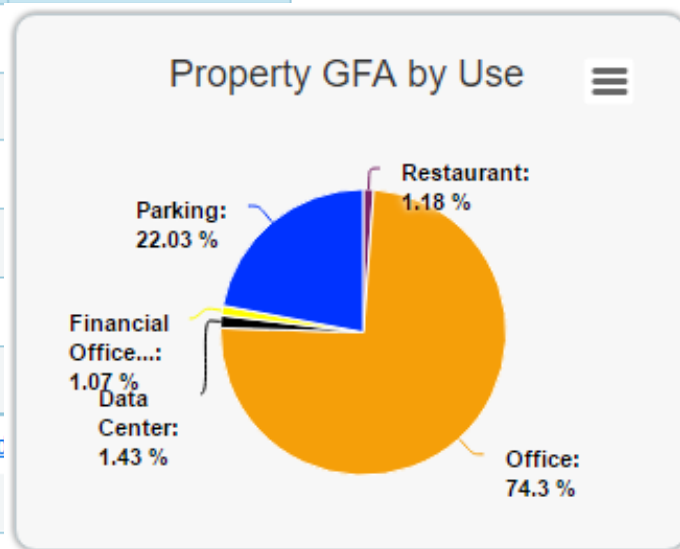
The total number of hours per week that this Office is in operation, excluding hours when the facility is occupied only by maintenance, security, or other support personnel.

- “Weekly operating hours” should only include hours when the building is occupied by a majority of the workers.
- Don’t count hours just because the building systems are running.



Office – Floor Area Attribute


Name	Property Use Type	Gross Floor Area	Action
▶ Office	Office	616,626 ft ²	
▶ Covered Parking	Parking	241,080 ft ²	
▶ Office (Call Center)	Office	132,313 ft ²	
▶ ! Data Center Use	Data Center	14,173 ft ²	
▶ UMB Bank	Financial Office	10,610 ft ²	
▶ Starbucks	Restaurant	1,800 ft ²	
Property GFA (Buildings):		775,522 (usec	
Property GFA (Parking):		241,080	






Office Space Attribute Screenshot

Property Uses and Use Details

 [View as Diagram](#)

Add Another Type of Use 

Add

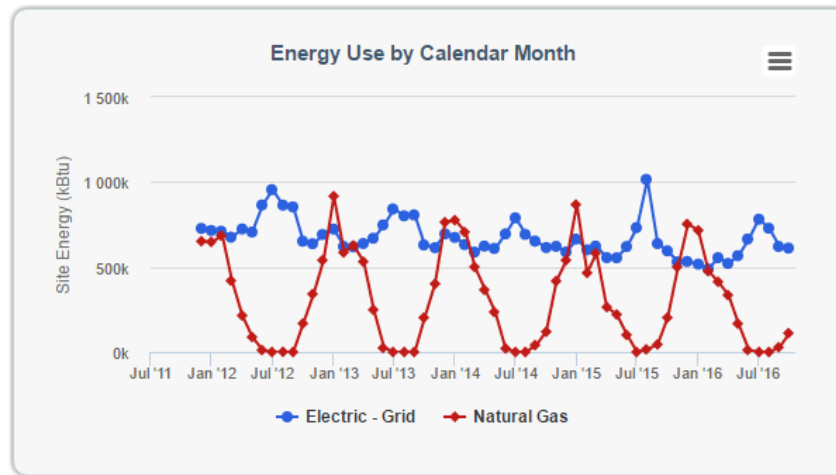
Name	Property Use Type	Gross Floor Area	Action
▼ Office	Office	606,682 ft ²	I want to... 
	Value	Current As Of	Temporary Value?
★ Gross Floor Area	606682 ft ²	07/01/2014	No
★ Weekly Operating Hours	45	01/01/1980	No
★ Number of Workers on Main Shift	1748	01/01/2016	No
★ Number of Computers	1923	01/01/2016	No
★ Percent That Can Be Heated	50 % or more	01/01/1980	No
★ Percent That Can Be Cooled	50 % or more	01/01/1980	No



Create Meters, Enter Energy Use



- Electricity – kWh
- Natural Gas - therms
- District chilled water – ton-hours
- District steam – klb (same as Mlb on Xcel bill.)
- On Site Generation





Enter or Edit Usage Data

Three ways to enter energy data for your property or portfolio:

1. Manually
2. Uploading spreadsheets
3. 3rd party exchange data directly with Portfolio Manager via web services (**Xcel does this**)



Parking Energy Meters

- The **ENERGY STAR** tool is intended to assess the efficiency of the building, not its parking lot.
- If its sub-metered, then parking meters (as well as square footage) may be excluded.
- If its not sub-metered, the parking use type should be created and is treated as follows:

When space is entered as Parking, Portfolio Manager applies basic engineered assumptions to approximate the lighting and ventilation loads associated with parking lots and garages. **These estimated amounts are actually excluded from the building's energy.**



Can it be excluded?

- Parking that is master metered with the building - **No**
- The energy consumed by a large LED billboard or sign on the side of a building which is not related to building tenants - **Yes**
- The metered energy use of a cell phone tower on the roof or grounds of a building.
- The energy use of vending machines located outside of the retail store. - **Yes**
- - **No.**
- The metered energy use of electric vehicle charging stations in the parking area of a building.
- Heated sidewalks - **Yes**
- - **No**