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**TC/TG/TRG MINUTES COVER SHEET**

(Minutes of all TC/TG/TRG Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

**TC/TG/TRG NO.:** TC 5.9 **DATE:** May 27, 2013  
**TC/TG/TRG TITLE:** Enclosed Vehicular Facilities  
**DATE OF MEETING** January 29, 2013 **LOCATION:** Dallas, TX

VOTING MEMBERS PRESENT	YEAR APPT'D - TERM ENDING	VOTING MEMBERS ABSENT	YEAR APPT'D - TERM ENDING	EX-OFFICIO (CM) MEMBERS AND ADDITIONAL GUEST (G) ATTENDANCE
Robert Smith Mark Colino Igor Maevski Anthony York John Murphy Michael Keating Ahmed Kashef Bill Lampkin Dharam Pal (NQ)	2008 – 2014 2008 – 2014 2011 – 2015 2011 – 2015 2010 – 2014 2012 – 2016 2011 – 2015 2012 – 2016 2010 – 2014	Mohammad Tabarra (NQ) Greg Sanchez Asesh Raychaudhuri	2009 – 2013 2008 – 2014 2010 – 2014	Tom O'Dwyer (CM) Josiah Wiley (CM) Kevin Chang (CM) David Newman (CM) Fred Shortts (CM) Andrew Louis (CM) George Gamble (CM) James McCarron (CM) Jeff Tubbs (CM) Johnny Andersson (CM) Ray Sinclair (CM) Sarah Straus (CM) Yuan Li (CM) Don Guan (CM) Michael Almaguer (PM) Tony Moskalik (PM) Thomas Doebeli (PM) Jason Labosh (PM)

**DISTRIBUTION**

***(All Members of TC/TG/TRG plus the following):***

**TAC SECTION HEAD:** Gus Mastro

**COMMITTEE LIAISONS:** Kimball Ferguson (Special Publications), John Hogan (Standards), Alan Veeck (Program), Fred Kohloss (RAC Research), Michael Circosta (Chapter Technology Transfer), Julian De Bullet (Professional Development), Samuel Cummings (ALI), Dave Meredith (Handbook); Claire Ramspeck (Staff Liaison); Michael Vaughn (Research & Technical Services)

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.**

Technical Committee TC 5.9 - Enclosed Vehicular Facilities

**Igor Maevski called the meeting to order at 3:40 pm.**

There are 8 out of 10 voting quorum members. The voting member attendance met requirements for a quorum.

Minutes of the previous meeting were distributed for review and comments. Motion – John Murphy motion to accept minutes as approved. Ahmed Kashef seconded motion.  
8 of 8 voted yes, motion carried.

Chairman's remarks presented by Igor Maevski **Section 5.0 Information Announcements:**

- a. Hightower Award Recipient – Lucas Hyman, TC1.10
- b. ASHRAE encourages TC to review ASHRAE Code of Ethics published on the ASHRE web page
- c. 50% Draft Refrigeration Commissioning Guide is under review
- d. A new input field "Employment Discipline" added to ASHRAE BIO Online Input Form. Update your BIO
- e. TC Master Calendar Available through Google.
- f. New Multidisciplinary Task Group was formed "Cold Climate Design Guide Development"
- g. Looking for volunteers for paper review and programs assembly.
- h. Speaker Registration fee \$95
- i. Denver Conference will have a special emphasis on research
- j. Website updates are critical for communication and operation of the committee
- k. Subcommittees meetings via Conference Calls and Web Meetings are welcome

**Program Sub-Committee Report:** (Mark Colino)

Seminar presented at Dallas – Mark Colino, Robert Smith, George Gamble made presentations – well received, about 40 people.

**2013 Winter Meeting – Dallas, TX**

DA1 (Seminar) – "Design Energy Efficiency for Jet Fans"; Chair: Igor Maevski; Presenters: Robert Smith, Mark Colino, George Gamble; Co-sponsor: TC5.1; re-titled as Seminar 08 in Dallas Technical Program; completed as scheduled at 11:00 AM on January 27, 2013; approx 40 attendees.

