



**MINUTES
ASHRAE ASSOCIATE SOCIETY ALLIANCE
DALLAS, TEXAS
JANUARY 28, 2013**

I. Call to Order

The 2013 Winter Meeting of the ASHRAE Associate Society Alliance (AASA) was called to order at 4:25pm by Kent Peterson, Chair in the Houston Ballroom A/B of the Sheraton Dallas Hotel. Those in attendance are listed in **Attachment A**.

II. AASA Members

A. AASA Representatives

Mr. Peterson was pleased to announced that most of the organizations has updated their official AASA Representative and only a few remain missing, (see **Attachment B**). He asked the Associate Societies continue to submit updates for their organization to ASHRAE staff (jkirksey@ashrae.org). Mr. Peterson also asked the representatives to add their e-mail address to the sign in sheet.

B. New AASA Members

Mr. Peterson recognized the Iranian Society of Heating, Refrigeration and Air Conditioning Engineers (IRSHRAE) and Sociedade Brasileira de Controle de Contaminaco (SBCC) as the newest Associate Society members which brings the total to 57 AASA.

III. AASA Subcommittee Reports

A. Website Subcommittee

Mr. Peterson reported the following corrections and improvements to the AASA website:

- Updated the date format in News to international format YYYY/MM/DD
- Updated the Calendar with international events on the ASHRAE calendar

AI 1 The Website Subcommittee would like ASHRAE Staff to add the following links and updates to the AASA website as shown below.

- Add link to the AASA website to the ASHRAE Bookstore on AASA Resource page
- Add direct link to the AASA website from the ASHRAE website without a intermediate page
- Add link to AASA website that will go from page-to-page and include the current meeting agenda, history of the AASA and post past meetings minutes in PDF



format

- Direct global AASA map to link to each country and the AASA societies' websites
- Update the interactive map to show AASA societies

AI 2 Mr. Peterson stated he will send an e-mail to the AASA representatives requesting any updates, events of interest for the calendar, recent news and shared resources such as technical or research papers.

B. Program Subcommittee

Mr. Peterson reported the topics that were submitted by the Program Subcommittee to ASHRAE's meeting section were not accepted because they did not fit the Dallas program. The topics were:

- Combining Tradition with Technology (Seminar)
- International Green Building Codes (Forum)
- Low Carbon Cities (Seminar)

The ASHRAE Annual Conference in Denver is seeking papers on current research worldwide. The topics are:

- Core HVAC&R applications and systems
- Integrated Project Design
- Energy Modeling
- Building Efficiency Performance

The ASHRAE 2014 Winter Conference in New York will have an international design track that will address new and innovative design strategies to meet various environmental elements, geography and cultures. ASHRAE will seek papers to share this information globally.

AASA Program Subcommittee's topic ideas are:

- Differences in International Green Building Rating Systems
- International Case Studies on High Performance Buildings
- Low Cost Local Practices: Integrating Traditional Passive Design with Technology for High Performance Building Design
- Measurement and Verification Protocols in Various Countries
- The Role of the Smart Grid for Net Zero Energy Buildings
- Transitioning from Prescriptive to Performance-Based Standards
- Emerging Technologies for High Performance Buildings
- Energy Efficiency & Renewable Energy Sources for Cold Chain Energy Supply

AASA Programs Subcommittee recommends seminars on:

- International Case Studies on High Performance Buildings
- Differences in International Green Building Rating Systems (UK, India, Europe,

- Malaysia, Lebanon, Singapore)
- International Local Practices: Integrating Traditional Passive Design with Technology for High Performance Building Design

AI 3 As the New York 2014 technical program is an international track, Mr. Peterson stated that it will be very good for the AASA to participate. He asked the AASA members to send in their recommendations on seminars as soon as possible for submission to the meetings section.

Mr. Peterson announced that the AASA are looking for people who would like to chair a session and pull people together who are interested in writing on the above topics. He asked that if anyone is interested to contact Ashish Rakheja at: ashish.rakheja@aecom.com.

C. Future Projects Subcommittee

Mr. Peterson reported the subcommittee would like to do at least two more surveys on: government activities relevant to HVAC in different countries; building energy performance; and building indoor comfort data.

AI 4 The first survey on government activities will be sent to members in February with a draft white paper of the data to be ready for the Denver conference in June. Some of the questions on the survey will be:

- What are the top three government-related issues impacting your members?
- What government or private-sector organization develops mandatory codes and voluntary standards governing the HVAC&R work in your country?
- What entity licenses HVAC&R engineers within your country?

Mr. Dimitrios Charalambopoulos (TEE) questioned if the entity licenses concerned HVAC&R engineers only. Mr. Peterson responded, the interest is not focused on architects, but the survey questions may need to be expanded.

Mr. V. Krishnan (ISHRAE) asked if the questions on the survey will have descriptions to determine what members are looking for. Mr. Peterson replied questions will be specific for the topic on the survey. He explained, the first survey is on government activities and the next two are on energy performance in buildings and thermal comfort in buildings. Mr. Peterson will ask for volunteers to help with the format of the surveys.

