Infection Control
TRAINING GROUP

ABATEMENT TECHNOLOGIES®
Technologically Advanced Air Purification Products

INFECTION CONTROL PRINCIPLES

CHES MARITIMES

2022 FALL EDUCATON DAY

TRAINING DISCLAIMER

- The presentation today *does not represent or purport to represent* any organization, group, or agency:
  - That may provide specific infection control requirements related to its authority or jurisdiction
- Todays presentation is based upon:
  - General-industry-accepted principles, practices, and guideline related to prevention of nosocomial infection risks to various occupants within health care facilities (“HCF”)

TRAINING DISCLAIMER

- This training program, today, is intended to assist participants today to improve infection prevention and control ("IPAC") in HCFs in specific key areas of changes to the CSA 317.13 and its impact on those areas:
- We also will demonstrate some of the equipment in those key areas, and accepted practices for problem solving some key roadblocks to compliance with best practices.
- We are addressing specific topics in a short time period, and it is not possible to include discussion of everything necessary to ensure a healthy and safe HCF environment.
- Information today must be understood and used only *as a tool* of introduction into the improvements to the 2022 CSA 317.13. Further education, training and study will be required to fully understand the principles and practical applications of the demonstrated infection control practices.

WHO ARE WE

- **Colin Redfern – COO and Head Instructor**
  - Infection Control Training Group
- **Larry Gibbons– National Sales Manager**
  - Abatement Technology
- **David Yeardon– Regional Manager**
  - Abatement Technology
- **Malcolm Redfern – IPAC Technician**
  - Infection Control Training Group

WHAT IS CSA 317.13

- Who here knows what the CSA 317.13 2022 is?
- Who here has taken any of the CSA 317.13 courses or CHES Construction Course?
- Who has taken any CSA/IPAC training courses?
- Who here works with the CSA 317.13 Standard as part of their job duties?

TODAYS TOPICS OUTLINE

- Changes to the CSA 317.13 from 2017 to 2022 and how they impact:
  - Containment and Barrier systems, including mobile systems
  - HEPA- Filtered Equipment
  - Pressure monitoring

- Effectiveness of Using Dust Capture Systems during Dust Generating Work Tasks. – Does this qualify as a containment system?

PRE-FABRICATED CONTAINMENT SYSTEMS

What's their purpose and how can we be effective in their use?

1. Now covered under CSA 317.13 2022 section 6.6.2.2 - section 7.3.3.2.1 – and Annex F
2. Effective barrier to control dust by restricting air travel from clean to dirty:
3. Use as an Anteroom for a quick containment system:
4. How do we set it up and a trick to keep clean with less effort:
5. Other uses – Business Continuity – Lets be innovative

WHAT'S THE STANDARD SAY?

Z317.13-17: Gave us only the definition of what a Containment/Barrier system had to perform at:

- 7.3.3.2.1 – Impermeable barrier, Floor to deck (also 8.2.13)
- 7.3.3.3.1 – SHALL maintain pressure in construction area
- 7.3.3.3.2 – SHALL continuously monitor pressure differential

Z317.13-22: Give us the direction to use Modular systems – including mobile systems:

- 6.6.2.2 - When modular anteroom products are used in lieu of on-site construction, they shall be accepted by the project MDT and shall meet the requirements of Clause 6.6.2.1, Items a) through f). 6.6.2.1 now defines what the above section 7 clauses defined
- 7.3.3.2.1 – b - b) use purpose-built modular wall panel systems with compatible connection hardware with adjustable heights to ensure a tight seal from the floor to the underside of ceiling system…
- Annex F Figure F.2 Notes 3) For modular containment products used in lieu of on-site construction, consult Clauses 6.6.2.1, 6.6.2.2, and 7.3.3.2.1.

AIRE GUARDIAN SHIELD ® DUST CONTAINMENT BARRIER SYSTEM

- Light weight panels
  - Fire resistant
  - Reusable
  - One person set up at times
- No tools required
- Door panels
  - Closers, hardware, hinged
- HEPA exhaust ports
  - Can use differential pressure monitors

AIRE GUARDIAN SHIELD ®

MOST COMMON COMPLAINT FROM USERS?

"It is time consuming and challenging to keep the inside of the barriers hospital clean because of all the channels and grooves."

I have trouble with finding an adequate exhaust path.

Monitoring is a chore – more on this later.

Is this your experience?

WHAT CAN YOU DO IF YOU CAN NOT FIND EXTERIOR EXHAUST?

