Issues Paper

Electro technology IRC, September 2016

Submission by the Australian Refrigeration Mechanics Association (ARMA) supporting the Refrigeration and Air Conditioning (RAC) Industry within the four-year Work plan

Background

The Australian Refrigeration Mechanics Association emphatically recommends a HVAC&R industry reference committee be established. Past and present structures continue to see the HVAC&R industry underrepresented with decisions often made by peripheral trades, with many negative consequences on the whole of industry and society.

The HVAC&R tradespeople believe for future survival it is imperative the HVAC&R industry finally be recognized for the significant specialized industry it is and to be the driving force behind the changes necessary to address all of the key issues mentioned below. Failure to recognize and act now will result in the loss of an essential and specialized RAC trade.

Key Issues required for skills and workforce development in the RAC sector

- Establish a RAC industry reference committee, a committee driven by its own industry.
- The RAC industry occupation despite its capacity to provide a large range of services for society, also faces difficulty in attracting apprentices and engineers.
- The level of pre-vocational education (school education) for new apprentices, are not at the level of literacy and numeracy standards required to satisfactorily complete the trade course therefore, resulting in drop-out and failure rates in the RAC trade course.
- Technical trades in particular refrigeration and air- conditioning need to be at the forefront of careers advisers at the secondary level of education to encourage students to take up this specialized trade skill, so individuals with poor scholastic skills are heartened by the fact they can work in a specialized sector.
- Industry must engage and take more responsibility in mentoring of apprentices, work in conjunction with the employer to ensure legislative and regulatory requirements are met.
- Employers need to play a more active role in further developing apprentices in the workplace by taking a more active role in each student's learning journey, so the experience benefits both parties.
- Industry stakeholders to keep abreast of 'post trade' training within the RAC industry and for 'skills gap training' between the highly technical systems being manufactured today and the ability of a trade technician to keep those systems operating.
- The need to address skills gaps within the HVAC&R industry as various funding mechanisms introduced at the state government level (eg. the NSW Smart and Skilled VET model), show inflated enrolment costs in training at all states/territories, which slows the uptake of post trade enrollments. Revive the adult apprenticeship incentives for employers.
- The HVAC&R industry workforce consideration of economic and environmental impacts from the phase out of HCFC refrigerants, under the Montreal Protocol on Substances that Deplete the Ozone Layer. A mandatory timetable for the phase out of ozone-depleting substances including almost all imports (apart from 2.5 tons of ODP/year) to Australia of hydro chlorofluorocarbons (HCFC), such as R22 by 2016, which has been commonly used in residential heat pump, air conditioning and refrigeration systems since the 1990s following the phase out of chlorofluorocarbons (CFCs) in developed countries in 1995.
- The introduction of new refrigerants and technologies in the HVAC&R industry will require necessity for highly skilled technicians in the industry to service society.

The main growth areas (opportunities) in the Heating Ventilation Refrigeration and Air-Conditioning Sector

- Society depends on the RAC industry in various situations, listed below. The HVAC&R industry covers approximately 11 major sectors that have particular characteristics and designs/ management skill requirements. The HVAC&R industry also is changing and evolving due to the phase out of SGG's and the introduction of natural and hydrocarbon refrigerants. The changes and the skill requirements provide enormous potential for growth within the HVAC&R industry, from upskilling in qualifications for technicians, new technologies in controls systems for better energy efficiencies, and contributing to the nation's economic competitiveness.

    - Virtually every occupied/unoccupied building is air conditioned, for example (communications rooms, electronics facilities, pharmaceutical manufacturers, paper manufacturers, residential, commercial, industrial etc.).
    - The fresh and the preserved food industries rely totally on refrigeration systems during the manufacture and/or storage of the product.
    - The meat industry is totally reliant upon refrigeration technicians.
    - The fish industry is totally reliant upon refrigeration technicians.
    - All major operators in the retail industry (supermarkets, shopping complexes) rely heavily on both refrigeration and air conditioning technicians.
    - The aviation and marine industries are reliant on refrigeration systems to be serviced and maintained.
    - Transportation and car air-conditioning systems to be serviced and maintained.
    - Large commercial and Industrial industries operate with chillers systems rely on experience technically competent technicians.
    -

The challenges or threats that presents to the sector.

