



Certification of Refrigeration and Air Conditioning Service Technicians



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WHAT IS CERTIFICATION?

In developing countries the phasing out of HCFCs should lead to the increased adoption of alternative refrigerants / low GWP refrigerants. Many of these have flammable and/or toxic properties or operate at high pressures. Technicians may not be familiar with these as they are rather different from those used previously such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). The installation, servicing, repair and dismantling of refrigeration and air-conditioning equipment operating with such refrigerants needs to be carefully evaluated and considered in the context of safety issues. It is therefore recommended that minimum requirements for training and certification of contractors handling low GWP refrigerants are adopted at the national level.

Certification is the means by which a person (or enterprise), as a result of training, education,

external review and assessment, receives official approval of being able to competently complete a job or task. Certification can be a legal requirement or a measure undertaken voluntarily for professional advantage. Certification schemes which are mandatory by legislation have the advantage of providing a strong incentive for technicians and enterprises to comply.

Certification does not refer to the state of legally being able to practice or work in a profession. That is normally achieved by a licensing. Usually, licences are administered by a governmental entity primarily for public protection purposes and professional associations administer certification schemes. Licencing and certification are similar in that they both require the demonstration of a certain level of knowledge or ability.

THE CONTEXT

In the context of refrigeration and air-conditioning servicing, certification is important in order to verify the competence of the personnel handling equipment and refrigerants to ensure best practice and prevent leakage of the refrigerants. This has the aim of preventing the environmental and safety issues due to emission of, for example:

- CFCs, HCFCs - **High GWP, ODS**
- HFCs - **High GWP**
- HC - **Flammable**
- Ammonia - **Mildly Flammable and Toxic**
- CO₂ - **High Pressure, Suffocating, Odour-free**
- HFO - **Mildly flammable**

The competence of the personnel handling these refrigerants is important both from the environmental perspective (e.g. ozone depletion and climate change - CFCs, HCFCs, HFCs) and for safety reasons (HC, Ammonia, CO₂, HFO). It is therefore recommended that only Certified Technicians should be allowed to install, maintain, repair, recover, and dismantle RAC systems and to purchase refrigerant.

Certification covering the refrigeration and air-conditioning sector can include certification of personnel (e.g. servicing technicians, 'refrigeration craftsmen' etc.) and certification of enterprises or companies

IMPORTANCE OF TRAINING, ASSESSMENT & CERTIFICATION

Certification is an important tool and essential in monitoring the labour market according to national qualification classification systems. Through legislation, this will have the effect of reducing refrigerant emissions, and increasing energy efficiency.

Servicing Technician - In terms of the servicing technician's (or contractor) perspective, in a market place with a high degree of competition, proof of the ability to deliver higher quality work and certification can be a distinct advantage.

Customer - In terms of the customer's perspective (which can include wholesalers, distributors, end users and consumers), particularly those with significant buying power, they can require environmentally friendly and energy efficient products and high quality services. Training, assessment and certification can protect the interests of the customer through providing services according to applicable standards (including reliability and life-time of equipment, environmental impact, and preventive maintenance). This can require the certification of the personnel and companies/workshops who handle air-conditioning, refrigeration and heat pump equipment. The customer can demand a particular level of quality in terms of equipment and servicing which can be guaranteed by appropriate certification.

TYPES OF REFRIGERATION ASSOCIATIONS

Certification Institutions and Refrigeration Associations can be integrated or run jointly. In larger countries with potentially higher numbers of members, larger associations can be established with single categories of members (e.g. an association with members who are all service installers). In smaller countries it is more feasible to have smaller associations with different categories of members with similar interests together (e.g. manufacturers and service installers). In general, members of Refrigeration Associations could include:

- Service technicians and installers
- Building engineers
- Designers
- Manufacturers
- Sales personnel

Refrigeration Association - Certification can also play an important role in the sustainability of the Refrigeration Associations, as it can be an important income stream both through the training and certification processes organised by the association. The Refrigeration Association's role in certification could include:

- Working alongside the government to set the certification rules, schemes and regulations
- Providing third party monitoring to ensure the regulation is implemented correctly
- A certification body that guarantees a high standard of certification
- A certification body that issues the certification and renews periodically
- A body that maintains the lists, registers and the records of certified technicians and companies.

