



AIRAH

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About AIRAH

AIRAH is Australia's peak body for professionals working in the heating, ventilation, air conditioning and refrigeration (HVAC&R) and building services industry.

Our vision is HVAC&R for a better world. Our mission is to lead an Australian HVAC&R industry that is highly skilled, safe and sustainable.

We are a long-standing and respected voice. Established in 1920, we have represented the industry for more than 100 years. We have a direct membership of around 4,000 professionals, and reach to more than 25,000 industry participants, including engineers, trades, educators, students, manufacturers, regulators, business leaders, and other industry experts. We harness the expert knowledge and experience of our members to support the development of codes and standards, and provide input for government consultations and industry initiatives.

Over the past year, we have been pleased to see the Albanese government continue to engage closely with our sector. As well participating the consultations mentioned above, AIRAH has joined newly constituted working groups and attended meetings on the topics of most importance to us and our members. These are the transition to a net zero future; professionalism and safety; and resilience in the built environment.

About the HVAC&R building services industry

Australian HVAC&R is carbon intense. According to the latest *Cold Hard Facts* report, prepared for the Department of Climate Change, the Environment, Energy and Water, Australian refrigeration and air conditioning equipment is responsible for 12 per cent of total national CO₂e emissions, and uses around a quarter of all electricity used nationally.

As well as playing a key role in the environment, our industry also makes up an important part of our economy. We estimate that around 325,000 Australians work in HVAC&R, including technical and non-technical people. In 2019, direct spending on hardware, consumables and energy, plus employment in the sector, was estimated at more than \$41 billion, or around 2.1 per cent of Australian gross domestic product.

These are big numbers, illustrating how deeply HVAC&R is embedded within every aspect of the Australian economy. As Australia and the developed world acts to control and contain carbon emissions, low-emission HVAC&R has an essential role to play. Future HVAC&R must therefore be low-impact and low-carbon.

In response to the *Building Confidence* report released in 2018, federal and state governments have been taking steps to address issues in the building and construction sector. Many of these measures relate to registration and licensing of professionals, and HVAC&R is one of many industries that is implementing new rules and frameworks to ensure that work is only done by suitably qualified and experienced professionals.

These professionals will be busier than ever over the coming decades as we decarbonise the built environment. Much of the work will be in HVAC&R, such as removing fossil-fuel powered heating systems and replacing them with alternatives that run on renewable electricity. For us to succeed, we will need to address our current skills shortage across both engineering and trades.

In recent years, due to the COVID-19 pandemic and major weather events, we have also begun to appreciate the importance of a resilient built environment. HVAC&R plays a key role here, maintaining air quality indoors, and protecting occupants from extreme temperatures.

Transition to a net zero future

Australia has committed to reduce greenhouse gas emissions by 43 per cent below 2005 levels by 2030, and to achieve net zero emissions by 2050.

As noted in *Every Building Counts*, buildings account for over 50 per cent of electricity use in Australia and almost a quarter of its emissions. The built environment has the technology to decarbonise now, but we must do this at speed and scale to smooth the way for other hard-to-abate sectors and meet our emissions reduction commitments.

AIRAH applauds the government's decision to develop a sectoral plan for the built environment in the Net Zero Plan. Heating and cooling accounts for around 40 per cent of energy use in buildings, so we anticipate providing important input to this process.

In the journey towards net zero, AIRAH is focusing on three areas.

REFRIGERANT TRANSITION

Australia is undertaking a statutory phase-down of hydrofluorocarbon (HFC) imports that will reduce HFC imports (based on CO₂-e) by 85 per cent by 2036. This work represents our government's commitment to the Kigali Amendment, a worldwide agreement to a global 85 per cent phase-down of HFCs by 2050. This can avoid up to 0.4°C of global warming this century.

At the same time, the HVAC&R industry worldwide is moving towards refrigerants with different characteristics to those traditionally used. Some are flammable, others work at high pressures. It is vital that professionals have adequate training to work with these refrigerants.

Over 2023, AIRAH was pleased to participate in various working groups and initiatives with the federal government addressing the challenges above. We look forward to continuing this work.

