

Friday, July 10, 2020

LEADING HVAC&R FOR 100 YEARS



Project Team
Skills for Victoria's Growing Economy consultation

The Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH) appreciates the opportunity to provide input for the consultation on Skills for Victoria's Growing Economy.

AIRAH is Australia's peak membership body for professionals and practitioners working in the heating, ventilation, air conditioning and refrigeration (HVAC&R) industry – a hidden, yet innovative industry that employs over 298,000 people in Australia, is worth \$38 billion, uses more than 24 per cent of the country's electricity and accounts for 13 per cent of our carbon dioxide emissions.

AIRAH's primary aim is to develop the competence and skills of industry practitioners so that they can better meet society's evolving health, safety and environmental demands, and the challenges of a rapidly changing world. AIRAH encourages world's best practice within the industry through continuing professional development, accreditation programs and a wide range of technical publications. We are eager to share our perspective to this consultation as both an industry body, and as a provider of training and education.

AIRAH interprets Vocational Education and Training in its broadest sense; we believe it encompasses not just the courses provided by registered training organisations within the ASQA framework, but also by industry. Indeed, we believe industry must play a key role in Victoria's education and training landscape.

Industry developed and delivered training can often be more targeted to industry needs and more flexible and "just in time" in nature. Government support for this type of training can ensure it is delivered effectively and economically.

In order for this to happen, AIRAH recommends three things:

- The development of a government-approved framework for accrediting industry developed and delivered training that does not involve the large administrative impost of the ASQ framework and RTO registration process.
- Making funding and grants available for industry to develop these courses.
- A focus on continuing professional development (CPD) for all professionals. Across Australia, legislation is now being introduced for professional registration of engineers that will require engineers to engage in CPD. AIRAH also advocates for CPD as a compulsory part of licensing for HVAC&R technicians.

AUSTRALIAN INSTITUTE OF REFRIGERATION, AIR CONDITIONING AND HEATING

Level 3, 1 Elizabeth Street, Melbourne Vic 3000 Australia

03 8623 3000 • airah@airah.org.au • ABN 81 004 082 928

AIRAH100.ORG.AU



LEADING HVAC&R FOR 100 YEARS



AIRAH has also provided responses to some of the specific questions in the Issues Paper, below.

We trust that this information will be useful for the consultation and invite the project team to consult with us if you have any questions.

Regards,

A handwritten signature in black ink that reads 'Tony Gleeson'.

Tony Gleeson, M.AIRAH
AIRAH Chief Executive



Economy and society

How does post-secondary education and training contribute to the productivity of your business or workforce, and Victoria as a whole?

The heating, ventilation, air conditioning and refrigeration (HVAC&R) industry relies heavily on post-secondary education and training.

The workforce can be broadly split into two groups: engineers who design and specify the systems; and technicians who install, commission, maintain and decommission the systems. There are certainly other vital roles within the industry, such as manufacturing, research, sales and administration, but these two groups of workers could be considered the core of the HVAC&R sector.

In 2019, AIRAH conducted a salary survey of the Australian HVAC&R industry that provided comprehensive data on not only salaries, but qualifications of professionals and practitioners in the sector. More details of the survey can be found [here](#).

The survey found that about 45 per cent of workers had VET qualifications – mostly a Certificate III in Air-Conditioning and Refrigeration. About 48 per cent had university qualifications, mostly a Bachelor of Engineering.

The quality of this education and training directly affects the quality of the vital services our industry provides.

Are you aware of an undersupply of any particular skills in Victoria?

The most common issue affecting the HVAC&R industry is a lack of skilled labour. This is especially acute in the trade sector, where contractors and businesses are reporting extreme difficulties in recruiting HVAC&R technicians.

How do you know, and how do you share this information?

AIRAH is aware of this problem through our 4,000 members around the country, and our wider engagement with the industry through our conferences, forums and other events, as well as our publications and communications channels.

At AIRAH's Refrigeration Conference in 2019, a panel of refrigeration and air conditioning contractors noted the skills gap as one of the top issues facing our industry.



A typical case was reported in AIRAH's [HVAC&R Nation magazine](#). One company, after repeatedly trying and failing to find a local refrigeration and air conditioning technician locally, hired a recruitment agent to help bring a technician to Australia from South Africa.

In the article, recruiter Tony Swift said: "Feedback from business owners in this industry is pretty consistent – it's very difficult to find suitably qualified technicians by advertising on job boards like Seek."

How is the changing world of work affecting your industry or workforce? What do you expect will be different in 10 years' time?

The HVAC&R industry is facing a period of major change. Like many industries, we are seeing the impact of technology. But on top of that, we are also in the process of transitioning to a new generation of refrigerant gases – the operating fluids used in the majority of HVAC&R equipment. In the past, most refrigerants were non-flammable and non-toxic; now, as part of a move to less environmentally harmful gases, refrigerants are often either flammable or toxic, or work at high pressures. It is vital for the safety of workers and end-users that technicians know how to work with these gases.

In 10 years' time, we know from the government timetable for the HFC phase-down that a much larger percentage of refrigerants will be flammable and/or toxic, and technicians will need to be trained and educated in their handling. A growing focus on system efficiency and emissions reduction will also require technicians to meet higher standards when installing, commissioning, maintaining and decommissioning equipment.

Government

What are the benefits of collaboration (rather than competition) between education and training providers for your industry or workforce?

Training and education in refrigeration and air conditioning relies on access to a wide range of equipment. As well as understanding the theory behind the systems, students must have the opportunity for hands-on learning.

