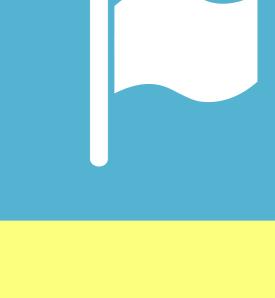
Building Energy Savines Program Workshop 2

Meeting Guide

- 1. Keep an open mind
- 2. Assume good intentions
- 3. Share the space, raise hand
- 4. Focus on feedback, not decision-making
- 5. Questions > Answers









Building Owner

Introductions



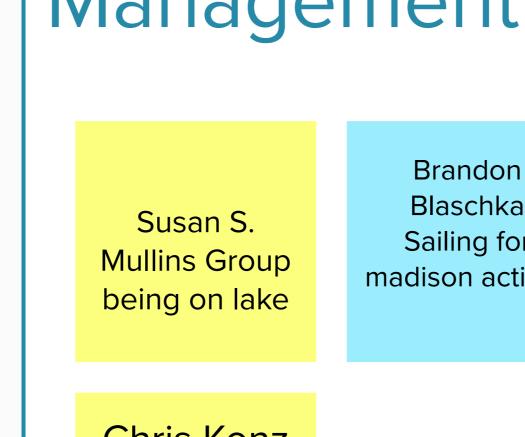






Operations &



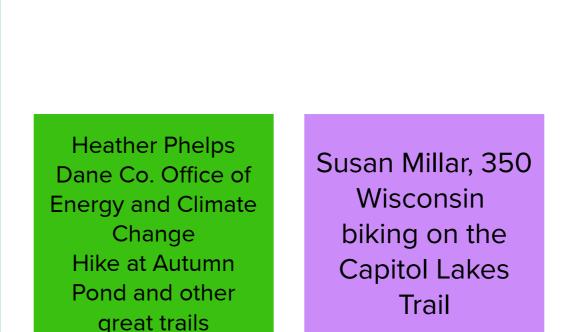




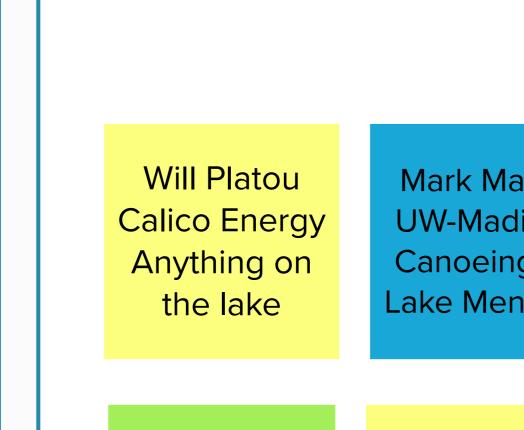




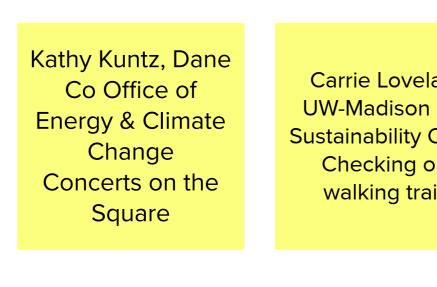
Energy & Env.



Workforce









What is a building tune-up?

Introduction

A building tune-up is an assessment of energy systems, controls, and maintenance practices to detect and correct operational or maintenance problems. As part of the tune-up process, minor adjustments may be made to bring them up to a good state of operation.

These adjustments result in 10 - 15% annual energy savings for a building.

Like cars and bikes, all buildings need to be tuned regularly to keep them running efficiently. Tune-ups ensure existing equipment is operating at its best.

Tune-ups are performed by a qualified tune-up specialist, which could be trained building/facilities staff.

Tune-ups would only be required for buildings 50,000 sq. ft. and larger every 4 years. A 4 year cycle enables building owners to recoup cost and realize savings, making tune-ups revenue neutral or positive for building owners.