In the 2024 budget, AIRAH calls for:

- Strengthening of the national ARCTick licensing scheme for refrigerants to allow for more effective compliance activities and better analysis of data on licence holders and refrigerant usage
- Funding for the development of new trade technical resources and training for all low-GWP refrigerants and their associated technologies
- Incentives and communications activities to raise awareness about the HFC phase-down among owners of HVAC&R equipment and encourage them to transition to low-GWP refrigerants
- Adjustments to the HFC phase-down program to facilitate the phase-down, for example, through limiting the import of particular types of equipment, particularly in sectors where the transition to lower-GWP refrigerants needs to be accelerated
- Funding to develop training for engineers on the implementation of AS/NZS 5149 (Refrigeration Safety Standard).

BUILDING SECTOR SUSTAINABILITY

Achieving a sustainable built environment will require us to reduce operational emissions through a number of measures.

Electrification: The ASBEC report *Unlocking the pathway* has confirmed that electrification is the lowest cost, fastest emissions reduction pathway for Australia's built environment. According to the report, electrification would save \$49 billion between 2024 and 2050 compared to a mixed strategy of electrification, gas and offsets. It would also save 199 Mt CO₂e before offsets. Achieving this requires a commitment to investing in electrification and a clearly communicated commitment to move away from gas. AIRAH takes a keen interest in electrification because much of the work is related to heating and cooling buildings.

Energy efficiency: Research commissioned by the Energy Efficiency Council (EEC) and ANZ estimates that energy efficiency will deliver 19 per cent of the emissions reductions Australia requires by 2030, and 14 per cent by 2050. AIRAH recognises the need for HVAC&R systems to be as energy efficient as possible. To achieve this, we need robust ratings systems for equipment, good design, installation and commissioning practices, and effective maintenance regimes.

Flexible demand: As the grid decarbonises, we are seeing patterns of energy supply changing in line with availability of renewable energy. And as our built environment grows and relies increasingly on renewable energy, we must ensure that the grid is capable of handling peak demand. This can be addressed at both the supply and demand side; HVAC&R equipment offers opportunities to smooth out peaks in demand in grid-interactive buildings.

Embodied carbon: As well as reducing operational emissions, we must reduce embodied emissions that are locked into materials and equipment when they are manufactured, transported, installed, repaired, and disposed of at end of life. This applies to HVAC&R and other building services equipment.

In the 2024 budget, AIRAH calls for:

- The update and implementation of the *Trajectory for Low Energy Buildings*, which outlines a pathway towards “zero energy- (and carbon-) ready buildings”, increases to the energy-efficiency provisions in the National Construction Code and further consideration of options for existing buildings
- The implementation of *Every building counts: a practical plan for emissions reduction in the built environment*, which provides a set of recommendations for how Australian governments can help reduce emissions in the built environment
- Continued expansion of the National Australian Built Environment Energy Ratings System (NABERS), including supporting the new framework for embodied carbon
- Strong mandatory minimum standards for new buildings, equipment and appliances, with the long-term goal of net zero emissions via design integration through commissioning and validation testing but also strong minimum standards for the operation and maintenance of existing buildings and infrastructure
- Harmonised targeted incentives and coordinated programs between states and territories to accelerate action, and to motivate and support higher performance, including incentives and the use of government market power
- The implementation and support of a nationwide household energy efficiency scorecard that would inform efforts to improve the energy efficiency of homes.

Professionalism and safety

AIRAH's mission is to lead an Australian HVAC&R industry that is highly skilled, safe and sustainable.

The HVAC&R industry operates under a wide range of legislation and regulatory requirements and regimes from all levels of government. AIRAH informs and works with all regulators to help bring an HVAC&R voice to the development of the environmental, energy, building, WHS, plumbing, electrical and health regulations that impact the HVAC&R industry.

AIRAH seeks to improve professionalism and safety in the industry by focusing on three areas.

REGISTRATION OF ENGINEERS AND WORKFORCE DEVELOPMENT

In response to the recommendations in the *Building Confidence* report, published in 2018, state and territory governments have been rolling out professional registration schemes for engineers.

AIRAH is supporting these efforts through its AIRAH Professional Engineers Register (APER) program. This is a professional accreditation for engineers operating in the HVAC&R industry and is designed to meet the requirements of the state-based schemes.