D. ASHRAE International Activities Update

Mr. Peterson asked Society President Watson about government activities going on within ASHRAE. President Watson responded that in the past ASHRAE was known as a North American organization. ASHRAE wants to provide the data to do a better job on what we have done throughout the world with the help of our AASA members. ASHRAE had YEA Leadership Weekend in Colombo, Sri Lanka to develop young members in ASHRAE and getting them involved. Mr. Watson explained there were discussions about project management and developing careers. He stated something similar could be done with the members of the AASA in working together to help the AASA grow.



Mr. Peterson replied one of the goals is to continue growing the AASA technical knowledge base found on the Resource page of the AASA website.

IV. Associate Society Announcements and Presentations

A. Real Skills Europe – Andy Pearson (IOR)

Mr. Pearson gave a presentation on the Refrigerant Emissions and Leakage Skills for Europe, also known as, the Real Skills Europe (RSE) project. The project was developed by five European countries consisting of educational institutions, teachings, membership and research organizations in 2009 (**Attachment C**). The idea was to achieve reductions in refrigerant leakage through improved awareness, education and training.

RSE has a website www.realskillseurope.eu with an e-learning program consisting of materials used on a day to day basis and notes on different reasons for leakage and how to fix it. The program is in four training modules consisting of findings, data, e-tools and guides. Though the program was developed in Europe it can be applied to anywhere in the world. The program modules are in English, but can be translated to other languages. To have a program translated to the language of a specific country or to become a collaborator. contact IOR for more information.

B. 11th REHVA World Congress – CLIMA 2013 – Karel Kabele (STP)

Mr. Kabele announced the 11th REHVA World Congress CLIMA 2013 will take place in Prague, Czech Republic on June 16-19, 2013 (**Attachment D**). There will be 734 papers presented with most submissions coming from Japan. The papers will vary on presentation topics related to the congress motto “Energy efficient, smart and healthy buildings.” He announced, there will be scheduled sightseeing tours and social events taking place during the congress. For more information visit www.clima2013.org.

Mr. Peterson announced REHVA has invited the AASA members to a cocktail reception immediately following the meeting at the Sheraton Atrium.

C. AIRAH – Draft Discussion Paper – Kent Peterson

Mr. Peterson reported the Australian Institute of Refrigeration Air Conditioning & Heating (AIRAH) has requested comments from the AASA members on their draft discussion paper, “Transition to Low Emission HVAC&R Issues and Solutions” to be submitted by February 8, 2013.

D. ACRECONF 2013

ACRECONF 2013 will take place on February 8-9, 2013 in New Delhi, India. There will be 100 presenters with 30 of the presenters coming from outside of India.



E. ACREX 2013

ACREX 2013, sponsored by ISHRAE, India's international exhibition and conference will take place on March 7-9, 2013 in Mumbai, India. ASHRAE, CAR and REHVA will have organized workshops from March 5-9, 2013.

F. 11th – IEA Heat Pump Conference

The 11th IEA Heat Pump Conference will take place in Montreal, Canada on May 12-16, 2014. The call for abstracts deadline is April 2013.

G. 20th – Pakistan HVACR Exhibition and Conference

The 20th Pakistan HVACR Exhibition and Conference will take place March 1-3, 2013 in Karachi, Pakistan. The organizers are the Pakistan HVACR Society Karachi Chapter and ASHRAE's Pakistan Chapter.

H. 49th – AICARR International Conference 2014

The 49th AICARR International Conference will take place on February 26-28, 2014 in Rome, Italy. The conference will be devoted to designing and retrofit of historical and existing buildings.

I. CIAR 2013

The XII CIAR 2013 Conreso Ibero-Americano de Aire Acondicionado y Refrigeracion will take place on July 22-24, 2013 in Cartagena, Colombia.

J. SIRAA 2013

The XII SIRAA 2013 Salon Internacional de Refrigeracion, Aire Acondicionado, Calefaccion y Ventilacion will take place on September 4-6, 2013 in Buenos Aires, Argentina.

K. FEBRAVA 2013

The 18th International Refrigeration, Air Conditioning, Ventilation, Heating and Air Treatment Fair will take place on September 17-20, 2013 in Sao Paulo, Brazil.

L. CR-Expo 2013

The 24th session of the China Refrigeration Expo will take place on April 8-10, 2013 in Shanghai, China. There will be approximately 1000 exhibits at the CR Expo which is organized by the Chinese Association of Refrigeration (CAR.)

M. 11th IIR Gustav Lorentzen Conference on Natural Refrigerants

The 11th IIR Gustav Lorentzen Conference on Natural Refrigerants will take place on August 31 – September 2, 2014 in Hangzhou, China. The objective of this conference is



to present natural refrigerants in place of CFC, HCFC and HFCs. The organizer of this conference is the Chinese Association of Refrigeration (CAR.)

V. Other Business

- AI 5 Mr. Peterson reported that he was asked to write an article for the ASHRAE Insights and/or the ASHRAE e-Society newsletters about the AASA. The article will cover the purpose and goals of the AASA members as well as who they are.

A. Next Meeting

Mr. Peterson announced the next informal AASA meeting will be in Denver, CO, June 24, 2013 at the Sheraton Denver Downtown. The next AASA formal meeting will be in New York City, NY, January 20, 2014.