Tune-Up Process: 4 Steps



1. Conduct a building assessment (desktop)

 Tune-up specialist collects basic building information and characteristics, review benchmarking data, and conducts energy bill



- Tune- up specialists conducts a building walk through to assess building operations and maintenance
- Identifies required and voluntary operational and maintenance improvements
- Shares findings with the building owner



- The building owner completes the corrective actions using in-house staff, existing contracted service providers, or the Tune-up Specialist.
- Tune-up specialist verifies corrected equipment and systems are functioning as intended

What's included in a tune-up?

Example Elements

HVAC	Required action	Voluntar action
Review equipment schedules, set points, adjust schedules	Χ	
Verify sensors are functioning correctly and in right locations	Χ	
Review controls are functioning and set appropriately	Χ	
Note issues with air balancing, ventilation rates, and dominant zones		Χ
Review equipment is clean and in good working condition, including filters and strainers	Χ	
Verify ducts and pipes are insulated		Χ
Check valves, dampers, and steam traps	Χ	
Identify equipment nearing end of service life		Χ

Lighting	Required action	Voluntary action
Review schedules, set points, adjust schedules	Χ	
erify sensors are functioning correctly and in right locations		Χ
dentify areas where lighting levels are too bright and ecommend solutions		X
Note inefficient equipment or where sensors would be beneficial		Χ

Building Envelope	Required action	Volunta action
Check roof condition		Χ
Check roof and wall insulation and recommend strategies for improving performance		Χ
Check condition of windows and doors, sealing, and weather stripping and recommend repairs to improve performance		Χ
Note inefficient equipment or where sensors would be beneficial		Χ

Water		quired ction	Voluntary action
Review domestic hot water set points	Χ		
Review circulation pump controls are functioning and set appropriately	Χ		
Check plumbing fixtures to identify maintenance or repair issues, identify where low flow fixtures and aerators could improve performance			X
Review water feature schedules and adjust			Χ
Evaluate cooling towers for water leaks and excess water consumption	Χ		