In the 2024 budget, AIRAH calls for:

- Harmonisation and mutual recognition of state and territory professional registration schemes, to reduce barriers for registered practitioners working across jurisdictions
- Greater investment in pathways from secondary education to engineering careers, including promoting STEM to all students, and better supporting migrant engineers.

HVAC&R LICENSING AND TRADE DEVELOPMENT

Based on data from the Australian Refrigeration Council, the HVAC&R industry also comprises more than 100,000 VET-trained technicians who design, install, commission, maintain, repair, and decommission refrigeration and air conditioning systems.

As the technology evolves, and as the demand for HVAC&R technicians increases, we must ensure we have enough skilled workers.

In the 2024 budget, AIRAH calls for:

- Strengthening of the national ARCTick licensing scheme to allow for more effective compliance activities and better analysis of data on licence holders and refrigerant usage.
- Greater investment in establishing pathways to trade careers, including promoting STEM to all students and educating career counsellors on available trade options,

INDUSTRY TRAINING

AIRAH is committed to providing the tools to advance the knowledge and skills of HVAC&R professionals, and raise awareness of changing legislation and regulatory requirements.

Current offerings include AIRAH Accredited Professional Diploma of Building Services – HVAC&R; the Professional Diploma in Sustainable HVAC Design and Operation; the AIRAH Professional Certificate in HVAC&R Fundamentals; courses on Essential Safety Measures and Smoke Control and Fire Dampers; and focused training on NCC 2022 Volume 1 Section J.

From AIRAH's experience, practitioners entering the industry, usually after completing a Bachelor of Mechanical Engineering, do not have the knowledge they need to hit the ground running in the HVAC&R building services industry, hence the high demand for post-graduate training, such as the courses above. There is a need to strengthen both the post-graduate offerings, and the teaching of HVAC&R building services within university engineering departments.

In the 2024 budget, AIRAH calls for:

- Funding for the development of further post-graduate courses for the HVAC&R building services industry and dedicated funding for courses provided by industry bodies that facilitate the implementation of critical codes and standards, for example the National Construction Code 2025.
- Greater support for university education in the area of HVAC&R building services
- Financing open access to Australian Standards that are called up in law, rather than requiring professionals to purchase them
- Investment in updating the training package for refrigeration and air conditioning trades to reflect the latest technologies and industry practices.

Resilience in the built environment

In the current global physical, social and environmental situation, the ability of a building to deal with external and unusual impacts due to pandemics, bushfires, floods, climate change, extreme heat and cold, severe storms, earthquakes, social unrest, terrorist attack or criminal misadventure, is becoming more important and more valued.

EPIDEMIC PREPAREDNESS AND RESPONSE

The pandemic has increased general appreciation of HVAC&R and other building systems and the role they play in preventing the spread of airborne pathogens. More broadly, this has led to analysis of these systems to determine how they may help the spread of other infectious diseases, and improve indoor air quality in general.

AIRAH advocates for improvements to ventilation systems, and develops and disseminates resources to support this work. This includes resources aimed at ventilation in schools, and in operating theatres. AIRAH is working with government and industry to share this information.

In the 2024 budget, AIRAH calls for:

- The development and implementation of an Australian Standard for indoor air quality – although design standards exist, there is no standard that can be applied in operational settings
- Development of credible, government-endorsed, public information regarding the importance of indoor air quality
- Development of credible, government-endorsed, public information providing on how building owners and occupiers can respond to bushfire smoke
- Continued support for the QUT project with the Australian Research Council: “Training Centre for Advanced Building Systems Against Airborne Infection Transmission” – THRIVE.

HVAC&R RESILIENCE

The resilience of Australian buildings, the cold chain, IT infrastructure, health services, manufacturing facilities and processing sectors all depend on the resilience of the HVAC&R systems that support them. The resilience of these systems has to be addressed to safeguard the built environment and its occupants during extreme events.

In the 2024 budget, AIRAH calls for:

- More research, particularly into the magnitude of impacts and change in future climate design data over the typical 10 to 20 year “useful life” of an HVAC&R system
- Policy platforms around resilience, including strong minimum standards as well as incentives for best practice and support for training and professionalism
- Investment in technologies that offer demand flexibility, increasing the resilience of the electricity grid.