

Post COVID-19 Restarting: Is Your Facility Ready?



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- 1980 – 2010: Bookbinding, Metalcasting, Steelmaking, Machining & Flexible Packaging Industries
 - Operator, Setup, Supervision
 - Maintenance Mechanic
 - Maintenance Supervisor
 - Engineer
 - Engineering & Maintenance Manager
- 2010 – Present: Vice President, Fuss & O'Neill Manufacturing Solutions, LLC



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Cleaning & Decontamination – First!

- Common areas
- Reception areas
- Break rooms
- Conference rooms
- Locker rooms
- Lavatories
- Elevators

Don't forget to configure for social distancing



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While We Were Away...

- Dust settled...
- Stagnant sumps & reservoirs
- Valves, motors, contact not exercised regularly
- Lower temperatures
- No flow in pipes and drains
- Many other non-standard conditions
- Weather
- Lack of operation & attention

How can this affect performance?



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What can cause changes or failures?

- Temperature
- Humidity
- Biologics
- Dust & Debris
- External Factors (Utilities)
- Humans, Animals, Pests
- Aging





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Where to start?

- External Utilities
 - *Electrical power*
 - *Natural Gas*
 - *City Water*
- Internal Utilities
 - *Compressed air*
 - *Chilled/Cooling Water*
 - *Steam*



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Treat A Reopening Like Preventative Maintenance Task

- Clean
- Inspect & Repair
- Lubricate
- Adjust
- Tighten
- Test

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WHAT ASSETS SHOULD WE INSPECT?

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Buildings & Facilities

- Structure
- Windows
- Personnel & Overhead Doors
- Loading Docks/Bays/Levelers
- Fire Protection: Systems, Sprinklers, Extinguishers
- Security Systems/Gates
- Stairways/Elevators
- Walking & Working Surfaces
- Kitchens/Cafeterias/Food Preparation & Storage Areas



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Failure Modes

- Mold, Mildew, Biologics
- Stress, Strain, Fatigue – Leaks, Structural Failure
- Corrosion & Plugging – Rain Leaders & Gutters
- Dirt & Dust
- Drying – Window & Door Seals, Water Damage
- Lubrication – Gates, Hinges



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Exterior/Grounds

- Drains & Catch Basins
- Exterior Lighting
- Fencing
- Parking Lots
- Sidewalks
- Signage
- Curbs





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Failure Modes

- Dirt & Dust – Plugging & Flooding
- Weather & Wind Damage
- Tampering & Vandalism



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HVAC

- Ductwork
- Fans & Blowers
- Pumps
- Air Filtration
- Chillers & Cooling Towers
- Combustion/Heating Systems
- Air Compressors
- Boilers
- Wall units & package heating/cooling units



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Failure Modes

- Animal/Bird Ingress
- Water Quality – Legionella, etc.
- Leakage - Refrigerants
- Stress, Strain, Fatigue – Leaks due to flexing
- Dirt & Dust - Plugging
- Lack of Lubrication – Seized Pumps
- Drying/Cracking – Seals/Tightness



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Electrical Systems

- Transformers & Switchgear
- Exterior, Interior & Emergency Lighting Systems
- Pump & Fan Drives
- HVAC Building Control Systems
- Security Systems
- IT systems
- Standby Generators & UPS



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Failure Modes


- Corrosion & Pitting – Stuck Contactors
- Contamination – Overheated Enclosures/Components
- Power Quality Deterioration
- Water Ingress – Transformer Oil, Generator Oil, Fuel & Coolant
- Dirt & Dust – Arcing
- Aging – Bulbs, Batteries
- Thermal Cycling – Wiring & Terminal Connections



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Plumbing & Piping

- Drains and catch basins
- Stacks & vents
- Traps
- Water heaters
- Meters
- Backflow prevention

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Failure Modes

- Corrosion
- Mold, Mildew, Biologics: Legionella, etc.
- Stress, Strain, Fatigue - Leaks
- Dirt & Dust - Plugging
- Drying – Cracked Seals, Open Traps
- Lack of Lubrication – Seized Pumps
- Cracking
- The list goes on...

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Restoration

- Fix it now wherever possible, or have a good plan to repair promptly
- An extra hour now of repairs will save days later
- An extra dollar now of repairs will save thousands later
- Incorporate inspection & maintenance tasks into your CMMS as periodic PMs
- Consistent & functional supports safe operations!



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STARTING BACK UP



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Best Practices

- Do the Homework First
- Perform Functional Tests One System At A Time
- Utility Quality Affects Everything Downstream
- Power > Controls > Interlocks > End Effectors
- Reference the Benchmarks
- Document New Performance Settings