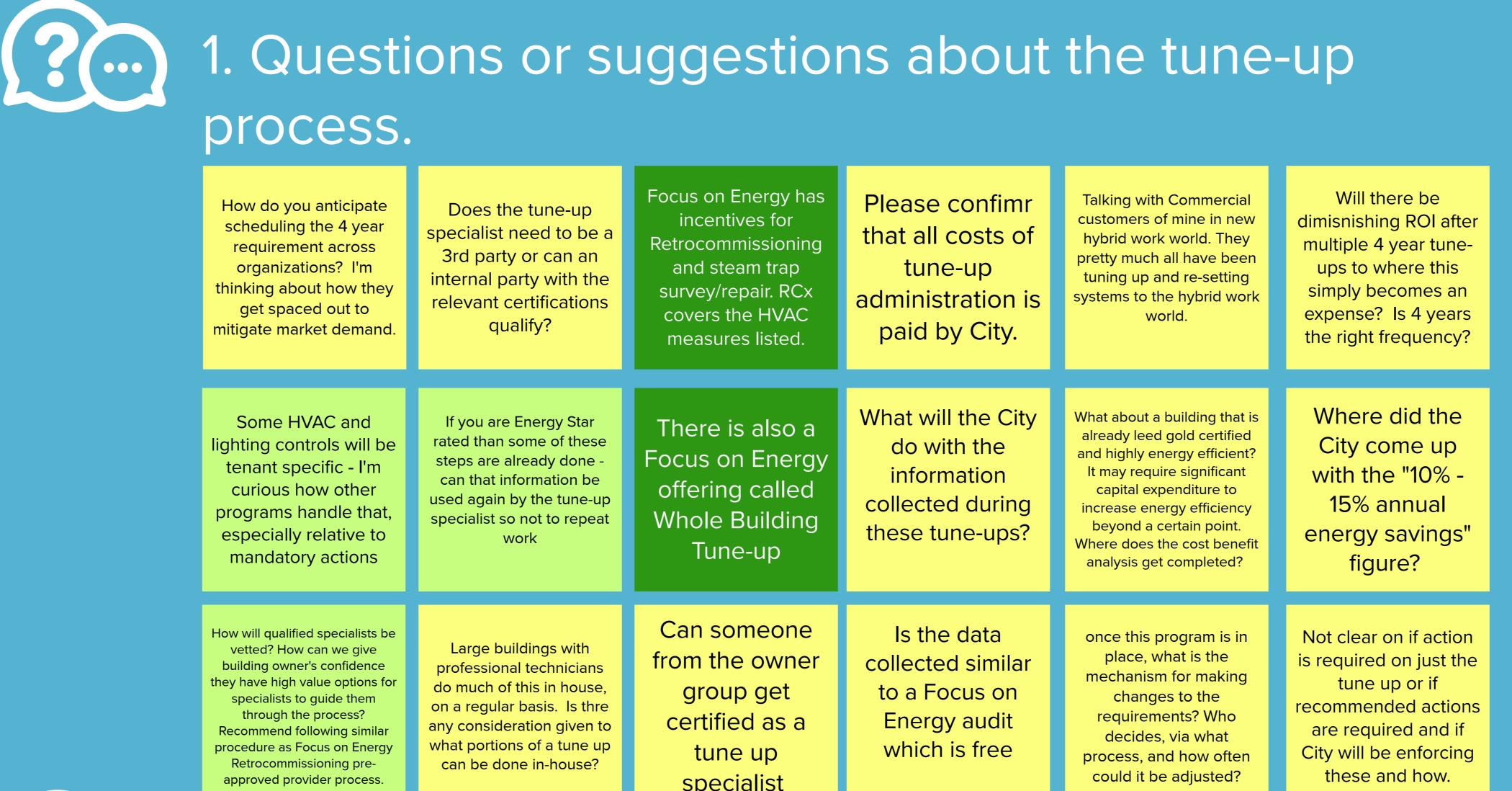
Building Energy Performance Program ancing efficient energy and water use in



Program Page: https://www.phila.gov/programs/building-energy-performance-

Tune-up Workbook: https://www.phila.gov/media/20210702091928/OOS-BEPPtune-up-workbook.xlsx