Unfortunately, given the range of systems that HVAC&R technicians work on, and the rate of technological change and the transition to new refrigerant gases over the past decades, providers are struggling to provide the right equipment for students to work on. They often rely on industry bodies and companies to supply equipment free or at discount (partly as a form of advertising to students, who become familiar with a particular product and will then be more likely to purchase this brand when working in the field).



Given the equipment-intensive nature of refrigeration and air conditioning training and education, finding a way for providers to better collaborate could be a major benefit. As an example, RMIT has training facilities in CO₂ refrigeration, an emerging technology used extensively in supermarkets that has less environmental impact than traditional synthetic refrigerants. Holmesglen TAFE has a Centre of Excellence, opened in 2018, that provides specialised facilities for refrigeration and air conditioning students. But in the current environment, each TAFE is encouraged to treat these facilities as a point of competitive advantage, rather than facilities that could be jointly used to better train apprentices in the Melbourne metro area.

Students

Apprenticeships/traineeships: What are the positives and negatives of employing apprentices and trainees? What improvements are needed?

As indicated above, HVAC&R technicians generally complete a Certificate III in Air-Conditioning and Refrigeration, which means they do an apprenticeship. Entrance and retention of students is therefore heavily influenced by the availability of apprenticeships. This is especially true for the “hidden” industry of HVAC&R. Despite being vital to many aspects of modern life – including food storage, hospital operation and basic comfort and wellbeing in modern buildings – the trade is not recognised in the way that others are. Students often discover it when they are considering working as electricians or plumbers, and an apprenticeship becomes available with an HVAC&R company.

AIRAH supports programs and policies that would provide HVAC&R companies with incentives to take on more apprentices. We also believe that, given the need for skilled workers and the projected growth of this industry, the Certificate III in Air-Conditioning and Refrigeration should be included among the free TAFE courses.

How well are training packages working?

The training packages for air conditioning and refrigeration suffer from the slow-moving review processes noted in the review.

The UEE32211 – Certificate III in Air-conditioning and Refrigeration is a case in point. As a result of industry changes described above, apprentices now need training in handling of flammable refrigerants. But the review and approval process for this package has been held up a number of times because of issues with the electrotechnology sections of the package.



Moreover, although the packages have been updated over the years to include new technology, old systems and technology must still be taught, because technicians may still come across it in the field.

[As one educator put it:](#) “The course I did as an apprentice contained 12 subjects. The course version we are using today contains 27 subjects, yet the duration is still three years.”

Literacy and numeracy: Are low literacy and numeracy an issue for your staff/members? What do you do to address this?

Early in 2019, AIRAH spoke with several TAFE/VET trainers about the AIRAH Education Partner program, their work, and how AIRAH could continue to support them and their students with the resources we have available to us.

One of the main concerns raised was around the numeracy and literacy of new apprentices. Many were struggling in class.

A suggestion that came out of the same consultation was to develop a numeracy and literacy screening test for employers to use for potential apprentices.

Providers

Do you think we have the right mix of post-secondary education and training providers in Victoria? What do we need more or less of?

As well as being a peak industry body, AIRAH is a provider of professional development in the field of HVAC&R.

AIRAH offers the only HVAC&R-specific course designed by industry experts for postgraduate entrants to the HVAC&R industry: the [AIRAH Accredited Professional Diploma in Building Services – HVAC&R](#). It provides essential knowledge and skills to engineering graduates employed in consulting or contracting firms and/or practicing trades workers.

Since it began in 2016, over 270 students have undertaken the program, affirming that it fulfils an industry need. But AIRAH does not have the resources, or the volume of students, to carry the heavy administrative burden of offering the course as a registered training organisation with the ASQA framework.



As mentioned above, there is an important place in Victoria's education and training landscape for this type of training. It can be more targeted to industry needs and more flexible and "just in time" in nature. We believe there is a strong case for supporting industry to develop this kind of training, rather than trying to make the VET system satisfy all of the state's needs.

Employers and unions

What does 'work-readiness' mean to you? What role can employers and unions play in preparing students for work?

VET students generally enter the HVAC&R industry via an apprenticeship, meaning that they receive on-the-job training while they are studying, and are perhaps more "work ready" than students who complete a VET course and then look for a job later.

Nevertheless, "work ready" doesn't only apply to the period when a student finishes their VET course – it should apply to all moments in their career and should encompass continuous professional development.

In the HVAC&R industry, this is especially important with the introduction of new technology and new refrigerant gases that can carry safety risks if workers are not properly trained to use them.

Employers play a vital role by ensuring that their employees are trained on the systems that they will be working on. At the moment, this need is often satisfied not by the VET sector but by third-party training, from manufacturers, wholesalers, or industry bodies. AIRAH supports this model, because these organisations have expertise, capacity and flexibility for delivering this training; however, it would be beneficial if this training could be recognised through an accreditation framework. This would provide greater incentive for workers and employers to undertake training.

Another mechanism that could be used to promote this kind of training is licensing. AIRAH advocates for CPD to be included in licensing of HVAC&R technicians, and as part of professional registration of engineers.

LEADING HVAC&R FOR 100 YEARS



What examples exist in Victoria of industry co-investment in post-secondary education and training, including in applied research?

AIRAH has joined an HVAC&R Project Steering Committee as an industry advisor for a project to address current skills gaps in the refrigeration workforce. The project is being run by GOTAFE and Bendigo TAFE and has received funding from the Workforce Training Innovation Fund (WTIF).

In undertaking this project, both GOTAFE and Bendigo TAFE have recognised that establishing an industry needs based training program is best achieved with real authentic advice direct from industry itself.