**2013 Annual Meeting – Denver, CO (Seminar abstracts & Forum proposals due Feb 11, 2013)**

DE1 (Seminar) – "Special Ventilation Issues in High-Speed Rail Tunnels"; Chair: Nadr Shahcheraghi; Presenters: Ian Ong, Marc Morgan; Co-sponsor: TC5.1

DE2 (Seminar) – "Sustainable Environment for Enclosed Vehicular Facilities & Related Design Guidance"; Chair: Anthony York; Presenters: Mohammad Tabarra, TBD; Potential Co-sponsor: TC2.8

DE3 (Forum) – "Boundary Conditions for Tunnel Ventilation Modeling"; Chair Tom O'Dwyer; Potential Co-sponsor: TC4.10

DE4 (Seminar) – "Aerodynamics and Ventilation in Vehicular Facilities"; Chair: Kai Kang; Presenters: TBD; Potential Co-sponsor: TBD

*Denver Conference Tracks: Research Summit; Integrated Project Delivery; Building Energy Modeling versus Measurement and Verification; Mile-High Efficiency & Equipment; Renewable & Alternative Energy Sources; HVAC&R Systems & Equipment; HVAC&R Fundamentals & Applications*

**2014 Winter Meeting – New York, NY (Conf Paper Abstracts due March 15, 2013; Seminar abstracts & Forum proposals due Aug 12)**

NY1 (Conference Paper Session) – "Retrofit of Existing Tunnel Ventilation Systems"; Chair: Igor Maevski; Presenters: Robert Smith, David Newman, Yuan Li; Co-sponsor: 5.1

NY2 (Seminar) – “Ventilation Design for Road Tunnels Based on Risk Analyses”; Chair: Ahmed Kashef; Presenters: Alex Debs, TBD; Co-sponsor: TC5.1

NY3 (Conference Paper Session) – “Innovative Station Ventilation”; Chair: Mark Colino; Presenters: Tom O’Dwyer, Jeffrey Tubbs, Jim McCarron, Andrew Louie; Co-sponsor: TC5.6

*New York Conference Tracks: HVAC&R Systems & Equipment; HVAC&R Fundamentals & Applications; Environmental Health through Indoor Environmental Quality; Building Information Systems: Integrating Technology for Control, Management, Optimization & Efficiency; International Design; Building Performance and Commissioning for Operation & Management; Hydronic System Design for Efficiency and Large Buildings; Tall Buildings: Performance Meets Policy*

#### **2014 Annual Meeting – Seattle, WA (Submittal dates TBA)**

SE1 (Seminar) – “Commissioning of Tunnel Ventilation Systems”; Chair: Nader Shahcheraghi; Presenters: Bill Lampkin, TBD; Potential Co-sponsor: TBD

SE2 (Conference Paper Session) – “Enclosed Vehicular Facility Projects in Seattle Area”; Chair: Robert Smith; Presenters: TBD; Potential Co-sponsor: TBD

SE3 (Seminar) – “Natural Ventilation Applications in Enclosed Vehicular Facilities”; Chair: Mark Colino; Presenters: TBD; Potential Co-sponsor: TBD

SE4 (Conference Paper Session) – “Ventilation Shaft Spacing for High-Speed Rail Applications”; Chair: Nader Shahcheraghi; Presenters: TBD; Potential Co-sponsor: TBD

SE5 (Conference Paper Session) – “The Influence of Fire Protection Systems on Tunnel Ventilation”; Chair: Ian Ong; Presenters: TBD; Potential Co-sponsor: TBD

#### **2015 Winter Meeting – Chicago, IL (Submittal dates TBA)**

No topics scheduled yet.

#### **Future Program Topics**

- Can Wireless Control Improve Ventilation Performance (Champion: Steve Presser)
- Air Cleaning for Tunnels (Champion: Igor Maevski)
- Extreme Events Ventilation Requirements (Champion: Greg Sanchez)
- Tunnel Ventilation Velocity Profile on Egress Calculations (Champion: Ahmed Kashef)
- Matrix Development to Achieve LEED Certification in Station Design (Champion: Mohammad Tabarra)
- Best Practices for Enclosed Vehicular Facilities (Champion: Tom O’Dwyer)
- Normal Ventilation Standards for Tunnel Ventilation (Champion: Igor Maevski)
- Platform Screen Doors (Champion: Greg Sanchez)

#### **ASHRAE Journal Sub-Committee Report: (Thomas O’Dwyer liaison for ASHRAE Journal)**

Tom has recommended and encourage for our TC 5.9 to get publications published into the Ashrae Journal, to help promote our TC.

#### **Handbook Sub-Committee Report: (Handbook – Igor Maevski – Acting). Summer 2014 approving date for the chapter.**

Igor discussed vacancy of the subcommittee chair.