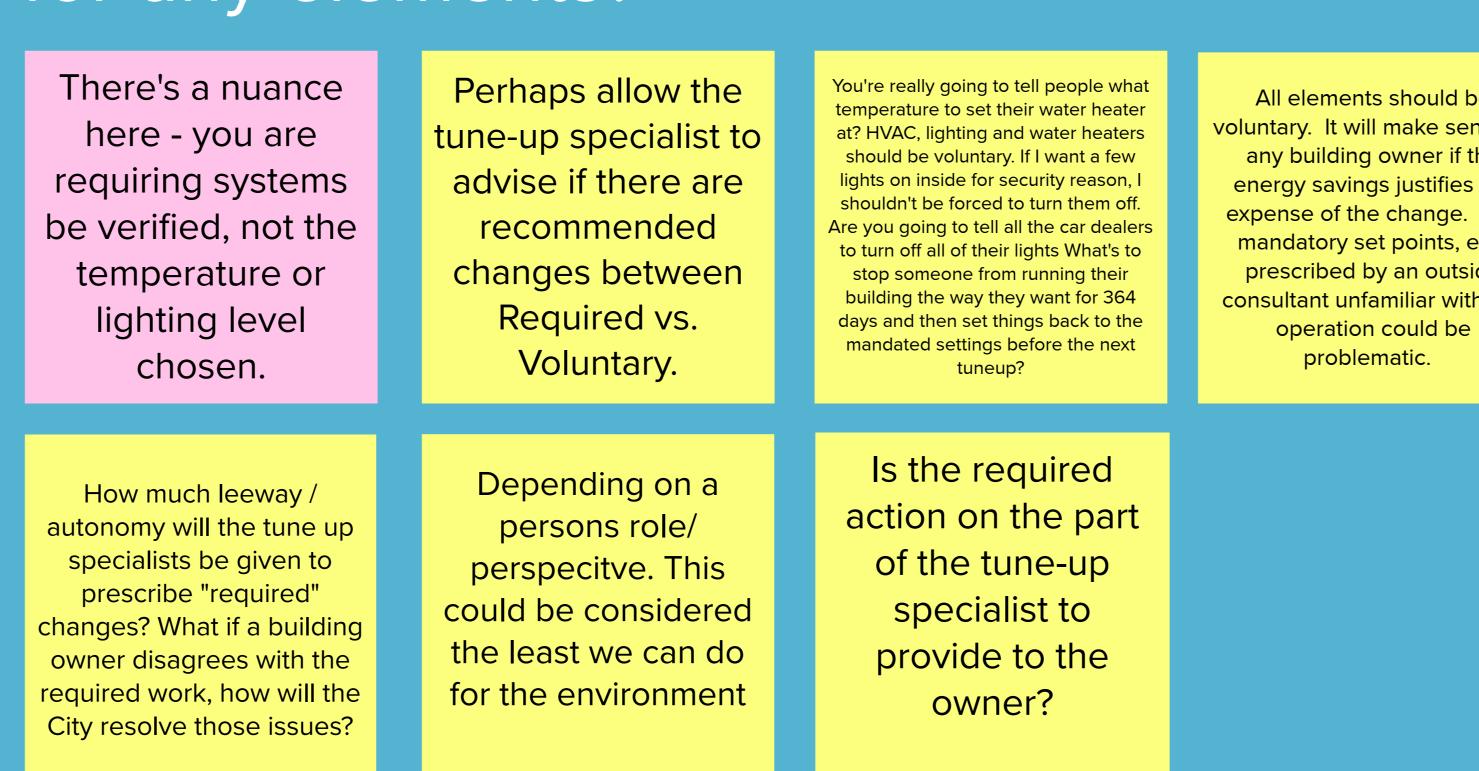
Tune-up Process & Element Discussion



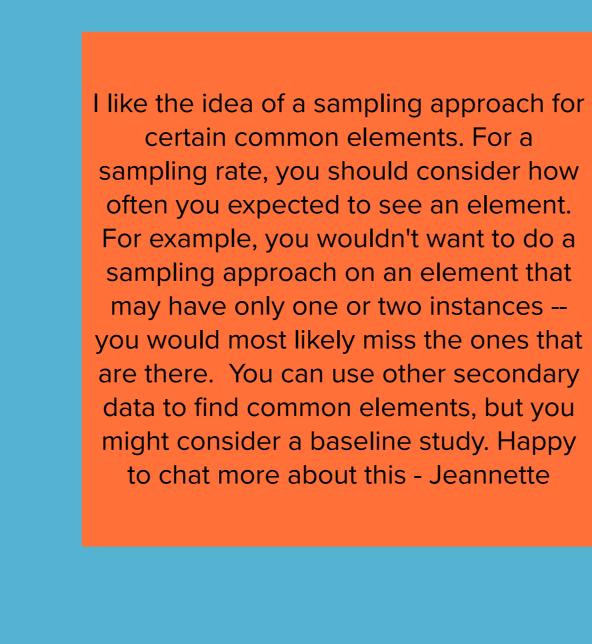
2. Is anything missing from the tune-up elements