B. Chairman's Remarks

Mr. Peterson commented when he first started as chair to the AASA five years ago it was a challenge, but the AASA has made a lot of progress, especially with the website. He asked the AASA members to participate at the subcommittee meetings on Sunday at the winter conference. In addition he asked if anyone would like to volunteer for the programs subcommittee to let him know.

C. Adjournment

Mr. Peterson adjourned the 2013 Winter Meeting of the ASHRAE Associate Society Alliance at 5:30 pm.

The REAL Skills Europe Project - Best Practice and Training in Refrigerant Containment

David Cowan
IOR Sustainability Project Manager

AREA Meeting, London, 7 October 2011

www.realskillseurope.eu

REAL Skills Europe (RSE)



- Refrigerant Emissions And Leakage Skills for Europe
 - Refrigerant Containment
 - Leonardo da Vinci Transfer of Innovation project (Oct 2009 – Sept 2011)
 - Ongoing activity funded by project partners
 - EU development of UK REAL Zero (Refrigerant Emissions And Leakage -> Zero)
 - Vocational Education and Training (VET)
 - Framework for multilateral co-operation on refrigerant containment

Project Aims



- Sharing of technical expertise
- Stakeholder engagement
- Development of multilingual training materials
- Accessible e-learning training solution
- Consistent level and quality of training across EU partners
- Website to share and access practical guides and supplementary information

Project Outputs - RSE Toolset



- ✓ Comprehensive website
- ✓ Free downloads (self registration required)
 - ✓ Guides for technicians, managers and owners
 - ✓ F Gas log and emissions/ cost calculator
- ✓ Training in leakage reduction skills
 - ✓ e-learning
 - ✓ Site survey & inspection methodology
 - ✓ EU wide assessment, certification process
 - ✓ Website listing of REAL Skills Europe practitioners
- ✓ Multilingual (7 languages)

www.realskillseurope.eu

Accessing the GNs & Calculator



Language English



Lifelong Learning Programme

Refrigerant Emissions and Leakage Skills for Europe

a route to more sustainable cooling and heating

- home
- about us
- work packages
- links
- events
- downloads
- faqs
- contact us
- partner workspace
- stakeholders
- stakeholder workspace
- training
- real skills europe toolbox**
- site map

Please provide your email to subscribe for updates

subscribe

REAL Skills Europe Toolset (English Language)

Download the REAL Skills Europe Guidance Notes and Carbon and Cost Calculator from this page. The downloadable toolset comprises the following documents and software (click on the links to view or download each item):

Guidance Notes

- [GN1: Guide to good leak testing](#)
- [GN2: Illustrated guide to 13 common leaks](#)
- [GN3: Designing out leaks: design standards and practices](#)
- [GN4: Leakage matters: the service and maintenance contractor's responsibility](#)
- [GN5: Leakage matters: the equipment owner's responsibility](#)
- [GN6: F-Gas Logs and Emissions Calculator](#)
- [TMG: Training module guide: e-learning](#)

Software Tools

Carbon Emissions/Cost Calculator and F-Gas Logging Tool

This is based on an Excel Workbook, using macros to navigate and copy data between sheets. There are two versions, one for Excel 97-2003 the other for Excel 2007-2010. Please ensure that you download the correct version for your computer. The downloads are ZIP files and contain a blank workbook and an example workbook which has been populated with some data. The files should be extracted and save to your computer hard drive. When creating a new workbook for a site or system you should always start from the blank workbook.

You must self register on the website in order to download these items

Login

You are logged in

[Logout](#)

News

The REAL Skills Europe Toolset will launch in July. Register for the newsletter and August 30th Jun 2010

April Newsletter Download the RSE here 21st Apr 2010

RSE E-Learning July During July a new leakage free! 14th Apr 2010

September Newsletter Download the RSE here 15th Sep 2010

REAL Skills Europe starts e-learning WP3 planning


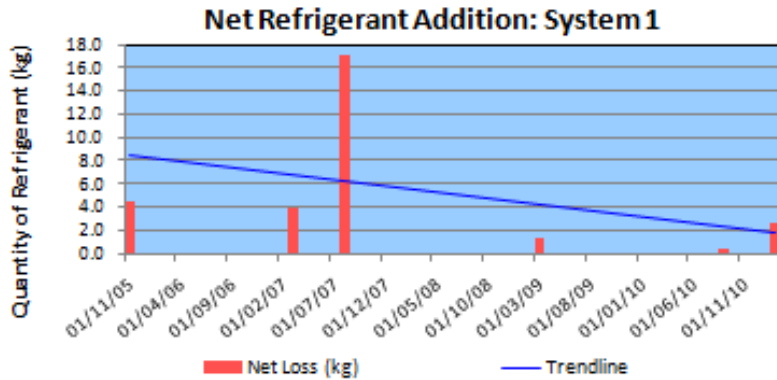
Guidance Notes and Training Guide



www.realskillseurope.eu

Menu – click to navigate (macros must be enabled)							
F-Gas Log Data Sheet	System 1	System 2	System 3	System 4	System 5	Print	Save and Exit
Carbon Emissions and Costs	System 6	System 7	System 8	System 9	System 10	Total Refrigerant Use for	Data Sheet

System 1:

 System 1: Refrigerant Leakage, Carbon Equivalent Emissions and Cost Calculations			
Site and System Details			
Site Name:	REAL Skills Europe		
Site Address:	Europe		
Postcode:	EU	Site Telephone Number:	01234 567890
System/ Plant Name:	Chiller	System/ Plant Reference	RSE1
Location of System/ Plant	Outbuilding		
Operator Contact Details (inc. phone/ e-mail):	RSE contact@realskillseurope 01234 567890		
Cooling Loads Served:	HVAC		
Refrigerant Type:	R134a	Refrigerant Quantity (Entrained Mass)	50
Refrigerant GWP:	1300	Typical Refrigerant Cost (£/kg):	20.4
System Thermal Cooling Capacity (kW):	100	Receiver Capacity (litres):	10
System Electrical Rating (Voltage/Current or	50kVA	Fixed Leak Detection (record type if	No
System/ Plant Manufacturer	Chiller Company	Year of Installation:	2005
Summary of Refrigerant Additions and Removals			
Total Refrigerant Additions (kg):	50.4		
Total Refrigerant Removals (kg):	20.6		
Net Refrigeration Loss (Total Refrigerant Additions Minus Total Refrigerant Removed) (kg):	29.8		
Percentage of System Charge Lost (Fraction of Entrained Mass) (%):	59.60		
First Record Date for Additions & Removals (dd/mm/yy):	05/11/2005		
Last Record Date for Additions and Removals (dd/mm/yy):	16/02/2011		
Reporting Period (Years):	5.28		
Carbon Equivalent Emissions and Costs:			
Repairs		Emissions	
No. of Minor Repair Additions:	5	Total Direct CO2 Equivalent Emissions (Tonnes):	38.7
No. of Major Repair Additions:	1	Direct CO2 Equivalent Emissions Per Annum (Tonnes):	7.3
Total No. of Additions:	6	Projected CO2 Equivalent Emissions Over Next 10 Years (Tonnes):	73
Estimated Costs		Comparable Emissions	
Cost of Replacement Refrigerant (£):	608	Total Direct CO2 Equivalent Emissions Resulting from Refrigerant Losses Recorded for a 5.2 Year Period are Equal to Those for Travelling 344,919 Passenger Kilometres in an Airliner on a Long Haul Flight.	
Estimated Cost of Repairs (£):	5,880		
Estimated Cost of Downtime (£):	1,152		
Estimated Cost of Carbon Tax (£):	541		
Total Cost of Refrigerant Loss (£):	8,181		
Projected Cost of Refrigerant Loss Over Next 10 Years (£):	15,482		



RSE Emissions and Cost Calculator

- Excel 97-2003 and 2007-10 versions
- Macro based



Education and Culture DG
Lifelong Learning Programme

Log sheet – refrigerant additions and removals



Menu - click to navigate (macros must be enabled)

F-Gas Log Data Sheet	System 1	System 2	System 3	System 4	System 5	Print	Save and Exit
Carbon Emissions and Costs	System 6	System 7	System 8	System 9	System 10	Total Refrigerant Use for Site	Data Sheet
Back to Main Menu	System Details	Refrigerant Additions	Leak Tests	Follow-Up + Repair Actions	Automatic Leak Detection Systems		

System 1:

Refrigerant Additions and Removals

Additions and Removals of Refrigerants:

Date (dd/mm/yy)	Technician/ Company	Amount Added (kg)	Amount Removed (kg)	Net Loss (kg)	Type of Repair	Reason for Addition or Removal (note faulty components and record repair actions or what was done with recovered refrigerant)
05/11/2005	Tech 1/ RSE	18.0	13.5	4.5	Minor	Condenser leak (faulty brazed joint) Repaired. Refrigerant re-used
18/03/2007	Tech 1/ RSE	4.0		4.0	Minor	Leaking flare joint - tightened to correct torque
09/08/2007	Tech 2/ RSE	22.0	5.0	17.0	Major	Compressor housing cracked - replaced compressor
05/03/2009	Tech 1/ RSE	1.4		1.4	Minor	Leaking Schrader valve (missing cap). Core tightened and capped.
06/09/2010	Tech 2/ RSE	0.3		0.3	Minor	PRV replaced during routine leak test
16/02/2011	Tech 3/ RSE	4.7	2.1	2.6	Minor	Faulty Service valve (leaky gland). Replaced



REAL Skills Europe Training



- Refrigerant containment and leakage reduction skills

- Four e-learning modules
- Self study, classroom delivery or combination
- Online assessments (3 modules)
- Site survey assessment (module 4)
- CPD certificates (English language)
- Languages – Dutch, English, Estonian, French, German, Greek, Polish
- Enrol for e-learning via RSE website
- Training companies can apply to deliver the RSE training



www.realskillseurope.eu



How RSE training builds on F-Gas Training



F-Gas (EC 303/2008)

- Mandatory
- Find/ fix leaks
- Categories 1 – 4



REAL Skills Europe VET

- Voluntary
- Prevent leaks, provide advice
- Additional skills (F-Gas +)
- Refrigerant management
- Site surveys and advice
- Tools and templates
- Good practice in
 - design and installation
 - service and maintenance