- Reducing the current consumption of 24% in Refrigeration and Air Conditioning systems, as this contributes to the total quantity of electricity generated in Australia.
- Awareness of the impact of refrigerant leakage to the atmosphere which is attributing to the severe ozone depletion and climate change issues being experienced around the world.
- Implementation of a national trade qualified license for all of the HVAC&R industry as only 24,000 licensed technicians in Australia currently, installing, commissioning, maintaining and servicing these systems are registered under the environmental ARC license, which includes peripheral trades.
- National licensing system to provide a single policy approach to licence categories, regulated work and the eligibility requirements in the refrigeration and air-conditioning licence. This would allow a person to work anywhere in Australia where the relevant HVAC&R work is licensed, without having to reapply for occupational licences or pay an additional fee, including unintentionally breaching regulations due to the inconsistencies between states
- National licensing to make personal and financial probity requirements more consistent.
- A national licensing authority to drive future license policy and reforms, including overseeing the consistent application of policy by jurisdictional regulators, to review OH&S licensing policies over time and overseeing any additional occupations.
- Technological advancement in the RAC industry are dramatic but the skills to implement changes need reviewing:
    - Systems are now capable of self-diagnostics and self-monitoring with regard to input and output power
    - Implementing the latest EC motor technologies in fans, pumps and valves
    - Implementing the latest 'smart' controller technologies to provide the full customer experience

- The phasing out of HCFC and phase down of HCF refrigerants has led increased awareness of OH&S issues with the usage of replacement refrigerants with flammable properties, and toxic when operated at very high pressures.
- Application and awareness to the HVAC&R industry to up take units of competency in the range of replacement natural refrigerants, to better skill technicians with current changes in refrigerants.
- Registered Training Organisation being equipped with the right resources to deliver and assess the qualification in certificate III and additional competency in the natural refrigerant range.
- Changes in support from the Refrigeration and Air Conditioning industry from the commencement in 2014 to ceasing in 2015 the review of the CIII and CIV refrigeration and air conditioning trade apprenticeship course. A proposed new qualification structure, driven by the RAC industry is now seen by the RAC industry as a way forward to addressing a number of the issues mentioned above therefore, its development must be included in the Electro Technology Work plan
- The two new units of competency developed by industry in 2015 for E-Oz and submitted to AISC to meet the changes to refrigerants and national refrigerant handling requirements. These need to be endorsed urgently:
  - UEERA3024A Handling A2 Flammable Refrigerants
  - UEERA2197A Recover refrigerants from stationary self-contained end of life decommissioned equipment
- A review and evaluation of the RAC industry skills requirements with regard to the higher level post trade qualifications needs to be undertaken to ensure currency, validity and flow exist in these qualifications (eg. the CIV and Diploma levels). This project should also be included in the Work plan.
- Changes to the recruitment process and have a time honored pre-employment challenge test to ensure the apprentice has some industry specific literacy and numeracy skills to encourage a lesser failure rate of apprentices, and a better completion rate.
- Training implementation for changes in the integration Web 3.0 to streamline automation as this will play a large role in system diagnostics and fault finding. Adaption to the growing digital world and training new generations of technicians in the skills required is a large growth area in the HVAC & R sector. Specialized short courses for niche areas are becoming more and more popular. Upskilling and lifelong learning opportunities need to be streamlined and available for potential students. Programs for skilled migrants and international students need to be further developed. These programs need to be flexible to support individual's learning needs.

Australian Refrigeration Mechanics Association supports the Electro technology IRC and trusts this submission contributes to the Electro technology four-year work plan. If further information is required, please feel free to contact us.

Kim Limburg
CEO
0403 680 981
kim@arma.email

Kevin Ballment
0409 056 011
President
bigkev@arma.email