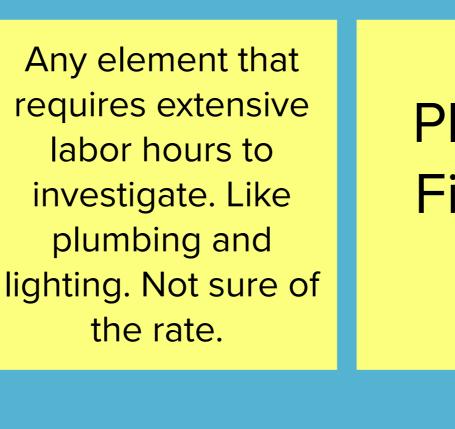
It would be good to have something about plug load - at least data centers - on the voluntary side	Discussion of building owner's goals (Current Facility Requirements - from ASHRAE retrocommissioning standards)	Comparing current performance to historical.	If a building owner has regular service, filter changes, etc. that cover some of this, can those be eliminated or used as proof instead of another tune up requirement?	If a tune-up item, such as HVAC, is inspected quarterly by a professional vendor then can the inspection reports qualify as proof.
Note specialty building functions that may have larger energy impact and give space for additional notes or recommendations in	Determine if observed system function aligns with desired/expected building function. For example, are the ventilation rates for a given building area appropriate and aligned with current codes/best practices.	Life Safety Systems (Sprinklers, elevators?)	Replace filter clean ducts LED Exit signs	Life safety and sprinklers, fire sytems are inspected annually and more often the find and address issues.

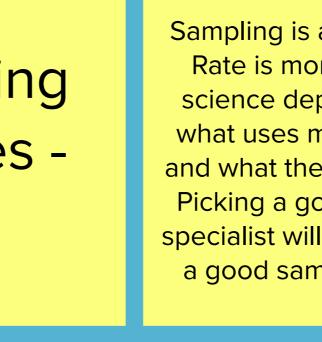
3. Should required vs voluntary be reconsidered

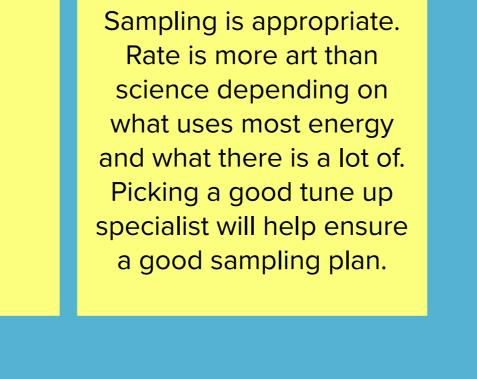


?.... 4. Which elements might need a sampling approach? What sampling rate do you recommend?









5. What are the pros and cons of including water in tuneuns? Should it he included?

SHOU	Id It DE IIICI	uucu:		
should be that needs	The water measures	It is generally not very easy	Pro: it is an important utility to maximize efficiency	Multi-tena

Qualifications for Tune-up Specilists

Example Qualifications

A Tune-Up Specialist is a person qualified to conduct a Tune-up, identify required tune-up actions, perform tune-up actions and/or verify that tune-up actions were completed, and submit documentation to the City.

Tune-up specialists are usually required to have a specified number of years of related education and experience (with commercial building operations or commercial building management)