Education and Culture DG

Lifelong Learning Programme

Skills Training Matrix

F-Gas - RSE - EN13313



	Design	Pre-assembling	Installation	Putting into Operation	Commissioning	Operating	In-service Inspection	Leakage Checking	General Maintenance	Circuit Maintenance	Decommissioning	Removing Refrigerant	Dismantling	Calculating the Environmental and Financial Impact of Leakage	System Audit and Analysis	Use of software analysis tools	Leak Prevention
F-Gas Certification EC 303/2008 (Category 1 and 2)		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓				
REAL SKILLS EUROPE e-learning (Modules 1-4)	✓		✓	✓	✓	✓	✓	✓		✓				✓	✓	✓	✓
	Skill areas listed in pr EN 13313 (competence of personnel)													REAL SKILLS EUROPE - additional containment skills			

e-learning Training Modules



1. Environmental, cost and legal aspects of refrigerant leakage
2. Reducing leakage through appropriate maintenance and service
3. Minimising leakage – good practice for design, installation and commissioning
4. Reducing leakage through site-specific surveys and advice

e-learning Topic Page



(RSE_01) Environmental, Cost and Legal Aspects of Refrigeration Leakage

You are logged in as David Cowan: Student ([Return to my](#))

i-NET LMS ▶ RSE_01

[Return to my](#)

Administration



My courses

- ✿ (RSE_01) Environmental, Cost and Legal Aspects of Refrigeration Leakage
- ✿ (RSE_02) Reducing leakage through appropriate maintenance and service
- ✿ (RSE_03) Minimising Leakage - Good Practices for Design, Installation and Commissioning
- ✿ (RSE_04) Reducing Refrigerant Leakage through Site Specific Surveys and Advice
- ✿ (RSE_de_03) Minimierung von Leckagen - Gute

Topic outline

Info

Press <F11> to ensure that your entire screen will be used.
You can also zoom out by pressing <CTRL> <MINUS>.
(Can be usefull when the vertical resolution of your screen is less then 1000px)

1 E-learning Course

- 📁 Environmental, Cost and Legal Aspects of Refrigerant Leakage

2 Appendix

General Guidance

- 📄 GEN 1 - Glossary (6 january 2010)
- 📄 GEN 2 - Fluid Uses (25 august 2009)
- 📄 GEN 3 - Markets & Equipment (14 july 2009)
- 📄 GEN 4 - Relevant Legislation (6 january 2010)
- 📄 GEN 5 - Refrigerant Quantity (14 july 2009)

RAC

- 📄 Leaflet (28 july 2009)
- 📄 RAC 1 - Overview (1 july 2009)
- 📄 RAC 2 - Usage (16 june 2009)
- 📄 RAC 3 - Key Obligations (8 february 2010)
- 📄 RAC 4 - Getting Started (16 june 2009)
- 📄 RAC 5 - Guide & Facts (8 february 2010) PDF

Online Use

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e-learning 'Rich Content'

Environmental, Cost and Legal Aspects of Refrigerant Leakage

Shut-off and ball valves

Likely causes:

- Wear of the packing gland between the valve body and spindle shaft as it becomes compacted with age and use.
- Overheating during installation.
- Caps not fitted.

Solutions:

- Ensure that the gland is tightened.
- Wrap the valve with a damp rag while brazing.



**Always cap valves –
most leaks occur at
uncapped valves.**

Generic Information about Common Leak Points



e-learning Assessment

7

Marks: 1

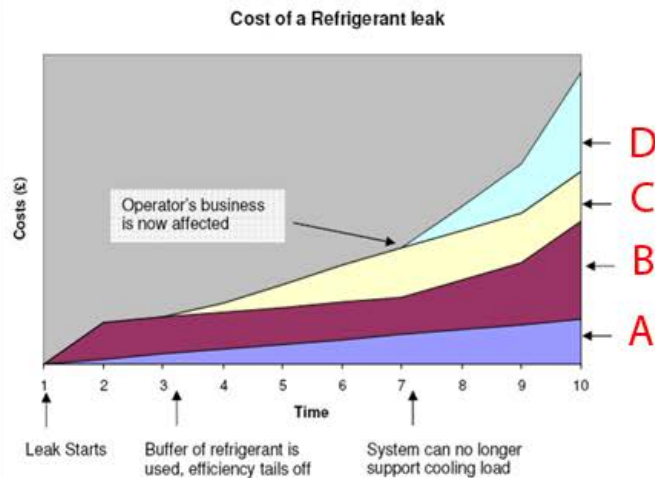
Under the F Gas Regulation what does the term "hermetically sealed" mean?

Choose one answer.

- ☐ a. A system in which all refrigerant containing parts are made tight by welding, brazing or a similar permanent connection which may include capped valves and capped service ports that allow proper repair or disposal and which have a tested leakage rate of 1.
- ☐ b. A system in which all refrigerant containing parts are made tight by welding, brazing or a similar permanent connection and which has a tested leakage rate of less than 5 grams per year at the maximum allowable pressure.
- ☐ c. Any system which contains no flared or other mechanical joints and not Schrader type valves, and which is labelled "hermetically sealed".
- ☐ d. Domestic fridges and integral commercial appliances.

8

Marks: 1



In the above figure, to which costs do the labels A-D refer?

