













Long Term Care Building Conference

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### **PRESENTERS**

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  - Sales and Business Development
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- Air Quality Consultant (10 years+)
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# AGENDA

- Indoor Air Quality as a public health concern
- HVAC Systems and the "link" with IAQ
- Standards for Indoor Air Quality
- Infection Control Standards Ashley Strong-Deveau



# History...

#### First Call, Because We Can Do It All"

- > Environmental Services
  - > Mould/Fungal Remediation
  - Asbestos Abatement
  - Lead Abatement
  - > PCB Removal
- Residential/Commercial/Industrial HVAC Mechanical Hygiene (NADAC)
- Facility Restoration Emergency/Rebuild IICRC – Fire, Water, Odor, Mould
- Infection Control Guidance
  - > Atmospheric Control
  - Containment Barriers
  - > Negative Pressure
  - > HEPA Filtration
- Fire Stopping



# The simple presence of airborne fungal spores or fragments indoors is not a major cause for concern, unless

- The species and rank order of concentration is significantly dissimilar with outdoor samples
- Potential "high-risk" fungal species were identified
- Fungi will grow until sources of moisture or nutrients are removed
- Effective remediation requires both cleaning and moisture control.



#### Indoor Air Quality as a Public Health Concern

- Occupational hazards associated with indoor air quality are a recent phenomenon.
- Energy-conserving features often include windows that cannot open and thermostat controls that are not adjustable or accessible to building occupants.
- "Modern" buildings often are self-contained environments with temperature, humidity and airflow being controlled by one or more air-handling units.
- Sick-building syndrome and tight-building syndrome.



#### INDOOR AIR QUALITY

- Building design and building management professionals have become more aware of the indoor air quality concerns of owners and occupants.
- RESULT: changes to improve indoor air quality and climate.
- HOW: changes in building designs; improvements in site planning/design; ventilation systems; limit of chemical contamination of air during construction and occupancy of buildings



#### "Maintain to Sustain"

#### Indoor Air Quality as a Public Health Concern

- Energy conservation = construction of "air-tight" buildings.
- Heating, cooling, filtering and delivery of air requires consumption of energy.
- Poorly designed or improperly maintained HVAC systems cost more money to operate.
- Indoor air quality or lack of it is typically associated with the "air" and the HVAC system.



#### **EFFECTS OF INDOOR POLLUTION**

#### **Business**

- Occupants Lost
- Insurance Costs
- Sale/Rent Loss
- Productivity Losses
   Dizziness
- Energy CostsBreathing
- Maintenance Costs
- Renovation Schedules
- Workers Compensation

#### **Humans**

- \* Fatigues
  - \* Headaches
- \* Irritations
- \* Nausea and
- \* Difficulty in
- \* Sickness H1N1



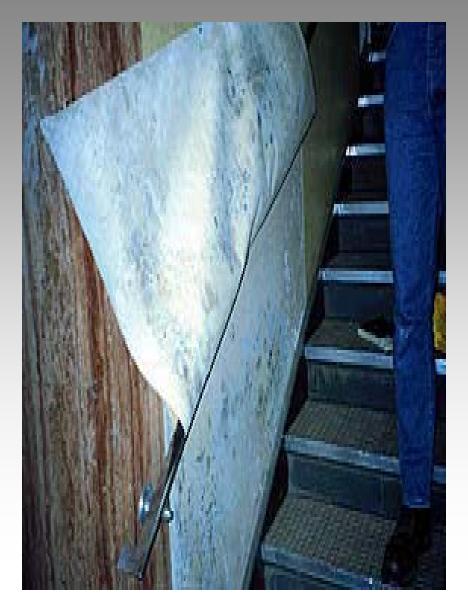
#### **Types of Indoor Pollutants**

- Particulates
  - Asbestos
  - Dust
  - Paper
  - Fibres
- Radionucleotides
  - Radon
- Microorganisms
  - Bacteria
  - Algae
  - Fungi, Mould, Mildew
  - Somatic & Reproductive parts













#### "Maintain to Sustain"

HVAC systems and the "link" with IAQ:

- There is NO direct correlation between indoor air quality test and cleanliness of HVAC Systems
- The results of the air quality test was fine, therefore, the duct system is clean – NO!
- The air quality test does not dictate interior conditions of HVAC systems nor does it determine cleanliness of systems components





#### <u>HVAC Mechanical Hygiene</u> – Identifying Impacts

Potential Air Quality Impacts:

1) Mould Growth







#### **HVAC Mechanical Hygiene** – Identifying Impacts

## Potential Air Quality Impacts: 2) Bacterial Growth



Potential for Legionella spore growth



Bird Droppings at Supply Intake



#### <u>HVAC Mechanical Hygiene</u> – Identifying Impacts

Potential Air Quality Impacts: 3) Interior HVAC Linings





Fiberglass Debris



# <u>HVAC Mechanical Hygiene</u> – Identifying Impacts

Potential Air Quality Impacts:

4) Dust Accumulation







#### **Turning Vanes**



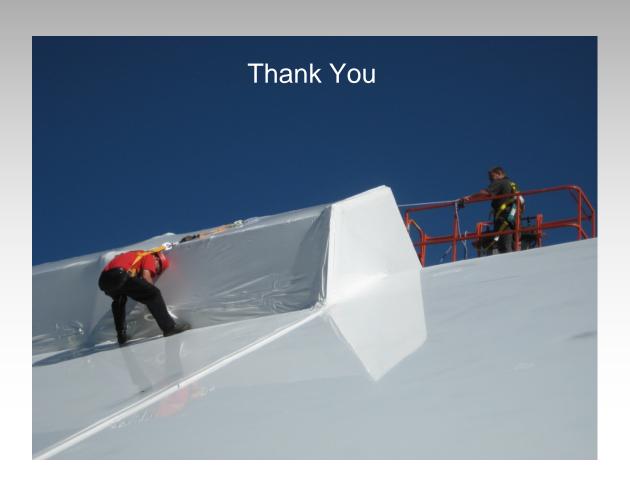


Before/After Cleaning with Brush





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