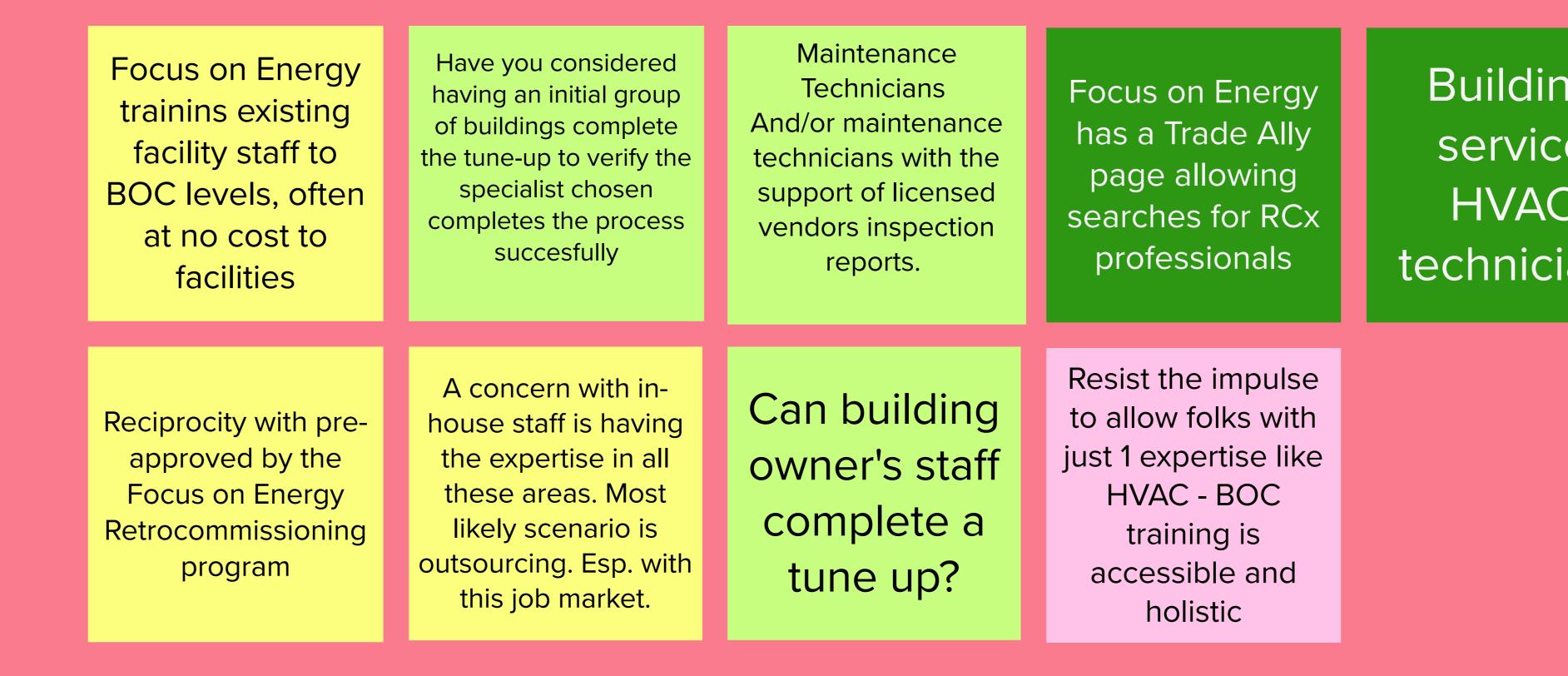
AND one specified qualification, such as:

- PE in Mechanical or Architectural Engineering
- Designer of Engineering Systems credential for HVAC
- Building Operator Certification (BOC) Level II
- Certified Energy Manager
- Certified Commissioning Professional
- Existing Building Commissioning Professional
- Commissioning Authority (CxA)

6. Does 7 years of experience reflect the skills and knowledge necessary to tune-up and provide recommendations on these elements? Should it be more or less?

Recommend noting which Cx credentials. I would condone: UW Madison CCP, BCA, ASHRAE. I would not condone NEBB, AABC.	7 years experience is too stringent. Younger professionals with 2 years relevant experience with appropriate management/ training can provide sufficient value to building owners.	7 Years seems high - CEMs with less than 7 yrs experience will be completely capable	Maintenance Technicians and/or Maintenance Managers should be able to conduct the tune-ups. Especially if some of these mechanicals are inspected by a licensed vendor.	I thought that building owners were going to be trained by the city to complete this and not incur cost of hiring 3rd party. Is that still on the table?	Is the PE the same qualification as the Energy Stacertification
I'm not sure it's 7 years but there's a breadth of expertise required here. New grads are not good candidate sto do this work	A 7 years requirement seems to be too specific for all the experience, training and certification one could gather in a lesser time. Maybe a test and 3 years experience.	Agreed with the above. If we have maintenance techs with 20+ years experience but not one of those qualifications, they should not be precluded.	Building owners should be able to utilize in house staff to complete tune up. The City should privvide guidelines and training.	I feel that setting a years of experience requirement is discriminating against young professionals that may have the same certifications & Knowledge.	