Population Risk Groups 1 and 2

and

Population Risk Groups 3 and 4

A Tale of Two Conditions

PRACTICAL EXERCISE

Let’s put together some Aire Guardian Shield…

MEASURING PRESSURE DIFFERENTIAL

New CSA 317.13-22

Section 7.3.3.3.2
The constructor shall continually monitor the pressure differential between the construction zone and occupied areas by means of a differential pressure monitoring device connected to a local alarm…

Section 7.3.3.3.3
The differential pressure monitoring device should be connected to a permanently mounted data recorder…

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EXAMPLES OF MEASURING PRESSURE DIFFERENTIAL

Analog Manometer

Digital Data logging Manometer

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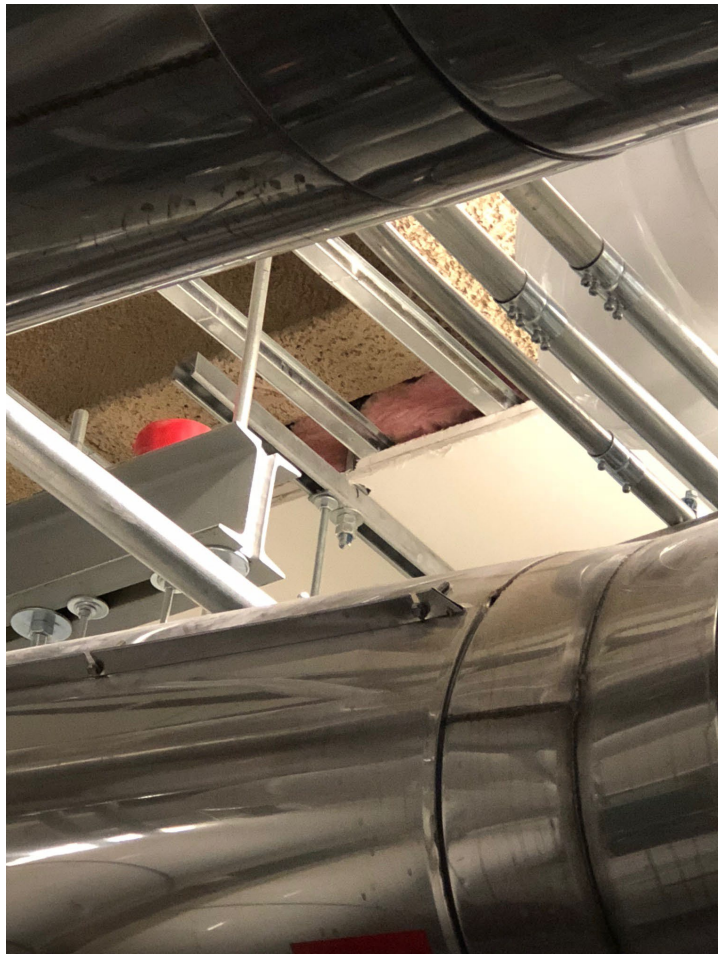
HOWEVER - WHAT HAPPENS WHEN YOU DISCOVER THIS?



