Responsible Refrigeration - No 35

There has been a new initiative from Quality Council for Trades and Occupations *(*QCTO*) and Manufacturing, Engineering and Related Services Sector Education and Training Authority (*merSETA*) to discuss and develop the refrigeration trade and the air conditioning and refrigeration occupational qualifications. A cross section of interested parties have been invited to a scoping meeting in July. The aim is to bring the qualification of refrigeration mechanics up to date covering technological developments for the needs of contactors, users and the industry in general.*

There are two trades currently that cover; firstly refrigeration for commercial installations which could cover small and large refrigeration plants in the food distribution and sales sphere and refrigeration associated with air conditioning. The phase out of refrigerants and development of a vast range of new gases for various refrigeration applications has placed a burden on practitioners in refrigeration and air conditioning. Domestic refrigerators are using the hydrocarbon refrigerants (R290 & R600a) which demands special skills because of their flammability. Commercial refrigeration is fast moving into Carbon Dioxide (R744) systems using trans-critical and sub-critical technology which has its specialised skills needs for fabrication, installation and servicing. Refrigeration associated with air conditioning is faced with new refrigerants and the skills that go along with different systems.

The second area that has been neglected for many years is Ammonia (R717). Besides the traditional use of Ammonia in cold storage the technology of this gas is moving in new areas of application because of the attractive features it has in low global warning and zero ozone depletion. No specific training towards a trade test is presently in place. This will have to be addressed. Mechanics have to work through the synthetic refrigerant trade test first, then through in company get training and experience the necessary for Ammonia skills.

The scoping workshop will need to address the needs of a refrigeration industry faced with fast changing technology brought about by the phase out of the old traditional synthetic refrigerants and the use of natural refrigerants and new synthetic blends.

The mechanic working in refrigeration and air conditioning is faced with more new hybrid systems and an increased number and types of refrigerants and oils. These pose compatibility problems and environmental concerns. The mechanic is also faced with skills and personal issues in understanding the technology developing around him. The mechanic is also faced with an increased use of electronic control and monitoring equipment used on systems as well as control of energy usage and recovery. There is an increased use of computer based control systems that require the mechanic to have an increased competence to use automated controls, remote monitoring and test equipment. The mechanic must have a high degree of equipment knowledge and skills in customer relations in response to consumers' increased awareness of global warming and the Montreal Protocol and its amendments.

The revision of the qualification of refrigeration mechanic will need to address all facets of the trade from the basic refrigeration and air conditioning installer to the specialist skills required in using the new synthetic refrigerants, Hydrocarbons in small refrigeration units, to Carbon Dioxide in super market installations and Ammonia as mentioned above.

A starting point would be the fundamental occupational skills covering refrigeration cycle and air cooling systems and the regulations such as the Pressure Equipment Regulation, safety procedures and SANS 10147 and SANS 347. There would be the added skills for fabrication, assembly and installation of refrigeration systems then the skills in electrical installation, electronics and control systems.

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