



16 March 2017

Electrotechnology Industry
Reference Committee
Australian Industry Standards Ltd

Dear Committee

We appreciate the opportunity to comment on the response to the Electrotechnology Key Findings Paper, March 2017, Australian Industry Standards Ltd.

ARMA is an established industry representative organisation, consisting of a range of memberships, and industry training specialists. Our focus is to achieve recognition and a full technically-based trade license with all the appropriate competencies inclusive of the scope of all new refrigerants for our members.

Accordingly, our response to the Electrotechnology Key Findings Paper, March 2017, Australian Industry Standards Ltd is an important issue, and this is an opportune time to prioritise the HVAC&R Industry to ensure a training package exclusive for all competencies required for this specialized trade. In addition, it is imperative the IRC consult independent HVAC&R experts before any changes are made as the current structure will result in continuous disregard for a specialised trade.

Our response shows our members' grass-roots feedback and support on a vital outcome in recognition of this specialized trade that must remain alongside other peripheral trades without further fragmentation to the HVAC&R industry.

Therefore, ARMA highlights concerns and recommendations to all sectors being reviewed wherein it affects the HVAC&R trade.

As a representative industry association, we would also appreciate the opportunity to be included in future governmental reference groups, working parties and advisory bodies related to the refrigeration and air-conditioning industry.

Sincerely

Kim Limburg

KIM LIMBURG

Chief Executive Officer
Australian Refrigeration Mechanics Association
Telephone: 0403 680 981
Email: Kim@arma.email
Web: www.arma.org.au



RESPONSE TO THE ELECTROTECHNOLOGY KEY FINDINGS PAPER, MARCH 2017, AUSTRALIAN INDUSTRY STANDARD LTD.

Summary

The parameters in which the Industry Reference Committee (IRC) has structured its Electrotechnology Key Findings Paper has ignored providing strong representation of HVAC&R Industry experts to its board. In saying that, the IRC appointment of 15 members to its committee with 8 of those members either representing or are associated to the electrical industry, with only 2 representatives for the RAC industry is concerning when final decisions are made on key issues involving the HVAC&R industry.

ARMA believe it is imperative the IRC involve more HVAC&R experts, if they are to establish a Technical Advisory Committees as stated. The HVAC&R Industries experts technical knowledge, expertise and understanding of this diverse and specialised industry will contribute towards the TAC understanding of the full breadth of the HVAC&R industry and its tradespeople.

In addition, 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 the key issues mentioned below. Inability to recognize and act now will result in the loss of an essential and specialized RAC trade.

Qualifications - Quality - Efficiency

The HVAC&R Industry is a singular industry however, for too long the Electrical and Plumbing Trades continue to piggy back the HVAC&R Industry, which continues to lower the technical standards and technical abilities. The driving force for all the HVAC&R industry is the underpinning trade knowledge and associated knowledge technicians must have to fulfil their responsibilities in a dynamic, industrial and social environment.

ARMA would argue that peripheral trade specialists cannot competently assess nor correctly guide an industry as integrally central to Australia and as specialised as the HVAC&R industry is. The slow and continuous changes to training systems over the past fifteen (15) years allowed substandard certificate II qualifications for all peripheral trades to work in the HVAC&R industry as a mechanism to taking “chunks” of industry and claiming “expertise” when they are not technically competent to carry out any HVAC&R scope of works.

Sub Industry to Electrotechnology.

ARMA would argue the justification of allocating an entire specialised HVAC&R industry under the sub classification of electrotechnology. Therefore, we make note of the following IRC’s direct “Electrotechnology” links also to electrotechnology, yet are granted independent IRC’s.

1. Aerospace IRC, Independent of Electrotechnology,
2. Gas IRC, Independent of Electrotechnology,
3. Meat IRC, Independent of Electrotechnology
4. Property Services IRC, Independent of Electrotechnology, and;
5. Water IRC, Independent of Electrotechnology.



Developing processes to initiate change includes the legal responsibility of reducing mitigating risks factors by ensuring those making change in a specialized industry are technically competent to do so.¹

Identified Priority for Industry

ARMA acknowledge and agree that the interim IRC Chair indicated that Electrotechnology Technical Skills are the highest priority for the industry however, ranked Refrigeration and Air-Conditioning at 4. ARMA also understands there are several challenges the Electrotechnology industry faces with fast-emerging technologies, with the installation and repair of new systems and products with an increasing demanding consumer environment.