7. What other qualifications should be added to this



2... 8. How can the program best leverage ongoing operation and maintenance work and avoid repetition? Should contracted specialists be enabled to complete specific portions of the form?

(Keeping in mind tune-ups would happen once every 4

years.)				
tilities to omatically ort energy	Ideally the specialist would work with O&M staff so that they	It seems like instead of a tune up occurring every four years, where an owner would incur a large expense at one time, that an owner should be required to complete all sections of the tune	City might consider incentive programs for building owners to send staff to gain credentials/ training that would move them into the required credentials.	Should be a way to get an accumulation of the companies the companies the come in over a

Tune-up Equivalents

Potential Equivalents

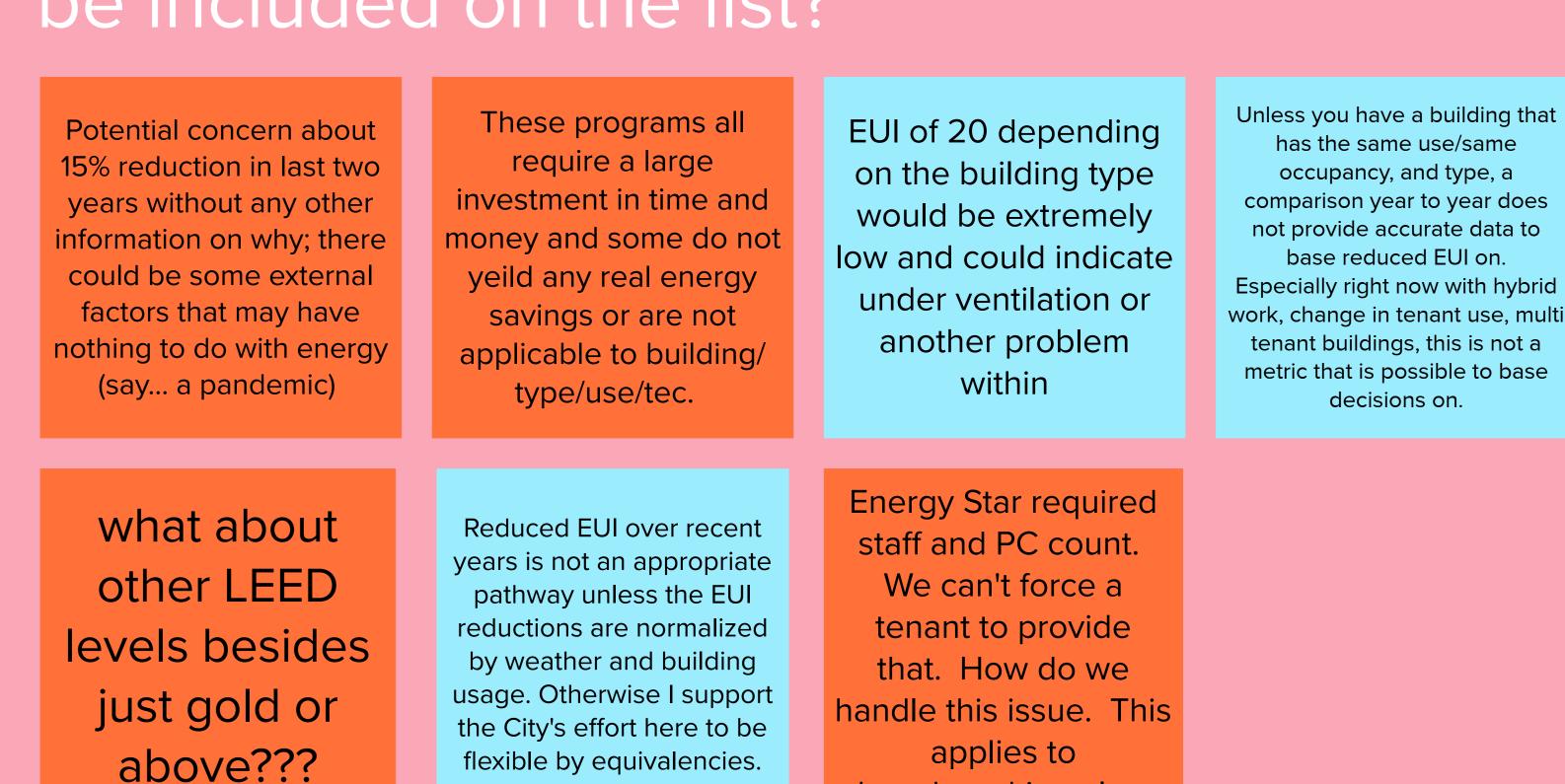
We want to create a flexible program that acknowledges the multiple pathways to energy efficiency and enable building owners to choose what's best for their buildings. Building owners can choose to tune-up or submit proof certain other equivalent achievements that demonstrate high energy efficiency.

