

How Do You Know Your Preventive Maintenance is Working?

“Schedule Preventive Maintenance
or it will be scheduled for you.”



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Introductions

Kevin Weisenberger

Director of Operations

Community Unit School District 200

Office 630-682-2000

kevin.weisenberger@cusd200.org



Sean Smith, CPMM, CPS - Speaker

Director of Maintenance and Facilities

Gurnee School District #56

Office - 847-505-1616

ssmith@d56.org



Gurnee District 56

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The definition of a Preventive Maintenance Program

A **scheduled** activity to inspect, adjust, clean, test and repair your equipments performance to ensure it runs efficiently as designed to maximize its service life



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Preventive Maintenance Plan!

Do you have a preventive maintenance program in place?

- Is it broken down by equipment and/or seasons?
- Does it explain how, the frequency, and when to maintain it?
- Do you keep a record of all your repairs and maintenance on each piece of equipment?



Do you know the life expectancy of each piece of equipment?

- Is your preventive maintenance plan helping exceed the life expectancy of your equipment?
- Is your preventive maintenance program help to limit the amount of repairs or unscheduled down time?
- Is your equipment running as efficiently as possible with your current PM Program and how are you measuring this?
- How are you benchmarking this?
- ASHRAE [Data Base Service Life](#)



How do you share this information with the Board?

- **When it breaks down and new equipment is needed? Reactively?**
- **Annually, in your capital improvement plan?**
- **How will you handle an emergency breakdown of equipment?**
- **What is your back up plan for boiler or chiller failure?**



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How do you search for a qualified HVAC Contractor?

Identify your equipment then ask...

- What is their labor rate?
- Do they have a specialty?
 - Do you have specific equipment?
 - Are they trained to work on your equipment?
- Are they willing to train your staff?
- Can they assist in energy management?
- Can they work with grants & incentives?
- Are they a part of a Co-Op?
- Can they assist in purchasing of parts?
- Have they worked for other Districts?
- Are they local or loco?



Preventive Maintenance & Leadership

- Create a PM schedule that is simple to understand.
- Follow through with your staff that PM's are being completed.
- Encourage your staff to write in detail as much information as possible on the work order
- Date and initial filters
- Back up parts in-house



Indoor Air Quality Related to HVAC



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Filtering Air (ASHRAE) American Society of Heating, Refrigeration and Air Conditioning Engineers

Standard 52.1 & 52.2

- 52.1 ASHRAE, rates a filter from 1%-100%. The most often element mentioned is dust spot efficiency. It does not mention all particle sizes and disregarded the smaller particaller in the 3.0-10 micron range.
- 52.2 ASHRAE, continues to measure the effectiveness of a filter but adds the Minimum Efficiency Reporting the Value (MERV) rating system of 1-20 which measures the filters ability to to trap particles from 3.0-10 microns.



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Two Types of Air Filtering

Electrostatic Filtration

- Can be Active or Passive Air Filtration System
 - **Active**, High Voltage charge Between Plates, positive or negative charged Applied. High Maintenance.
 - **Passive**, As particles load the filter over time the collection efficiency pressure drop increasing the lack of air flow causing the equipment to work harder.
 - These will lose their efficiency when exposed to chemicals, aerosols or high humidities.
- **The wrong type of filter can decrease efficiency, increase energy use and damage your equipment**

Mechanical Filtration

- Air passing through a filter medium that captures the particles and re-entering the space.
- Can be fiberglass or pleated
- As particles load the filter over time the collection efficiency pressure drop increasing the lack of air flow causing the AC equipment to work harder.



Mini Split Systems



- Provides Cooling & Heat
- Freq drive for AC compressor & the condenser fan.
- Converts power from AC to DC
- Energy Efficient
- Easy to install
- Heat down to -20
- Quiet Operation
- Can serve multiple areas from one condenser
- Does not provide fresh OA air to the space





- **Keep it clean**
 - Clean your boiler room floor
 - Heating & Cooling coils
 - Condensing Coils
 - Filters
 - Air Intakes
 - Oil and Grease
 - Air vents to motors & pumps
 - Condensate pans & drains
 - Furnishings!
 - Above Ceilings!
- **Make sure all your gages are working & easily visible**
- **Extra pumps couplers, belts filters & additional back up parts**
- **Daily Inspections for leaks, different noises**
- **Verify Damper Positions**



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How Do You Know your Preventive Maintenance Program is Working?

