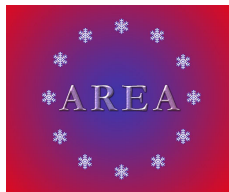


4th Session – New European Laws, Certification and Licences

**Proposal for a Regulation of the European Parliament and of the Council
on certain fluorinated greenhouse gases
(Inter-institutional File 2003/0189 (COD))**

The European RAC contractors Training programmes, Certification and Minimum requirements

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A favourable European regulatory environment

The Regulation on certain fluorinated gases

This proposal is the result of the European Climate Change Programme. Improving the containment of F-gases and maintaining efficient operation during the life cycle of equipment were techniques examined to reduce emissions.

Key options to reduce greenhouse gas emissions included :

- improvements in energy efficiency,
- reduced leakage from equipment during operational cycle (smaller charge and tighter circuits),
- improved recovery from equipment during servicing and at end of life,
- use of alternative refrigerants with low GWP.

The *Article 5 – Training and Certification programmes* stipulates that the Commission shall set minimum requirements and mutual recognition for training and certification programmes and that the Member States shall establish or adapt their programs accordingly.

So the Industry had a unique opportunity to take advantage of the present regulatory framework to work together with the European Institutions, Commission, Parliament and Council, to advise on requirements for harmonized vocational education and training programmes and national certification schemes for refrigeration personnel and companies. Adequate Vocational Education and Training (VET) programmes and certification schemes are a sine qua non condition of effective containment and applicability of the mutual recognition concept.

The implementation of the Copenhagen Declaration

Economic and social developments in Europe over the last decade have increasingly underlined the need for a European dimension for education and training. The Lisbon

European Council in March 2000 set the very ambitious strategic objective for the Union to become the world's most dynamic knowledge-based economy. In Barcelona, in March 2002, the European Council endorsed the Work Programme calling for European education and training to become a world quality reference by 2010.

In response to the Barcelona mandate, the Council of the European Union adopted on November 12, 2002 a Resolution on enhanced cooperation in vocational education and training. This resolution invites the Member States and the Commission, to involve the candidate countries and the EFTA (European Free Trade Association) – EEA (European Economic Area) countries, as well as the social partners, in promoting an increased cooperation in vocational education and training.

The resolution calls for the development of reference levels, common principles for certification, and common measures, including a credit transfer system for vocational education and training “VET”.

The “Europass” has been established in Maastricht by Decision of the European Parliament and the Council of 15 December 2004 on a single transparency framework for qualifications and competences.

Europass is a new way of helping people to:

- make their skills and qualifications clearly and easily understood in Europe;
- move anywhere in Europe.

Europass consists of five documents: Europass curriculum vitae (CV), Europass Language Passport, Europass Diploma Supplement, Europass Mobility and Europass Certificate Supplement.

The Europass Certificate Supplement is delivered to people who hold a vocational education and training certificate; it adds information to that which is already included in the official certificate, making it more easily understood, especially by employers or institutions outside the issuing country.

Another interesting initiative of Directorate General Enterprise is the European Charter for Small Enterprises calling upon the Member States to encourage the European availability of skills and strengthening of the technological capacity of SME in order to make education and training more responsive to business needs.

The need for harmonized training and certification programmes

Important differences in educational schemes and certification systems do exist between European countries. Refrigeration craftsmen have their own specificity and culture; they cannot be put in the same professional category as workers of the construction industry. Advanced countries do not want to accept craftsmen from other Member States with insufficient qualifications and competence. This cannot be a long lasting situation while building up the European Union.

There is a recurrent and general shortage of skilled refrigeration and air conditioning technicians. Young people need to be attracted to the trade.

The educational programs have to follow fast technical and technological changes and to monitor an increasing number of changing rules and environmental legislations.

The vast majority of the refrigeration and air conditioning installation companies are SME. As the issues to be dealt with, are global issues, the question of a minimum level of professional competence had to be addressed in the European context.

Compliance with ODS Regulation EC 2037/2000

The European Commission has hired the international US firm ICF Consulting to study the compliance with the minimum requirements for personnel stated in the ODS Regulation 2037/2000 (articles 16 & 17).

By December 31, 2001 the Member States had to report to the Commission on the programmes related to those qualification requirements.

