



# Airways

**Hamilton Chapter No. 037**

<http://www.vaxxine.com/ashrael>

*American Society of Heating, Refrigeration and Air Conditioning Engineers*

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*Our 46th Year*

September 2004

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**Tuesday, September 14, 2004**

## **Gas Sensor Technology and Applications**

This month's presentation will cover gas detection principles, including hazardous gas properties, sensor technologies, applications and installation considerations.

Feature Speaker:

**Jack Fitzmaurice, P. Eng.**  
**O'Dell Associates Inc.**

Jack Fitzmaurice is a Partner at O'Dell Associates Inc. located in Burlington, ON. O'Dell Associates has been involved in gas detection since beginning in 1987. Jack has several years of application knowledge and significant hands-on experience with gas monitoring equipment.



**Royal Hamilton Yacht Club**  
**North End of McNab, On Hamilton Harbour**

**5:00 pm – Social Hour & Technical Session**

**6:00 pm – Dinner & Business Meeting**

**7:00 pm – Technical Program / Speaker Presentation**

*Chapter Members - \$30.00 • Guests - \$40.00 • Students - \$15.00 • Meal Plan - \$135.00*



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## Industrial Process Air Cleaning

Summary report from ASHRAE Forum 2 at the recent ASHRAE Annual General Meeting, Sun June 26th, 2004 by George Menzies, ASHRAE Member.

Moderator of this Forum was Ron C. Troxell of United Air Filter and a Member of TC 5.4

### Highlights:

1. Plants today no longer have fixed processes – many changes every year so portability is now the design route for all new dust cleaning equipment.
2. No new bag house systems are now being designed or installed and in fact many existing systems are being converted to pleated filters – note – more info requested on this from a member of TC 5.4.
3. Recirculated systems don't require EPA approval which takes too long to acquire, so most installations are going to recirculation where legislation permits (Note! In MN, CA, MI – recirculation systems now need a permit)
4. No standard test methods in place to allow comparison of one supplier's system performance with another dust collector, hence occupational exposure is only criteria to be met... and no guideline or standard exists for industrial facilities – both in the near or distant future. ASHRAE guides only apply to commercial and educational applications and industrial facilities like front offices, environmentally controlled foreman offices, labs, lunchrooms, etc. In USA and likely other countries, shop floors, warehouses, assembly plants, etc have no standard to meet other than workers are not to be put at a health risk – comfort is not a factor. An odour in plant may be OK but same odour in office is not acceptable. Plus plants have infinite numbers of contaminants yet to be assessed as to risk, so how can a standard be developed. Note! At the recent CRC in Toronto, Hamilton chapter presented a motion for ASHRAE to accelerate their development of standards for assessing similar industrial cleaning systems – was passed by all delegates unanimously.
5. Maintenance of installed collectors is terrible – most have visible leakage and other problems (e.g. monitors are disconnected to avoid shutdowns) – more than ½ installed units are virtually non-functional within months of commissioning. However in union shops, their contracts can influence performance – insist units function as designed. Also, the designer should declare what are the risks to the owner prior to commissioning/start-up if the units not maintained as installed.

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6. New systems need independent commissioning and a report to owner so weaknesses in installation and operation as well as liability issues are identified early – takes liability away from the designer/manufacturer.
7. New systems – need to assess overall impact on interior environment – may be insignificant – or otherwise... For example re-circulating minor levels of oil mist may impact any painting operations.
8. Oil Mist – major health risk - need careful design – the OEL reduced from 5mg/m<sup>3</sup> to 0.1 or 0.2 mg/m<sup>3</sup> (50 times less!!!!).

**Re-circulate Industrial Exhaust – Why?**

1. Major energy savings – depends on climate
2. No stacks to outside – No emission requirement to meet
3. No EPA approval – permits take a long time to get – too long in today's marketplace
4. Oil Mist – takes a very efficient system otherwise mist contaminates plant – painting impossible
5. Re-circulate - allows smaller systems – more flexible to move – less ductwork to move, less HP to operate, less disruption if system fails; components less costly to replace
6. An Owner's prerequisite – most now insist on recirculation regardless of impending legislation....willing to deal with local government if concerns develop.

