GROOME
Industrial Service Group

2025 ACCUG ANNUAL CONFERENCE

FAN LIFECYCLE MAINTENANCE

ACC Users Group




Jason Sobotik – Technical Service Representative, South Central US

Gerald Frank – Division Manager, Fan Services

Introduction

Jason Sobotik – Technical Service Representative, South Central US

- 6 years of power plant experience in coal fired, gas fired, and Cogen applications
- BS Mechanical Engineering – Texas A&M University
- Based out of Houston, TX

Gerald Frank– Division Manager, Fan Services

- 18 years of heavy-duty, centrifugal, and axial fan experience
- 10 years of coal power generation, operation, and mechanical experience at AEP
- Experience includes working with Howden Fan Company
- Based in Texas, supporting projects nationwide

Joe Chaney - Vice President of Mechanical Services

- 20 years in operations and maintenance experience at Entergy
- 15 years in Entergy plant support specializing in balancing, alignment, and boiler inspections
- Based out of Arkansas, supporting projects nationwide

WHO IS GROOME INDUSTRIAL SERVICE GROUP?

Nationwide Provider of Specialty Maintenance & Industrial Services

- Leading nationwide provider of Turnkey Services with over 20 locations throughout the country
- Offering 5 distinct service lines:
  - Catalyst Services
  - Mechanical Services
  - Painting & Coating Services
  - Explosive Services
  - Vac & Water Services
- Safety is our top priority

Fan Vibration

Causes:

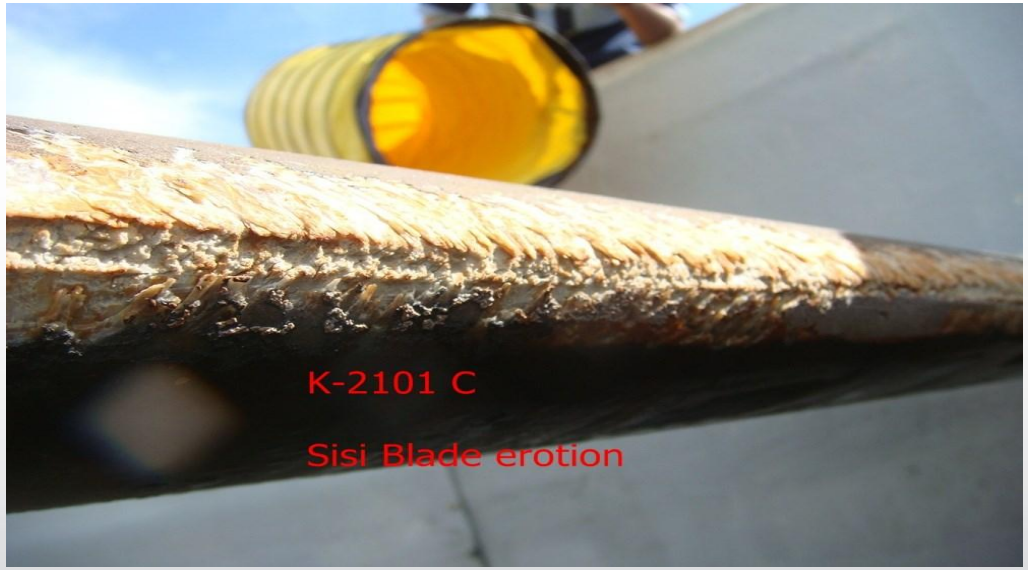
- Particulate Impingement
- Damaged fan blades
- Blade Erosion

Solutions:

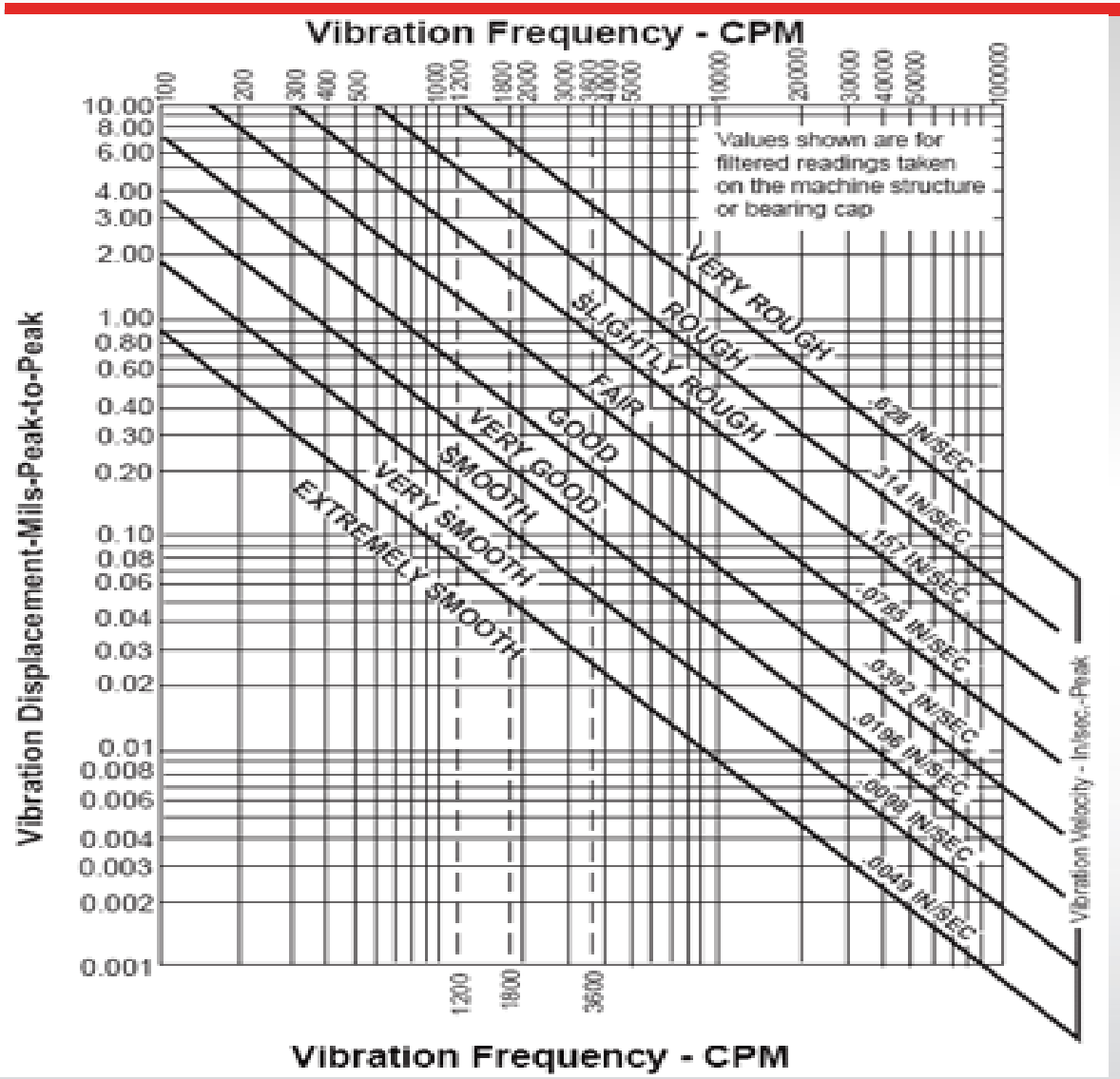
- Vibration Analysis and balancing
- Fan Inspections
- Fan cleaning
- Fan blade resurfacing

Impact:

- Rotor Imbalance
- Reduced fan efficiency
- Increase wear on other components



VIBRATION ANALYSIS

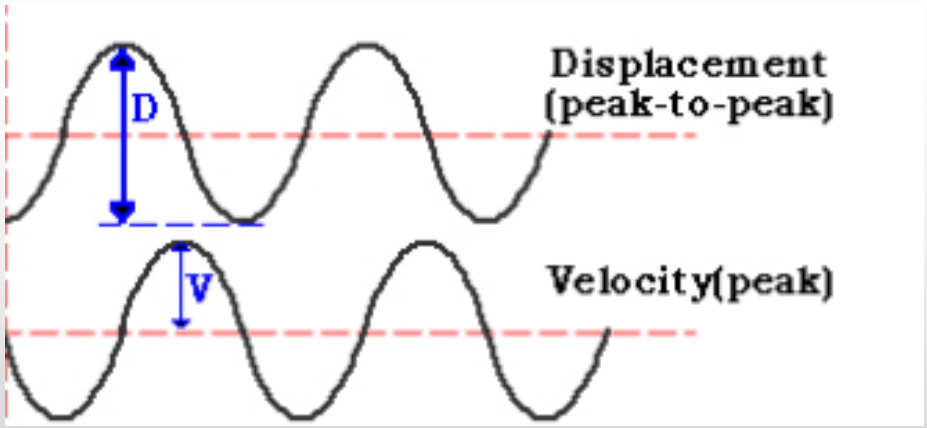


Displacement

- the physical distance an object moves from a fixed point or reference during one cycle of motion (Peak to Peak)

Velocity

- the rate of change of displacement in a vibrating object
- Measured in/s or mm/s (displacement time)