The ICF report (January 2005) states :

quote

“To ensure that superior qualification requirements are in place for personnel undertaking activities related to Articles 16(1), 16(5) and 17(1) in the refrigeration, air-conditioning and heat pump sector, it is recommended that specialized certification be required for all personnel dealing with ODS in this sector. It is recommended that such certification be granted only following (1) the successful completion of required courses; or (2) the successful completion of government-approved examination for candidates with a minimum number of years’ experience. In addition, it is recommended that such certification be renewed periodically, through basic competency testing.

The following table summarizes the identified minimum requirements for personnel and programmes, as well as the status of Member State compliance associated with both sets of recommended requirements.

Recommended Minimum Requirements for Personnel/Programmes and Status of EC Compliance

	Recommended Minimum Personnel Qualifications/ Programme Requirements	Status of EC Member States ^a		
		In Compliance with Recommendations	Near Compliance with Recommendations ^b	Not in Compliance with Recommendations
Qualification Requirements for Personnel	<ul style="list-style-type: none"> ▪ Specialized certification granted following either: <ul style="list-style-type: none"> — Successful completion of government-approved courses; or — Successful completion of government-approved examination for candidates with a minimum number of years’ experience. ▪ Periodic renewal of certification is required. 	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ Denmark ▪ Germany ▪ Sweden 	<ul style="list-style-type: none"> ▪ Austria ▪ Belgium ▪ Finland ▪ France ▪ Greece ▪ Ireland ▪ Italy ▪ Luxembourg ▪ Netherlands ▪ Portugal ▪ Spain ▪ United Kingdom

^a Determination of compliance/non-compliance with the recommended minimum qualifications/ requirements is based on information provided by Member States for this study. However, because only limited information was available some cases, the determinations presented in this table are not definitive.

unquote

What is true for the ozone depleting substances is also true for the fluorinated greenhouse gases.

There is a priority to harmonize training and certification at the correct level to be applicable in all the Member States.

Courses have to provide knowledge, technical training, field experience and a training on legislative background.

Harmonization must not mean levelling down; the best National programmes and systems should not be jeopardized by the harmonization and the mutual recognition concept.

It is essential to leave to the Member States the freedom to organize themselves their national programmes in accordance with the principle of subsidiarity. The criteria defining the minimum level of competence will address the national ways of educating and training, of testing the skills and the knowledge and of certifying refrigeration companies and personnel.

A national organization has to set up the content of the certification scheme, the structure and the frequency of the control cycle.

In order to have working and cost effective systems, it is of prime importance to have a continuous cooperation between the educational bodies and the certification authorities, on one hand, and the national trade associations which bring their practical experience and the feedback from their industrial members, on the other hand.

The European legislative work on training and certification :
Article 5 of the proposed F-gas Regulation

Extract :

1. *By the date of entry into force of this Regulation, on the basis of information received from Member States and in consultation with the relevant sectors, the Commission shall establish ... minimum requirements and mutual recognition in respect of training programmes and certification for the relevant personnel and for the companies and their personnel involved in the activities provided for in Articles 3 - Containment and 4 - Recovery.*

2. *Within one year of the date of entry into force of this Regulation, Member States shall establish or adapt their own training and certification requirements, on the basis of the minimum requirements referred to in paragraph 1. Member States shall notify the Commission of their training and certification programmes. Member States shall give recognition to the certificates issued in another Member State and shall not restrict the freedom to provide services or the freedom of establishment for reasons relating to the certification issued in another Member State.*

...

AREA strongly insists on changing the wording of the end of the paragraph as follows :

“... minimum requirements and mutual recognition for training programmes and certification for the relevant personnel and for the companies and their personnel involved in **installing or commissioning or servicing or controlling the equipment concerned by this Regulation** for the activities provided for in Articles 3 and 4.”

The European Economic and Social Committee has correctly said it : “Article 5 provided for training and certification for personnel involved in containment and recovery, but not in installation and maintenance. This will be essential if the changes are to be effective.” The objective of the Regulation is to achieve an effective containment. The need for minimum qualifications and skills starts with proper planning and execution of the installation, it follows with professional preventive maintenance and servicing and it should not be limited to inspection and recovery activities.

The companies employing certified personnel must be certified also. The certification of the companies will guarantee the technical expertise of the management, its concern for environmental protection, the needed related work procedures and the availability of adequate tooling. A large majority of the refrigeration contracting companies are SME; it is also important not to establish systems which are administratively too heavy.