Nevertheless, the HVAC&R industry is acutely aware training course packages must be forward thinking, to face any challenges but also to safe guard the HVAC&R industry which has been under represented for too long. Furthermore, it should be added, it is also crucial only the specific industry impacted by these changes should be the driver of these changes.

In addition, this includes preparation and assessment of competency of students for the next step of their trade profession. The preparation is integral to the total training package as it becomes worthless if the preparation is merely an add on or to be undertaken within the later part of the course, such as including certificate II units of learning.

To encapsulate “new” technology it must be inclusive of the 4-year training in the HVAC&R field with innovative training packages that will take the industry into the next century, Thus, far the structure of training packages in the HVAC&R industry are written with for little background and understanding of the trade and all its associated aspects which comes from “doing” the trade. Yet the Australian Industry Standards invokes and maintains a system that has and presently does, as well as encourages the very opposite effect, within the HVAC&R industry.

SUB ISSUES.

Gas IRC – HVAC&R Member.

Currently there is not a HVAC&R position on the Gas IRC for the HVAC&R industry as the world environmental demands on refrigerants to be applied require the use of “GAS” base products (LPG derived) and it is intending to increase usage eg: R600; R32, R290. These are all gas based products utilized as refrigerants in HVAC&R equipment, totally different to the normal gas supply industry. Surely this is reason for representation on that panel for the HVAC&R industry as we progress into an environmentally sustainable future.

KEY FACTS – Electrotechnology IRC Paper

Facts relating to an inadequate understanding of the HVAC&R Industry by peripheral trade specialists as the description only represents a small segment of the HVAC&R industry, but does not incorporate the issues industry must address to move forward.

- Exclusion of Air Conditioning Component – Industrial, Commercial and Domestic
- Exclusion of Specialised Applications – Fisheries, Processing, Medical, Research
- Exclusion of Gas applications – Specifically in relation to the HVAC&R industry

¹ Excerpt, Jeff Schapiro-National Refrigeration Conference & Heavy Equipment Expo 2017



Electrotechnology Skills Shortages

“69.86 per cent of employers reported experiencing a skills shortage in the last 12 months.”

AIRAH in its submission to QLD’s Building Plan Reforms makes the following important statement;

“HVAC&R – An industry in transition²

The biggest issue confronting the refrigeration and air conditioning sector today is ‘refrigerant transition’, or more specifically the issues that arise when moving the industry from existing high global warming potential (GWP) refrigerant technology to newer environmentally friendly low-GWP refrigerant technology. Industry participants must now start to learn how to use a new set of low-GWP refrigerants with a new set of flammability, toxicity or pressure-related safety hazards that demand new design practices, new installation techniques and new operational and maintenance protocols.

The industry operates under a range of regulations including environmental, building, WHS, electrical safety, gas and hazardous atmosphere, dangerous goods, plumbing and energy efficiency. The complexity and inter-relationship between these regulatory requirements are often difficult for industry practitioners to fully understand which can lead to poor compliance outcomes.... Any licensing scheme must address these changes, and these new skills and knowledge requirements, through the adoption of new VET competency units and continuing professional development and skills maintenance.”

ARA in its submission to QLD highlights the importance of appropriate training³

“The industry is now faced with a choice to use either flammable HFO synthetic refrigerants, or blends thereof, or natural refrigerants, some of which are also flammable. These refrigerants require a skill set that the clear majority of tradesmen, tradespersons and apprentices currently working in the trade do not possess. The industry now has a massive education program that will be required to be undertaken for the bulk of the industry, an estimated 95% of stakeholders in order to safely work with the new suite of flammable refrigerants.”

The Electrotechnology IRC Key Findings Paper included the following;

“The occupations reported as being in shortage were:

- 1. Electricians*
- 2. Educators*
- 3. Refrigeration/Air-Conditioning Technicians*
- 4. Renewables Specialists*
- 5. Signaling Technicians*

Employers identified the following reasons for the shortage with the most frequent response listed first.

Reasons for shortage.