D	<input type="text" value="Choose..."/>
A	<input type="text" value="Choose..."/>
B	<input type="text" value="Choose..."/>
C	<input type="text" value="Choose..."/>

The REAL Skills Europe Register



- Listing of individuals who can offer advice and guidance on leakage reduction to others:
 - Experienced RAC engineer (EN 13313:2010 or equivalent national qualification)
 - EC 303/2008 Category 1 certificate
 - Complete all 4 REAL Skills Europe e-learning modules, pass assessments under exam conditions (Gold CPD)
- Benefits:
 - Right to use the RSE logo and forms
 - Recognition of skills and environmental awareness
 - Website listing as practitioner/ adviser

www.realskillseurope.eu

RSE project results to date (Jul-Oct 2011)



- Public launch (English language) 4 July 2011
- Public launch (other languages) Sept - Oct 2011
- Website:
 - 21,000 page views
 - 1,500 downloads
- e-learning Training:
 - Over 550 registered users (English language)
 - ~200 active users (e-learning and assessment)
 - >100 online assessments passed

RAC COOLING INDUSTRY AWARDS 2011

AWARDS HEADLINE SPONSOR



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Real Skills Europe:
Institute of Refrigeration,
London South Bank University
& International Partners

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www.realskillseurope.eu

11th REHVA World Congress & 8th International Conference on IAQVEC

Invitation to CLIMA 2013 Congress

16.–19. 6. 2013
Prague Congress Centre