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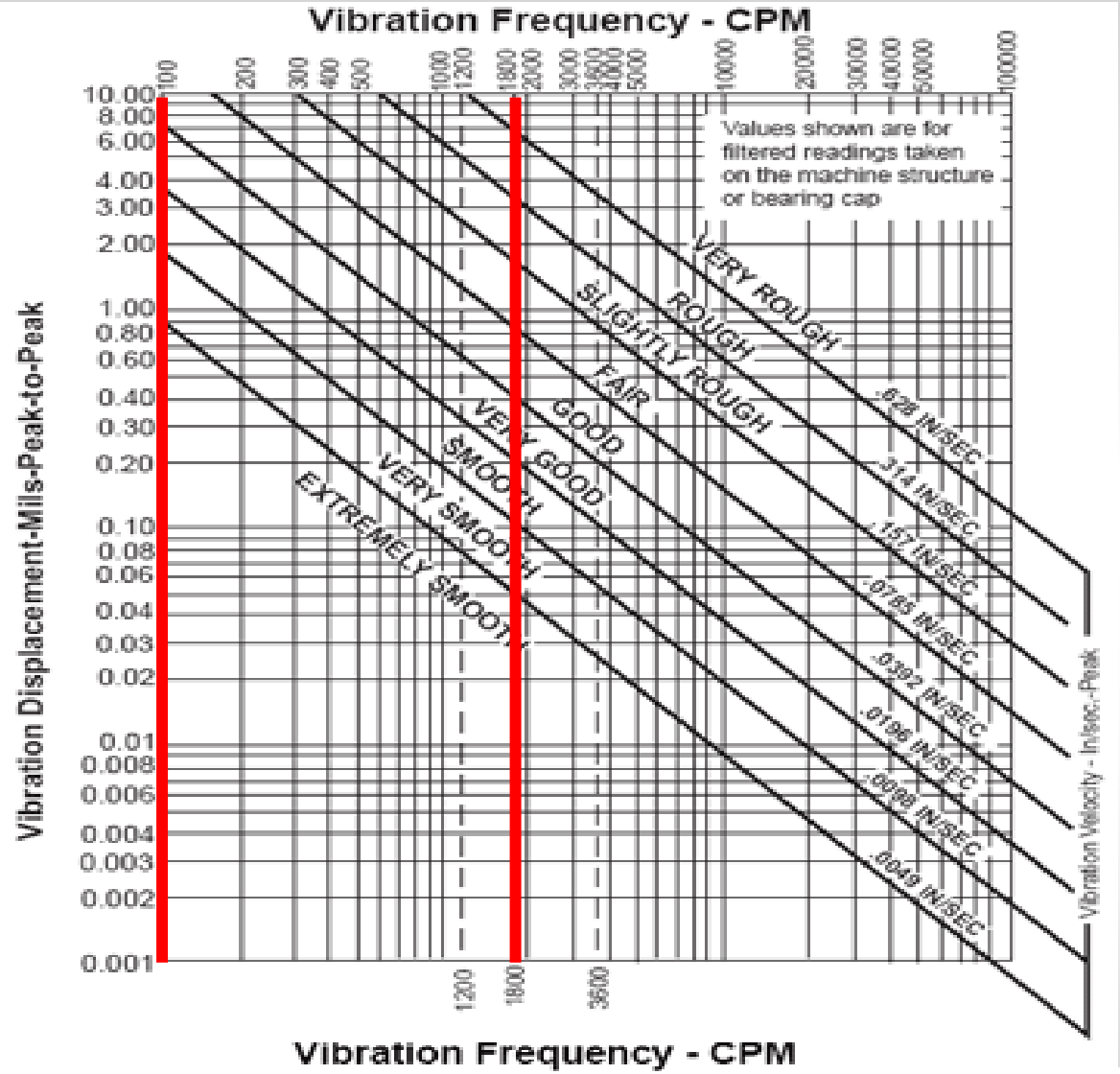


Example Scenarios:

1. **Minor Vibration (Slightly Rough)**
   - Fan Cleaning
   - Alignment/Motor Issue
2. **Significant Vibration (Rough)**
   - Fan Balancing
   - Alignment
   - Mechanical Looseness
3. **Major Vibration (Very Rough)**
   - Fan Replacement
   - Motor Replacement
   - Gearbox Replacement

Gear Box/Motor Issues

Causes:

- Oil system maintenance
- Misalignment
- Bearing wear/failure
- Overloading

Impact:

- Increase Vibration
- Mechanical Failure
- Premature Replacement
- Increase Heat/Noise Generation
- Increase in Parasitic Load

Solutions:

- Vibration Analysis
  - Install permanent sensors for continuous monitoring.
- Realignment
- Bearing Repair/Replacement
- Gearbox Repair/Replacement