*Shortage of skilled/qualified personnel
Cost/Time to achieve the required qualification
Ageing workforce/current staff retiring
Remuneration/employment conditions
Geographic location of the vacancy”*

² AIRAH Response To QLD Building Plan March 2017

³ ARA Response Letter QLD Department Planning March 2017



ARMA raise concerns as the reasons given for shortage are non-specific and the question of why is raised on each answer supplied in above. As the IRC are unable to provide accurate, detailed information ARMA has supplied the information below **relevant and specific to the HVAC&R industry**.

In 2016, Energy Skills QLD (ESQ) conducted a forum to address skills shortages within the HVAC&R industry. ESQ have since deferred to PRIME and the work being undertaken to address industry concerns inclusive of skills shortages.

ESQ citation “Licensing and Regulations⁴

Your response to licensing and regulation change was obvious and overwhelming: –Skill based licensing –National licensing”.

Lacking Proficiencies

- Refrigerant handling practices
- Fault finding and repair work
- Electrical skills and underpinning knowledge
- Installation and commissioning
- System design
- System efficiency

Statistics and Projections⁵

Demand for workers is steady

- High percent of applicants are unsuitable
- National skill shortage for 25 of last 30 years
- Apprentice numbers increasing
- Cancellations at 16%
- Projections show no medium-term change

Demand for work is steady, apprentice numbers are increasing, ARMA suggest there is very little benefit to the HVAC&R industry as the growth for electrical displays benefit toward peripheral trades. It would be expected we would see a significant growth also with the plumbing industry as many hold the certificate II split system and heat pump environmental licenses.

HVAC - Vacancy Data ⁶

Department of Employment report:

- 50% of employers did not fill vacancies
- 40% had no suitable candidates
- Under 5 qualified candidates per job
- 62% of applicants are qualified
- 87% of all candidates unsuitable

Job applicants were inclusive of certificate II holders and partially trained HVAC&R tradespeople limited to split system air conditioning.

Statistics compiled by ESQ predict only a total of 32 new positions will be available over the next 5 years for refrigeration and air conditioning tradespeople.

⁴ Industry Consultation Forum: HVAC Heating, Ventilation and Air-conditioning Industry Skill Shortage, Energy Skills Queensland 2016.

⁵ Australian Government – QLD Air Conditioning and Refrigeration Mechanic September 2015

⁶ DET QLD Apprenticeships 2010 to 2016



The introduction of certificate II into industry has caused significant erosion of HVAC&R trade qualified business operators and apprentices limited to learning split system installations because of being hired by peripheral trades.

At the time of submitting this document, new information has been provided by QLD Training Ombudsman,⁷ showing the above data excludes apprentices training under the MEM 30205A Certificate III in Engineering – Mechanical Trade (Refrigeration and Air Conditioning Apprenticeship) has been excluded when calculating some of the above figures. An example is the cancellation rate drops to 13.6% when the MEM apprenticeship numbers are included rather than the above 16%. ARMA are unaware as to reasons for the exclusion.

National Projections November 2015 to November 2020

Occupation	Employment Level November 2015		Department of Employment Projections November 2020	
	Total	Total	Growth	Change
Air-conditioning and Refrigeration Mechanics	24267	24299	32	0.13%
Electricians	165540	191566	26025	15.72%

The absence of degree qualified HVACR engineer training and the immediate disarray of technician training are major issues. The Australian Industry Skills Council has proposed a structure that will provide far too little focus on HVACR training specification by making HVACR training specification a subset of electrotechnology.

The undermining of TAFE and the apparent intent to increase the presence of private RTOs in HVACR training appear to have the potential to significantly reduce the quality of HVACR training.

TAFE offers important training infrastructure that is at risk of being significantly underfunded and reduced by the pressure to increase the role of private RTOs. At the very least there is a need for private RTOs to use the HVACR training infrastructure available in TAFE facilities.

This issue cannot be properly addressed until HVACR trade based licensing is established.

To enable the HVAC&R industry to move forward there is a direct need for an Industry Reference Committee specific to HVAC&R.

ARMA commends and is committed to its grassroots tradespeople, including its commitment to compliance with the Montreal and Kyoto Protocols. Australian Governments have made these commitments without considering the current barriers to change which must be removed to allow industry to direct the change required to meet governments' commitments.

⁷ QLD Training Ombudsman - Apprenticeships 2010 to 2016