Czech Republic

„Energy Efficient, Smart and Healthy Buildings“



BASIC FACTS

✓ Term

16.-19.June 2013

✓ Location

Prague, Czech Republic

✓ Organiser

Society of Environmental Engineering

www.stpcr.cz

GUARANT International

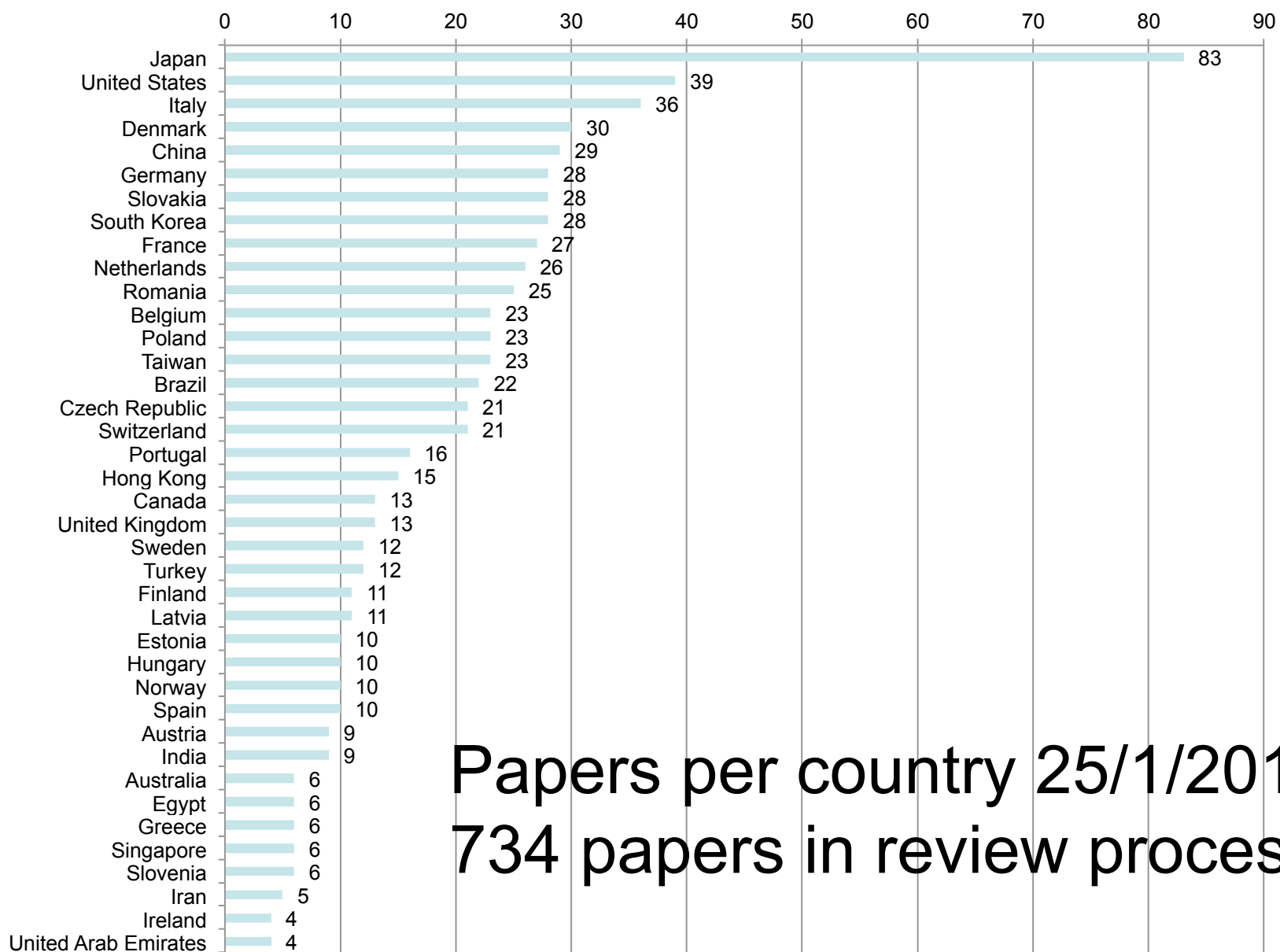
www.guarant.cz

✓ WEB

www.clima2013.org

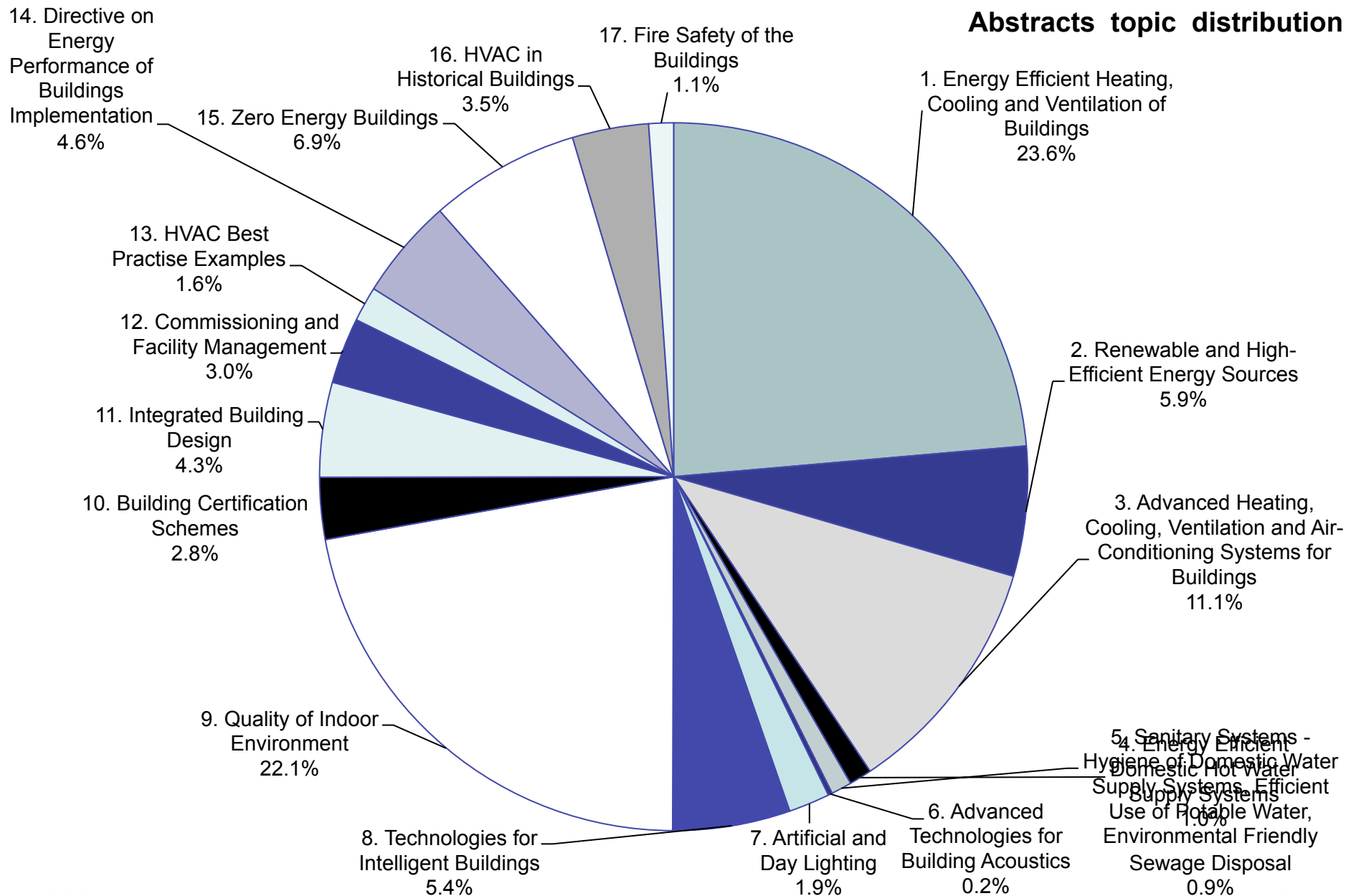
HISTORY

Year	City	Papers
1975	Milano	
1980	Budapest	
1985	Copenhagen	400+
1989	Sarajevo	400
1993	London	229
1997	Brussels	151
2001	Naples	300
2005	Lausanne	300
2007	Helsinki	480
2010	Antalya	517



Papers per country 25/1/2013
734 papers in review process

Abstracts topic distribution





CONGRESS THEMES

- ✓ Energy Efficient Heating, Cooling and Ventilation of Buildings
- ✓ Renewable and High-Efficient Energy Sources
- ✓ Advanced HVAC Systems for Buildings
- ✓ Energy Efficient Domestic Hot Water Supply Systems
- ✓ Sanitary Systems – Hygiene of Domestic Water Supply Systems, Efficient Use of Potable Water, Environmental Friendly Sewage Disposal
- ✓ Advanced Technologies for Building Acoustics
- ✓ Artificial and Day Lighting
- ✓ Technologies for Intelligent Buildings
- ✓ Quality of Indoor Environment
- ✓ Building Certification Schemes
- ✓ Integrated Building Design
- ✓ Commissioning and Facility Management
- ✓ HVAC Best Practice Examples
- ✓ Directive on Energy Performance of Buildings Implementation
- ✓ Zero Energy Buildings
- ✓ HVAC in Historical Buildings
- ✓ Fire Safety of the Buildings