Kai Kang is no longer wants to be involved.

Greg Sanchez was to step in, but has now declined.

Igor – If we have no major changes to Handbook, we should at least update the references.

Andrew Louie has volunteered to be the Handbook Sub-Committee chair person.

Action 1 – Igor to show Andrew how to find the electronic version of the current handbook.

Action 2 – Need to have a schedule to update the needed changes. Andrew

Action 3 – Need to have conference meetings before next meeting – June 2013 – to make progress so that the TC can be in a position to vote on the changes at the next meeting. Andrew

- Chapter revisions to be approved by next winter meeting.
- If no changes to the Chapter we need to confirm this to Handbook liaison and submit renewed written permission for reusing material copyrighted by others

Time is limited, so focus on reference updates and table updates, encouraged.

Any ideas for updates should be sent to Andrew at [louiea@pbworld.com](mailto:louiea@pbworld.com) and copy to Igor Maevski at [igor.maevski@jacobs.com](mailto:igor.maevski@jacobs.com)

### Research Sub-Committee Report: (Ahmed Kashef)

#### Announcements regarding research.

- RTAR limits increased to \$200K, before additional executive approval is required.
- Possible Research Topic - Life Cycle of a Tunnel Ventilation System OR What can be done to make the systems last longer OR Asset Management – Anthony York
- RTAR – if you prepare the work statement, then you can NOT bid on project.

#### 1) RTAR Topic “Pressure transient in rail tunnels and underground stations”

The definition of “High Speed” was discussed, and how it relates to North America.

Action 1 – Need to clarify the definition of the speed. Ahmed Kashef to work with Nader Shahcheraghi.

Action 2 – Ahmed to speak with Nader to consider the test done in Korea.

Action 3 – Ahmed to survey or review knowledge to determine if there is a limit on the speed of the train, as it goes into the tunnel.

#### 2) RTAR Topic “Interaction of fans and fixed fire fighting systems”

Dr. Igor Maevski is responsible for this topic.

The RTAR is very close for submittal with minor updates needed.

#### 3) RTAR Topic “Sustainability ratings of Subway stations ventilation systems design”

Action 1 – Andrew volunteered to work with Mohamed Tabarra, to move RTAR forward.

#### 4) RTAR Topic “Performance of Jet Fans in Tunnel Niches”

Action 1 – Igor to email the Howden Article to subcommittee members

Action 2 – For next meeting, June 2013, need to determine if this RTAR Topic will proceed, or be removed, depending on whether the Howden article answers the questions.

Table 1: Status of the TC5.9 RTARs (prepared by Ahmed Kashef)

RTAR Title	Description	Objective	Lead Author/s	Initiation Date	Status
Pressure transient in rail tunnels and underground stations	Trains traveling through tunnels create a “piston effect” by compressing the air ahead of them, while dragging air behind. Moreover, trains entering portals create shock waves and trains approaching or departing stations impact passengers’ comfort.	Achieving a level of comfort and safety in a cost effective manner.	Paul Miclea & Nader Shahcheraghi	2010	<ul style="list-style-type: none"> <li>• The RATR is up for discussion by the members.</li> <li>- other experiments</li> <li>- limits of train speed entering the tunnels</li> </ul>
Interaction of fans and fixed fire fighting systems	While it is commonly recognized that there is a potential for an adverse effect of strong air flows generated by the jet fans on the performance of fixed fire fighting systems, there seems to be very little specific design guidance available. BS 7346-7 recognizes the issues, but again does not provide any detailed recommendations (such as minimum spacing / max flow velocity at sprinkler head etc.)	Develop design guidelines	Igor Maevski	2011	<ul style="list-style-type: none"> <li>• Submitted for consideration in the Atlanta/RAC Dec 2012 meeting</li> </ul>
Sustainability ratings of Subway stations ventilation systems design	Investigate the impact of subway station ventilation design on the environment in the pursuit of passenger comfort and indoor air quality.	Develop a tool/metric for evaluating performance (energy and comfort) of ventilation systems in transient environment (subway stations).	Mohamed Tabarra	2011	<ul style="list-style-type: none"> <li>• Missing information</li> <li>• information on project schedule/cost estimates (≈12 months &amp; 100-120K)</li> <li>• thermal comfort definition</li> <li>• regional metrics (North American)</li> <li>• consult LEED and other procedures</li> <li>• transient environment conditions</li> </ul>
Performance of jet fans in tunnel niches			John Murphy & Robert Smith	2010	not yet started