Registered businesses must :

- possess suitable equipment,
- maintain adequate records,
- employ competent and certified personnel.

It has to be illegal to carry out work if not registered. It has to be illegal to have work done by an unregistered business. Refrigerant handling without certified competence must be illegal.

Such requirements will become largely self-policing.

AREA prepared guidelines for those *minimum requirements*.

The Leonardo da Vinci project of AREA

AREA has initiated in January 2003 a 3-year project called “the European refrigeration craftsman”; this project is carried out with the support of the European Community.

The short term objectives and motivation of the Leonardo project are :

- establishing a European industrial standard for craftsmanship in the field of refrigeration; such a standard will enable the various European countries to compare, check and adapt -if necessary- their educational and training programmes,
- facilitating the exchange of information between the European countries : ways of learning and ways of organizing examinations,
- spreading the relevant information and making it easily available to the industry and the end users.

The long term objectives are :

- securing a uniform level of education, training and qualifications throughout Europe,
- the mutual acceptance of every one’s qualifications, enabling to work in other European countries,
- encouraging the exchange of apprentices between different countries.

The work has been carried out in three steps :

- A detailed survey (347 questions) was organized in the 7 countries where 355 refrigeration and air conditioning professionals have answered the questionnaire designed to make an inventory of the tasks performed by a refrigeration craftsman in Europe; the questions addressed 328 activities classified in 17 chapters :

01 PROJECT INTAKE
 02 CUSTOMER ACQUISITION
 03 PROJECT PREPARATION/ DRAFT DOCUMENTATION
 04 PROVIDE INSTRUCTIONS & GUIDELINES
 05 COÖRDINATION
 06 TECHNICAL CONSULTATION
 07 PROJECT PREPARATION
 08 PRE-ASSEMBLY OF THE REFRIGERATION SYSTEM
 09 ELECTROTECHNICAL PRE-ASSEMBLY
 10 INSTALLATION OF NON- REFRIGERATION TECHNOLOGY
 11 INSTALLATION OF REFRIGERATION TECHNOLOGY
 12 INSTALLATION/CONTROL OF ELECTRICAL AND ELECTRONIC COMPONENTS
 13 COMMISSIONING
 14 CONTROLS AND FAULT ANALYSIS
 15 REPORTS, CHECKS AND TECHNICAL ADMINISTRATION
 16 REFRIGERANTS
 17 ASSISTANCE, TOOLS AND EQUIPMENT

- A statistical analysis of the results reviewed by international refrigeration experts has specified the profile of the “basic European refrigeration craftsman” in terms of his activities in his daily practice; 165 activities out of 328 - were selected as the common activities for all job profiles in Europe; these activities formed the basic information for a uniform level of education and qualifications throughout the countries in Europe.
- A portfolio of the qualifications and skills needed to work in the field of refrigeration and air conditioning with excellent craftsmanship was established, listing the activities that the European basic refrigeration craftsman has to be capable of performing.

The AREA portfolio of the required basic qualifications and skills consist of 4 parts :

1. the European curriculum vitae (adaptation of the document of CEDEFOP European Centre for the Development of Vocational Training) outlining his personal education / training and work experience,
2. the general job description of the European refrigeration craftsman,

3. the description of 7 core group of activities (pre-assembly, installation, checking / reporting / technical administration, commissioning, monitoring / inspections, fault finding / repair and dismantling) which reflect the work process of a refrigeration contracting company and the career development potential of a refrigeration craftsman in the industry,
4. the criteria - as a list of activities that the European refrigeration craftsman has to be capable of performing - on which to prove adequate qualification, the applicable European Norms, Directives or Regulations.
The criteria are classified in 7 categories : basic thermodynamics, system components (compressor, condenser, evaporator, expansion valves, other components), piping, electrical, analysis / measurements, communication (with the client, ...), environmental and safety regulations).