7. Make-up Air – Less make-up air needed plus plant under less negative pressure – i.e. this brings in less dirty cold/hot humid outside air
8. Smaller systems – less ductwork, more competition usually available so less costly to install as well

**When Recirculation Unacceptable**

1. When contaminant is carcinogenic – asbestos, some adhesives with isocyanates
2. Hot process – hot air may add to unhealthy work area
3. Wet process – moisture may create problems in other plant activities e.g. scrubber
4. Gas release – gas such as carbon monoxide, or solvents, or welding fumes may create health issue – check with acceptable TLV/OEL
5. Nuclear dust or radioactive releases – can't use re-circulation
6. Family Factor!!! – Would you let your kids work in plant or do you consider it too unhealthy

Contacts:

Wayne Lawton - Arcadis - Detroit, MI  
[wlawton@arcadis-us.com](mailto:wlawton@arcadis-us.com) (excellent consultant for auto plants)

Gerhard Knutson - Knutson Inc. - Edina, MN (principal author of the Industrial Ventilation Manual)  
[gerhardknutson@knutsonventilation.com](mailto:gerhardknutson@knutsonventilation.com) (knowledgeable ventilation engineer)

George Menzies, *Student Activities Chair 04/05 and Chapter Historian*

## ***Message from the Editor***

Welcome to the first issue of Airways for our 46th year!

As was indicated in the June issue, Airways will now be posted as a .pdf file on the Hamilton ASHRAE Chapter web site at <http://www.vaxxine.com/ashrae/>. Each issue may be viewed and, if you wish, printed using Adobe Acrobat or Adobe Acrobat Reader. Issues will also be "archived" to allow ongoing access.

This issue is pretty sparce and is being distributed a little later than normal (I'll blame it on the Labour Day long weekend). Look for more content next issue.

Allan Antcliffe, Airways Editor 04/05

## ***Upcoming Events of Interest***

### **RSES International Annual Conference**

Sept. 30 – Oct. 2, 2004

Calgary, AB

[rses@successexpressmp.com](mailto:rses@successexpressmp.com)

### **ISH North America**

Oct. 14 – Oct. 16, 2004

Boston, MS

[ishna@usa.messefrankfurt.com](mailto:ishna@usa.messefrankfurt.com)

### **ASHRAE Winter Meeting (including AHR Expo)**

Feb. 5 – Feb. 9, 2004

Orlando, FL

[www.ashrae.org](http://www.ashrae.org)

## 2004 – 2005 Meeting Schedule

This year's meeting schedule is summarized below. Except for some special events, all meetings will be held at the **Royal Hamilton Yacht Club, at the north end of McNab St. on the Hamilton Harbour** (If you need a map, go to our web site at <http://www.vaxxine.com/ashrae/>). During the 5:00 pm to 6:00 pm Social Hour, a half hour "technical session" is presented on the basics of a particular subject relating to our industry. If the session sounds interesting to you, feel free to attend. These sessions are presented by our members and are open to any one wishing to share his or her expertise. New products and/or services are presented informally via a "table top demonstration". After dinner, the main topic of the evening is presented by the "feature speaker". If you are interested in presenting a tech. session, booking table top space to promote your product and/or service or, if you have a suggestion for a feature subject and/or speaker, please contact Nathan Martin, our Programs Chair. There is a charge of \$75.00 for "table top demonstration" space and this includes a business card ad for two months.

<b>2004 – 2005 ASHRAE Hamilton Chapter Program Activity</b>				
<b>Date</b>	<b>Theme</b>	<b>Technical Session 5:00 pm – 6:00 pm</b>	<b>Table Top Demonstration</b>	<b>Feature Speaker</b>
September 14, 2004	Programs	George Menzies, P. Eng.  <b>Confined Spaces</b>	O'Dell Associates /Critical Environmental Technologies  <b>Gas Detection Hardware</b>	Jack Fitzmaurice, P. Eng. O'Dell Associates  <b>Gas Sensor Technology and Applications</b>
October 12, 2004		(to be determined)		
November 9, 2004		(to be determined)		
December 11, 2004 (Saturday)		Family Christmas Event – <b>Lunch and Tour of Niagara Falls Aviary</b> (details to follow)		
January 11, 2005		(to be determined)		
February 8, 2005		(to be determined)		
March 8, 2005		(to be determined)		
April 12, 2005		(to be determined)		
May 10, 2005		Tentative Program – <b>Tour of Toyota Motor Manufacturing Canada</b> (Cambridge facility)		
June , 2005	Research	<b>Annual Golf Tournament at Whirlpool Golf Club, Niagara Falls</b>		

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