If it is possible to limit purchasing of refrigerants to only those technicians which hold the appropriate certification, this will limit expansion, to some extent, of the unregulated 'informal sector' and this should contribute to preventing bad practices (e.g. accidents, emissions), which are more common in the informal sector.



THE ROLE OF THE SERVICING SECTOR IN HPMPs

Many developing countries, particularly low volume consuming countries (LVCs), do not manufacture ozone depleting substances and their approved HPMPs place an important priority on achieving reductions in HCFC consumption through addressing the refrigeration servicing sector. It is therefore important that activities are prioritised that promote the reduction of emissions of HCFCs and other refrigerants and at the same time maximise energy efficiency.

While it could be expected that refrigerant leakage and increased energy efficiency could be achieved through purchase of more advanced technology and higher-quality components, significant reductions in direct emissions and indirect emissions (such as through energy efficiency gains) can be achieved through the best operation of a system, resulting from proper assembly, installation, charging and maintenance. Servicing of refrigeration equipment can have a measurable impact on indirect emissions. For a comprehensive overview please see: *Minimizing Adverse Climate Impact of HCFC Phase-Out in the Refrigeration Servicing Sector*, (UNEP, April 2014).

With the ambitious HCFC phase-out schedules for developing countries and the need to achieve both ozone and climate benefits from this phase-out,

while at the same time addressing alternative refrigerants, many of which have characteristics that demand greater attention to safety, developing countries face both a great opportunity and a considerable challenge.

In developing countries therefore, particularly where the reductions in HCFC consumption is prioritised in the servicing sector, there is a great need to have refrigeration and servicing technicians who are well trained and skilled to enable the required efficiencies to be best attained. Certification of the relevant technicians and enterprises can go a long way in helping to achieve these goals.

There are significant differences around the world in terms of the existence, modalities and levels of certification for technicians and enterprises involved in the installation and servicing of refrigeration and air-conditioning equipment. While in general, refrigeration and air-conditioning technician certification schemes are significantly more established and administered in developed countries, both at national and regional levels, there are a number of operational certification schemes in developing countries.

NATIONAL CERTIFICATION SCHEMES

Both the structure and mode of establishment of certification schemes can vary between countries and regions. Establishment of certification schemes through legislation entail the government, usually the Ministry of Environment or Labour, having the commitment and willingness to do so. This will normally require cooperation with for example the Ministry of Environment, Ozone or Climate Change offices as well as cooperation on safety and labour issues, for example with the Ministry of Labour, Health and Safety or Commerce offices. Certification schemes which are mandatory by legislation have the advantage of providing a strong incentive for technicians and enterprises to comply with the necessary requirements.

Manufacturers also have a particular interest in ensuring properly skilled service technicians to provide the best product and avoid high warranty costs. The larger manufacturers which can have well established structures would be in a better position to set up, or contribute to the set up and running of a certification scheme. The service technicians themselves in general also want to show themselves to be skilled and to prove their excellence, which is best achieved by certification.



It is recommended that only Certified Technicians are allowed to install, maintain, repair, recover, and dismantle RAC systems containing refrigerants and importantly that only certified technicians are permitted to purchase refrigerants. Such a measure will limit the development and expansion of the informal sector and this should contribute to preventing poor practice which in general is more common in the informal sector.

For those countries or enterprises wishing to establish a new certification scheme, it is heartening to recognise that one is not starting from scratch and that there are many schemes around the world both in developed and developing countries that can provide guidance, inspiration and examples of the various approaches and methods that can be followed.



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For more information see: *National Certification Schemes for Refrigeration and Air Conditioning Service Technicians, Examples of Strategies and Requirements for their Establishment and Operation*, UNEP OzonAction, 2015.

www.unep.org/ozonaction/Portals/105/documents/events/MOP27/National%20Certification%20Schemes%20for%20Refrigeration%20and%20AirC_Enq_2015_low%20resolution.pdf

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OZFS/04/16/4