For example, the “Piping” section is outlined as follows :

Job Competence		Core Activities							The National Authorities to certify Qualification have to make sure that European and National Regulations, Directives and Norms are complied with particular as mentioned below
Description		Pre-assembly	Installation	Technical Reports	Commissioning	Monitoring	Fault Finding	Dismantling	
3.1 Piping		1	2	3	4	5	6	7	
Success Criteria		X	X				X	X	prEN378-2 art. 6.2
3.1.1 Work with copper tubes from a diameter of 1/4" (6mm) till 7/8" (28mm) and from 35 mm till 54 mm.		X	X				X	X	prEN378-2 art. 6.2
3.1.2 In particular in the following ways:		X	X				X	X	
3.1.3 - flared joints diameter of 1/4" (6mm) till 3/4" (18mm)		X	X				X	X	
3.1.4 - bends of copper tubes diameter of 1/4" (6mm) till 3/4" (18mm).		X	X				X	X	
3.1.5 - fixed connections by hard soldering diameter 1/4" (6mm) till 7/8" (28mm) and from 35 mm till 54 mm.		X	X				X	X	EN 13133
3.1.6 Make hard soldering joints for the following connections:									
3.1.7 • copper-copper		X	X				X		EN 13133
3.1.8 • copper-steel		X	X				X		EN 13133
3.1.9 • copper-brass		X	X				X		EN 13133
3.1.10 Install valves in the correct position		X	X				X		prEN 378-2 art. 5.1
3.1.11 Install solenoid, control valves and other devices in pipelines		X	X				X		prEN 378-2 art. 5.0
3.1.12 Install flexible insulation		X	X						prEN 378-2 art. 5.1
3.1.13 Make pipe supports		X	X				X		prEN378-2 art. 6.3
3.1.14 Perform a strength pressure test		X	X	X					prEN378-2 art. 6.3
3.1.15 Perform a tightness test		X	X	X			X		prEN378-2 art. 6.3
3.1.16 Perform a functional test		X	X	X					prEN378-2 art. 6.3
3.1.17 Perform a conformity test of the complete installation		X	X	X					prEN378-2 art. 6.3
Results									
Safe and environmentally friendly refrigeration piping system without leakage by starting up									
Environmentally friendly refrigeration piping system without leakage during operation									

The portfolio of the necessary qualifications and skills to work in the field of refrigeration with good craftsmanship will become an industrial standard; it will integrate the implementation of EC instruments such as the Pressure Equipment Directive, the norm EN 378 and the coming F-gas Regulation and it will be regularly updated.

Last but not least : the harmonized training and certification programmes of the Member States should be ready when technological R&D will bring on the market, in some applications, other refrigerating fluids much more dangerous to handle : major safety issues.

AREA plans to progressively study the extension of its portfolio to the use of other refrigerants.

Mobile applications

USA

All technicians opening the refrigeration circuit in automotive air conditioning systems must now be certified in refrigerant recovery and recycling procedures to be in compliance with section 609 of the Clean Air Act Amendments of 1990.

Technicians who repair or service MAC must be trained and certified by an EPA-approved organization. Service shops must certify to EPA that they have acquired and are properly using approved equipment. They must maintain records about the transfers of refrigerants and the certification of service technicians.

NL

Service technicians must pass a specific examination.

On the authority of the Central Examining Committee, this examination is called the “In-car air-conditioning fitter (STEK)” examination. Fitters with this in-car air-conditioning certificate may, under the provisions of the STEK Charter, perform installation work for air-conditioning systems with refrigerant capacity of less than 3 kg in private and company vehicles (soldered joints not permitted).

AREA agrees with the Member States which consider that this regulation should not be limited to stationary but should also include **mobile refrigeration, air conditioning and heat pump installation** : mobile equipment is more subject to leakages, accounts for a major part of RAC emissions and needs professional installation, commissioning and servicing. Emission figures are well known and inspections can be adapted and organized on the occasion of other compulsory and regular mechanical checking of such mobile equipment, so that a cost-benefit analysis is not necessary.

Now that the Member States have decided to have a separate Directive relating to emissions from air conditioning systems in motor vehicles, it is important to also include the substance of Article 5 of the Regulation, i.e. minimum qualifications and certification for the personnel handling the refrigerating fluid, into the MAC proposed Directive; of course, the level of competence (to be specified by the Member States in their programmes) needs to be adapted.

Mobile air conditioning systems should not be installed or serviced by garage mechanics who do not have a minimum knowledge of refrigeration technology and handling of gases. The experience in the Netherlands (tailor-made courses in air conditioning for garage mechanics) shows that such a measure works and is welcome by the car industry.

A recent study of the Ecole des Mines de Paris shows that the automotive air conditioning is responsible for 57% of the total HFC refrigeration emissions. Certification of personnel will be even more important when high pressure refrigerants will be used (safety issue). MAC inspections could take place at the same time and in the same locations as the usual automotive technical inspections in application in all Member States.