*Submitted RTAR 1630*

*major cost and cost for re-eval.*

*Jeff will help # Andrew a draft*

*Dist to be in it by Igor. there is a work done for this topic done Igor will distribute for draft of the viability of the RTAR*

New RTAR ideas:

1. Alternative Fuels (electric/hydrogen)
2. Using platform screen doors as part of ventilation systems
3. Life cycles of fire protection systems and ventilation systems
4. Electric Cars in tunnels for ventilation requirements and dealing with potential fires – Andrew Louie

**Membership Sub-Committee Report: (Tom O’Dwyer)**

Membership – Tom O’Dwyer  
12 voting include 2 non quorum members  
4 new Corresponding Members – information to Tom.

**Webmaster – David Newman**

There are some pages that are blank or obsolete and should be updated.  
Action 1 – Send to David Newman at email address here. [David.Newman@hatchmott.com](mailto:David.Newman@hatchmott.com)

If anyone would like to provide updates for the website please forward to David.  
Website Address: [www.tc59.ashraetcs.org](http://www.tc59.ashraetcs.org)

Member’s only section – David to provide login and password. Include in minutes.  
Login: vent4life  
Password: *Contact David @* [David.Newman@hatchmott.com](mailto:David.Newman@hatchmott.com)

**Liaison Reports:**

**TC 5.1 – John Murphy**

Forum on Wednesday morning on FEG – Fan Efficiency Grades  
Dept of Energy is imposing efficiency limits – 45 days to review 79 page document, 108 items. Over on Feb 21, 2013. 9:00 to 16:00 in Washington, DC.  
*Website (from Joe Brooks) -*  
[http://www1.eere.energy.gov/buildings/appliance\\_standards/rulemaking.aspx/ruleid/25](http://www1.eere.energy.gov/buildings/appliance_standards/rulemaking.aspx/ruleid/25)

**TC 5.6 – Josiah Wiley**

1. Permanent something on lights.
2. RTAR on sprinklers to be reviewed by members to determine if they will co-sponsor

NFPA 130 – Igor Maevski  
New document due around August 2013.

**NFPA 502 – Igor Maevski**

All proposals voted on. Fire resistant cables requirements had to be modified due to UL dropping listing on fire resistant cables.

**PIARC – Ahmed Kashef**

Started meeting cycle for 2013, San Diego, South America, next meeting in England  
Design fire report has been published.  
Online tool to be available for engineers later this year.  
Get links to PIARC and add to minutes.

**APTA** (No Report – no one present)

### **Mining – George Gamble**

Society of Mining Engineers Meeting Feb 24 to 27 Denver Mining Ventilation Symposium. A number of papers are to be presented.

NIOSH Organization due a lot of studies for diesel particulate. If anyone interested contact George Gamble.

### **Old Business**

None

### **New Business and Comments (Igor Maevski):**

1. Need a subcommittee to discuss / review / develop guidelines / standards for tunnel ventilation requirements under normal operating conditions.
  - a. 100 cfm per linear foot transverse tunnel is a rule of thumb – per John Murphy
  - b. Members for New Subcommittee - David Newman, Mark Colino, Igor Maevski, Michael Almaguer, Robert Smith, Kevin Chang , Jim McCarron; Yuan Li
    - i. Action 1 – Igor Maevski to develop a draft table of Contents for the new Standard for further discussions in Denver
    - ii. Action 2 Chairman needs to apply to have the additional time added to meeting times for Denver meetings to discuss the Standard.
2. To create a standard, need to recommend to the standards group .
  - a. SPC – Standard Projects Committee – Need Title, Subject, Chairman.
  - b. Ashrae will ask if research is required to develop the Standard. – per John Murphy.
3. Mark Weber, Ashrae – [mweber@ashrae.org](mailto:mweber@ashrae.org) – Assistant Manager for Standards, American – (678) 539-1214 – Atlanta, Georgia – contact details from Anthony York.

### **Adjournment:**

Igor Maevski asked for a motion to adjourn.

Ahmed Kashef made a motion to adjourn the meeting; seconded by Bill Lampkin.

TC 5.9 Vice Chairman Igor Maevski adjourned the meeting at 5:40 pm.

Next meeting scheduled for Denver, CO on June 25, 2013.

*Recorded by Michael Keating, TC 5.9 Secretary*