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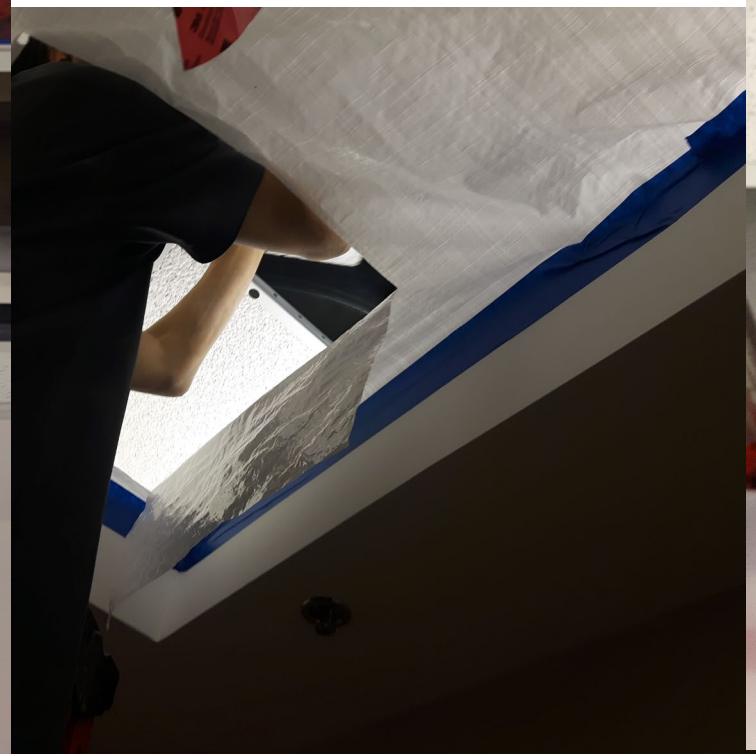
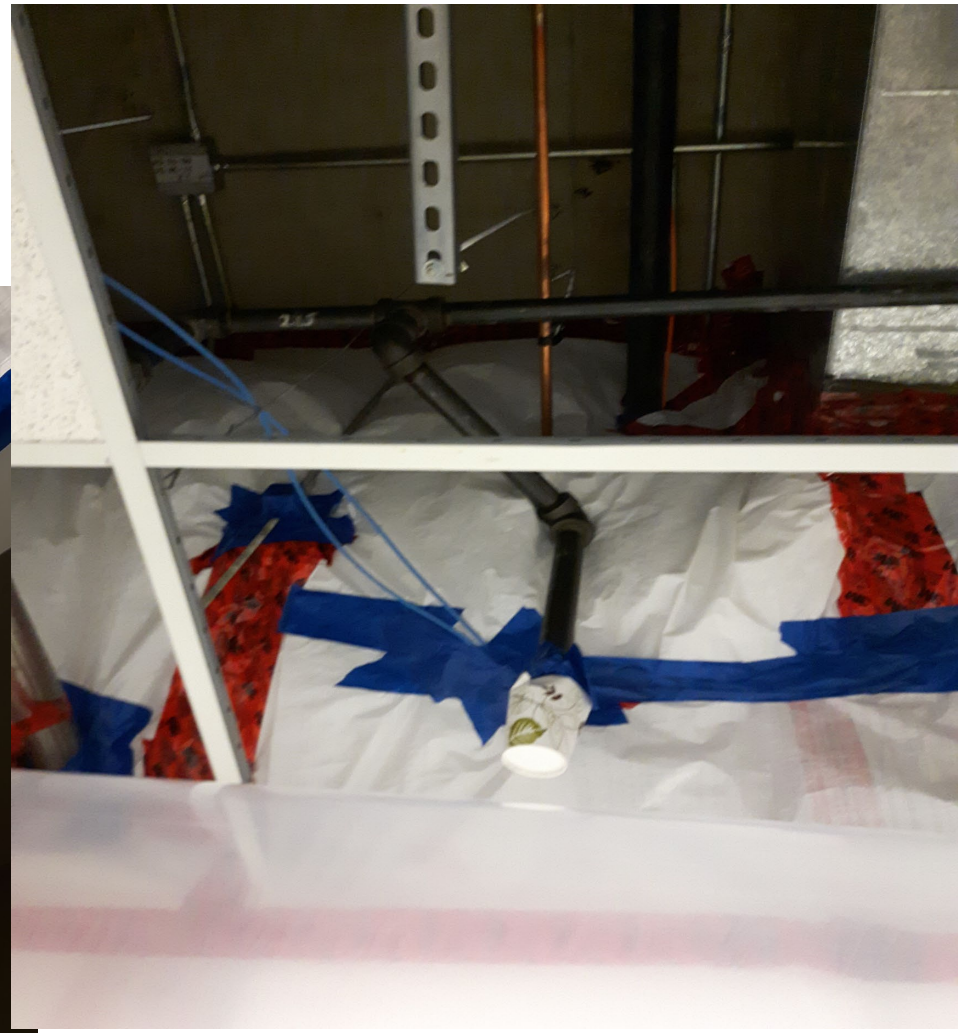
WHERE THERE IS A WILL, THERE IS A WAY





PRACTICAL EXERCISE

Can we seal with out going to true deck????...

REQUIREMENTS AND IMPORTANCE OF PERFORMANCE LEAK TESTING HEPA- FILTERED EQUIPMENT

Requirements

1. Legal Requirements
   a) Canadian Labour Code
   b) New Brunswick Occupational Health and Safety Act
2. Policy
   a) CSA 317.13 – 2022 (New)
   b) Nova Scotia Health Policy

Importance

1. How the HEPA Vacuum works and why
2. Quality Assurance and Control

REQUIREMENTS OF PERFORMANCE LEAK TESTING HEPA-FILTERED EQUIPMENT IS THE LAW

From the Canadian Labour Code - PART X - Hazardous Substances - [SOR/2002-208, s. 43(F)] – Interpretation - 10.1

"HEPA filter means a high-efficiency particulate air filter that has been tested to ensure efficiency equal to or exceeding 99.97% for removal of airborne particles having a mean aerodynamic diameter of 0.3 µm (micrometres) from the air; (*filtre HEPA*)"

From New Brunswick - Regulation 92-106 - under the Occupational Health and Safety Act - SECTION 1 - DEFINITIONS

"HEPA filter" means a High Efficiency Particulate Aerosol filter that is at least 99.97 per cent efficient in collecting a 0.3 micrometre aerosol;"

REQUIREMENTS OF PERFORMANCE LEAK TESTING HEPA-FILTERED EQUIPMENT IS POLICY

From NOVA SCOTIA HEALTH - IC 220.1, Preventative Measures during Construction, Renovation and Plant Maintenance Projects –

- Construction Phase page 6: section 3 Constructors must: "Ensure all workers clean loose dust from the CRM worksite from their clothing and tools prior to leaving any contained CRM workspace, e.g.: using a HEPA filtered vacuum to remove dust from clothing."