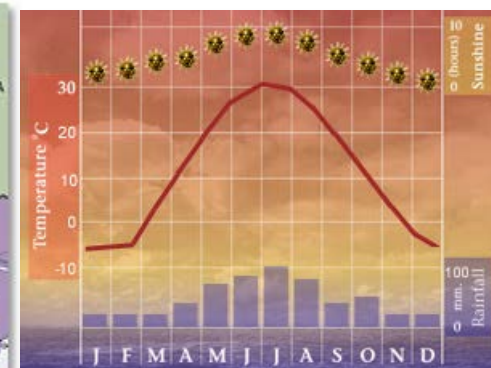


CZECH REPUBLIC

Facts



- **Member State of the EU**
- **Year of EU entry:** 2004
- **Political system:** Republic
- **Capital city:** Prague
- **Total area:** 78 866 km²
- **Population:** 10.5 million
- **Currency:** Czech koruna
- **Religion:** Roman Catholic 39%, atheist 30%, Protestant 5%, Orthodox 3%
- **Time difference** GMT +1
- **Language:** Czech





PRAGUE CONGRESS CENTRE

Venue for CLIMA 2013

The congress will be held at the Prague Congress Centre (PCC), www.kcp.cz, which is ideally located near the city centre with a panoramic view of Prague Castle. It is easily accessible by both public and private transport. It has its own metro station and extensive parking facilities.





PRAGUE CONGRESS CENTRE

FORUM HALL – Opening session, Plenary sessions

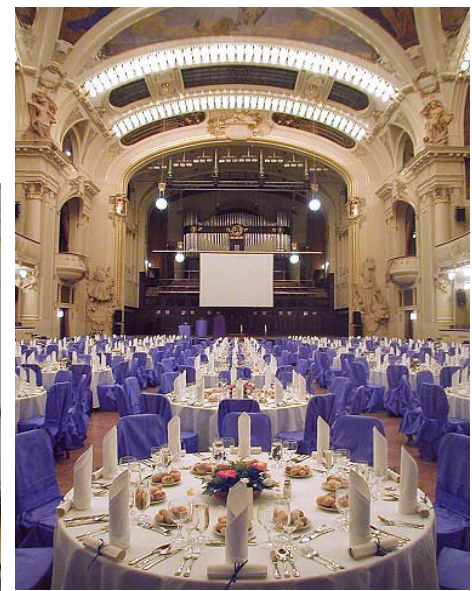




Municipal House – FAREWELL CONGRESS PARTY

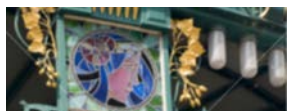
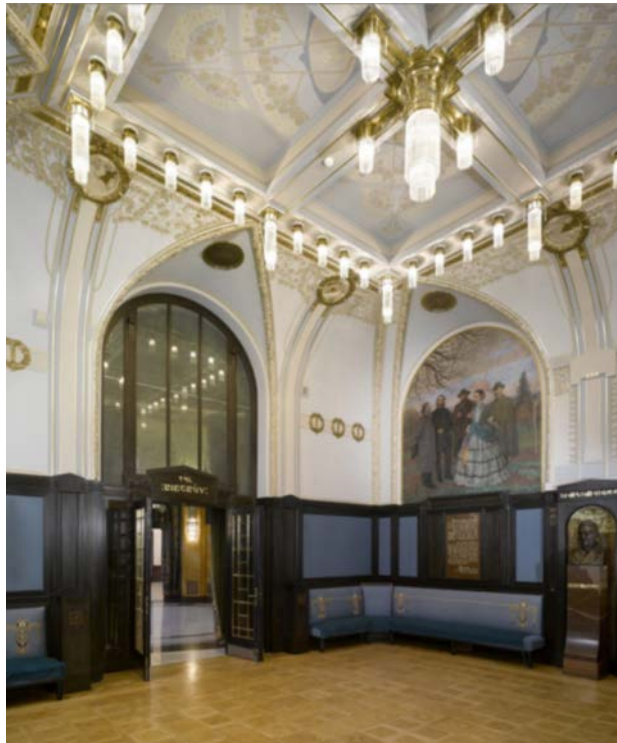
The Municipal House is one of the most remarkable constructions of Prague Art Nouveau.

The architectural and painting Neo-Baroque and Neo-Renaissance styles, the outstanding decor created by most of the prominent Czech artists of the turn of the 19th and 20th centuries as well as by the high quality of craftsmanship are the ingredients to offer the unique impression.





Municipal House – FAREWELL CONGRESS PARTY





SIGHTSEEING TOURS

Historical towns, castles and points of interest in the Czech Republic

Karlštejn Castle, Pilsner Brewery, Konopiště Castle, Křivoklát Castle,
 Karlovy Vary, Český Krumlov





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