- The life of your equipment is prolonged
- Downtime is reduced
- Reactive maintenance decreases
- The occurrence of costly emergency repairs is reduced



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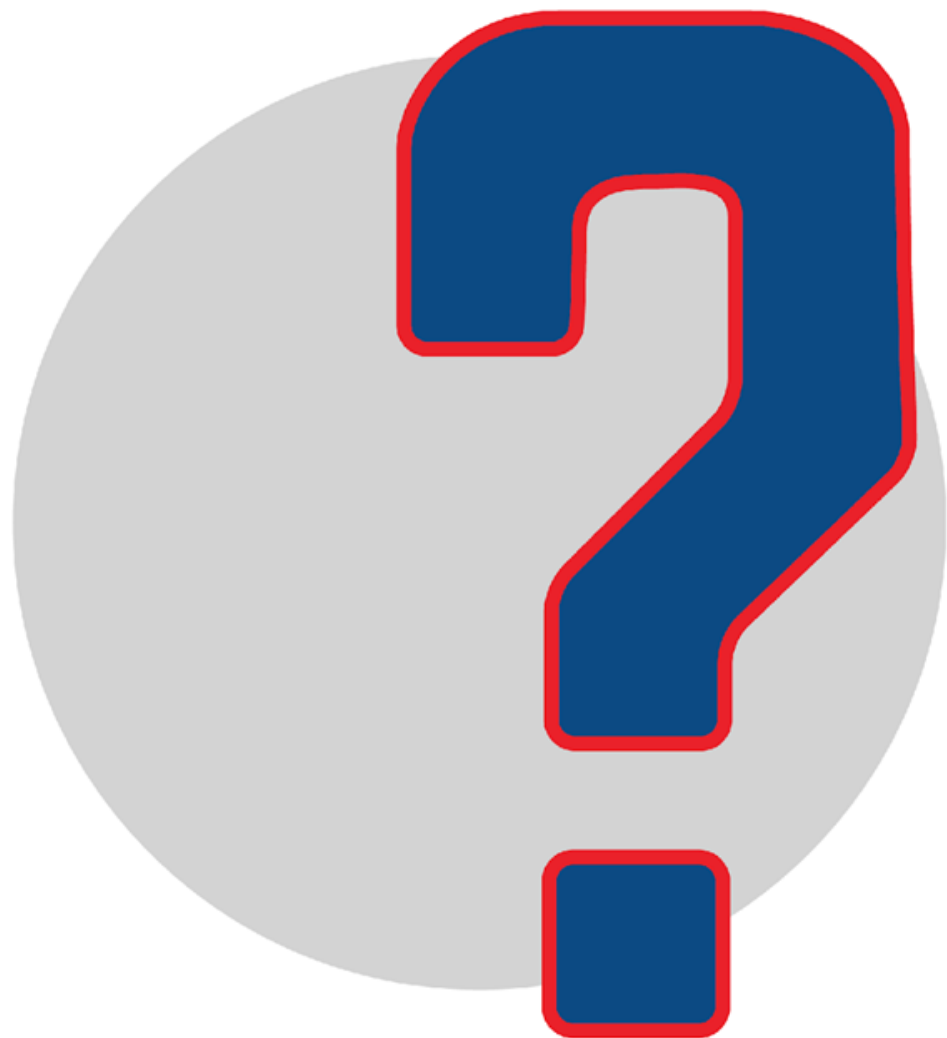
Ingenuity



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Engage Your Audience

How could I encourage attendees to develop their own ideas about my content?

Consider posing questions to the audience intermittently throughout your presentation.

Have attendees discuss their answers with a small group & then report out to the larger group. Think about other exercises you could use to have attendees discuss how to apply their own ideas (not just your ideas).



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Questions and Answers

We thank you for your time!



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