"Clean inside and outside the construction area with a HEPA-filtered vacuum, a wet mop, or both at least daily and as necessary to minimize dust at the site"

AND

- Appendix A: Definitions and Abbreviations: "HEPA (high-efficiency particulate air) filter: an air filter with an efficiency of 99.97% in the removal of airborne particles 0.3 µm or larger in diameter. (CSA Standard Z317.1 S3-12, p. 17)"

REQUIREMENTS OF PERFORMANCE LEAK TESTING HEPA-FILTERED EQUIPMENT IS POLICY

CSA 317.1 S6.6.4.1

"CAHU's used for dust mitigation and the maintenance of differential in construction zones shall be performed leak-tested and verified at least every 12 months by a competent third party."

Note:

1. "EACO DOP/PAO Testing Guidelines provides a methodology for testing HEPA filter integrity in CAHU's **(and HEPA vacuums)"**
2. If A HEPA vacuum is being used as a CAHU testing could need to be more frequent – To be determined by MDT **(Abbreviated from CSA by authors)**

CSA 317.1 S6.6.4.2

Goes on to prescribe how the leak test shall be performed and sites three standards:

1. IEST RP-CC034.3
2. NSF/ANSI 49
3. ISO 14644-2

REQUIREMENTS OF PERFORMANCE LEAK TESTING HEPA-FILTERED EQUIPMENT IS POLICY

CSA 317.13 -2022

Performance Leak test(ing) is mentioned almost a dozen time in the new standard with new prescriptive language that applies to vacuums, CAHU's, and other HEPA equipment.

Sections 6.6.4.2 through **6.6.4.10** state:

- All HEPA equipment must be performance leak tested and what specific performance leak testing process must be used. (in reference to CAHU's)
- When performance leak testing must occur
- How to maintain the integrity and when that integrity has been compromised of the HEPA units performance.
- How to inspect, and maintain CAHU's and related HEPA equipment

Section 6.6.4.11 speaks to the performance test exception and **section 6.6.5.1** and section 6.6.5.4 speak to transportation of HEPA equipment.

Specific to Vacuums **section 6.6.3.6** states that all HEPA vacuum's are to held to the same testing standard as CAHU's

HOW THE HEPA FILTERED EQUIPMENT WORKS AND WHY

PRACTICAL EXERCISE

Let’s look closer at a HEPA Vacuum and CAHU

Vs

Construction Vacuum

IMPORTANCE OF PERFORMANCE LEAK TESTING HEPA- FILTERED EQUIPMENT IS QUALITY ASSURANCE AND CONTROL

- Lets properly define quality assurance vs. quality control

QUALITY ASSURANCE

consists of that "part of *quality management* focused on providing confidence that *quality requirements* will be fulfilled." The confidence provided by quality assurance is twofold: internally to management and externally to government agencies, regulators, users, certifiers, and third parties.

QUALITY CONTROL

is that "part of *quality management* focused on fulfilling *quality requirements*."
Inspection is the process of measuring, examining, and testing to gauge one or more characteristics of a product or service and the comparison of these with specified requirements to determine conformity.

PERFORMANCE LEAK TESTING A FINAL WORD

In the end what does due diligence mean to you and your fellow HCF workers?

Do you go the best level of confidence or do you stay one step above the rules?

ARE DUST CAPTURE TOOLS HEPA?

Effectiveness of Using Dust Capture Systems during Dust Generating Work Tasks

EFFECTIVENESS OF USING DUST CAPTURE SYSTEMS DURING DUST GENERATING WORK TASKS

The Best practice is prevention and what is more preventative than controlling at the source?

The Question is how much dust are we actually capturing?

If we do not, we can cause several problems!

WRAP UP! CSA 317.13 2022 HAS ADDRESSED

1. Pre-fabricated containment systems can be efficiently and effectively used not only for maintenance and construction but in a pinch can have other applications too.
2. Performance leak testing HEPA- filtered equipment is required to ensure we are providing the best protection for HCF occupants.

Future:

Dust Capture Systems used during dust generating work tasks are very effective and a best practice for controlling dust.

THANK YOU, LET'S DISCUSS FURTHER

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