ACC Structural Issues

Causes:

- Vibration Resonance
- Wind/Weather Events
- Corrosion
- Fan to Shroud Impacts

Impact:

- Degradation of Structural Integrity
- Misalignment of Rotating Equipment
- Increase Vibration
- Mechanical Failure

Solutions:

- Structural/ Torque Spec Inspections
- Resolve Vibration Issues
- Repair/Replace Damaged Structural Members
- Retrofits

Frequently Asked Questions

How often should vibration monitoring be done?	Quarterly for most units; monthly for critical fans.
What's the ideal lubrication interval?	Motor bearings: every 3–6 months. Gearbox oil: check monthly, change annually or per OEM.
How do you detect imbalance?	Look for increasing vibration at 1X RPM, motor current spikes, and changes in fan noise.
What sensors are best for monitoring fans?	Accelerometers for vibration, RTDs for temperature, current sensors for motor load.
How does wind affect fan performance?	Crosswinds can cause vibration, imbalance, or blade flutter — especially on elevated ACCs.
When should you replace vs. repair a gearbox?	Replace if there's metal in oil, excess backlash, or high noise. Repair if wear is minor.
What causes fan blade cracks?	Fatigue, loose bolts, weather stress, or impact from debris.
What's the cost benefit of PM over reactive repair?	PM reduces total cost by 30–40%, extends asset life, and prevents emergency outages.

Preventative Maintenance Planning

Monthly:
- Visual inspection (blades, guards, oil level)

Quarterly:
- Vibration analysis, bolt torque check

Annually:
- Full System Inspections
- Oil change in gearboxes
- Blade pitch check
- Cleaning (blades, guards, tubes)

Every 3–5 Years:
- Gearbox overhaul or replacement

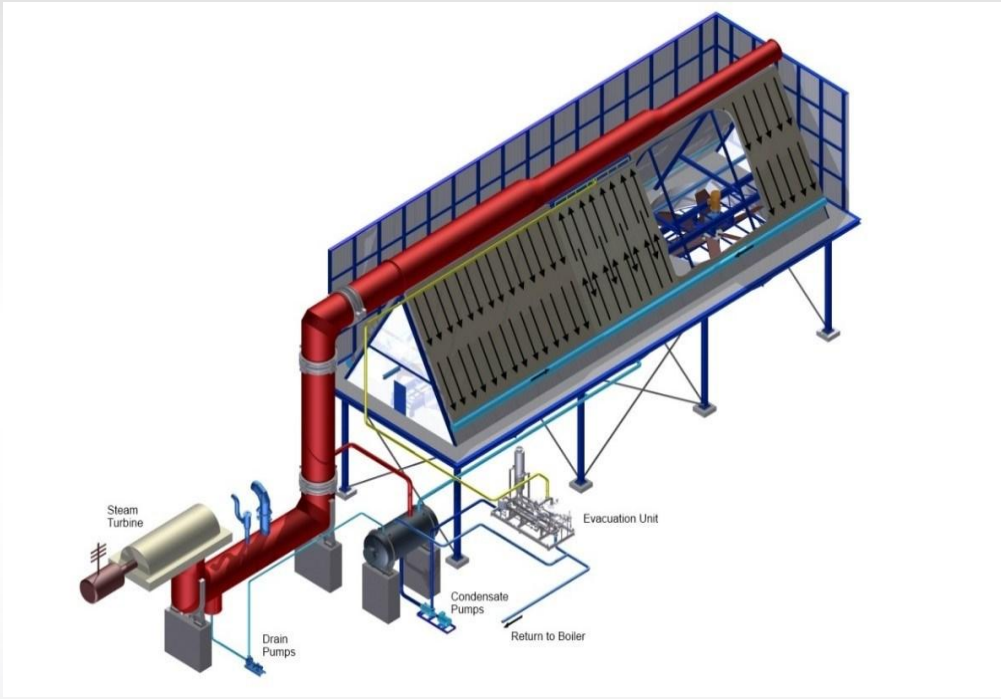
On Condition:
- Replace bearings, balance fans

Advantages of Maintenance Planning

- Reduces unexpected downtime
- Increases component life and reliability
- Improves system efficiency
- Reduces parasitic load
- Enhances safety
- Supports compliance with reliability programs

What Groome Can Provide?

- Preventative Maintenance Planning
- System Inspections
- Vibration Analysis
- Alignments – Fans, Bearings, Gearboxes, Motors
- Gearbox/Motor Replacements
- Bearing/Housing Replacements and Lubrication
- Fan Blade Cleaning and Replacements
- Steam Line, Tube Bundle, and Header Repairs
- Structural Repairs/Replacements
- Painting and Coatings



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