more accurate term"

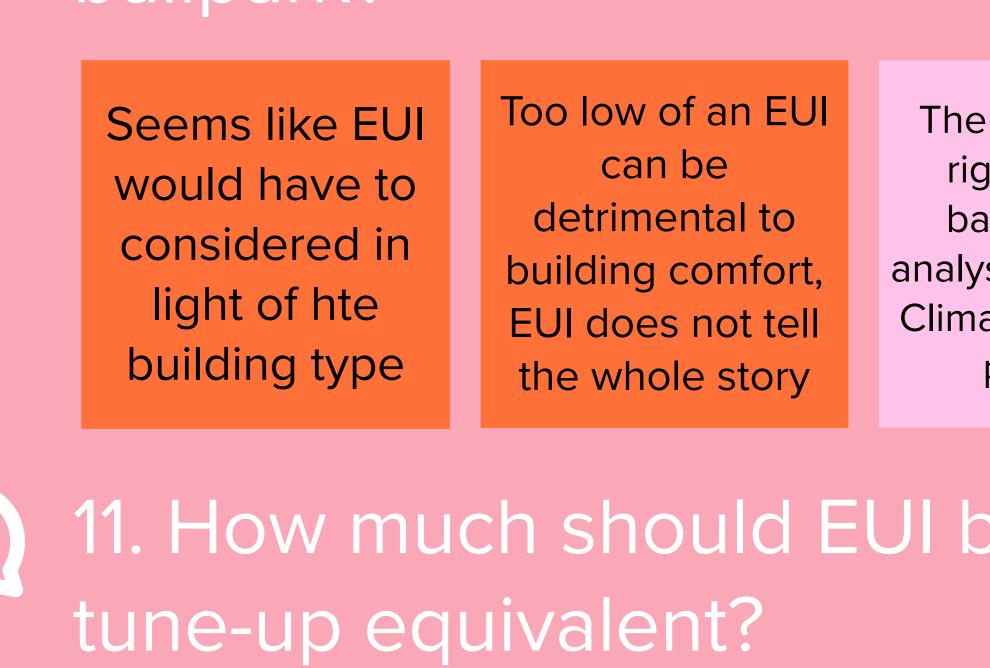
Potential equivalents include:

- High certified ENERGY STAR Score (75 or greater?)
- LEED Gold or Platinum O+M
- Zero Energy Certification issued by International Living Future Institute (ILFI)
- PHIUS Certification for Buildings Building Energy Quotient (bEQ) Certified
- High Building Energy Asset Score
- Low EUI (20 kBTU/sq. ft. or less?) Recently completed ASHRAE Level II audit and implemented
- recommendations with a simple payback of 3 years or less
- Reduced EUI 15% or more in last 2 years

. 9. What other equivalent certifications or actions should be included on the list?



0. What should be considered a 'high' energy star score? A low EUI? Are these proposed levels in the right



11. How much should EUI be reduced to qualify as a

