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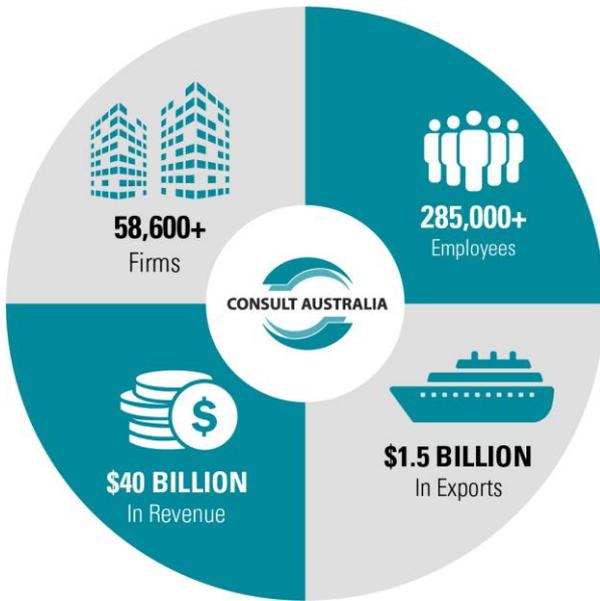
# **Updating the Australian and New Zealand Standard Classification of Occupations**

**SUBMISSION TO AUSTRALIAN BUREAU OF STATISTICS**

**Consult Australia**

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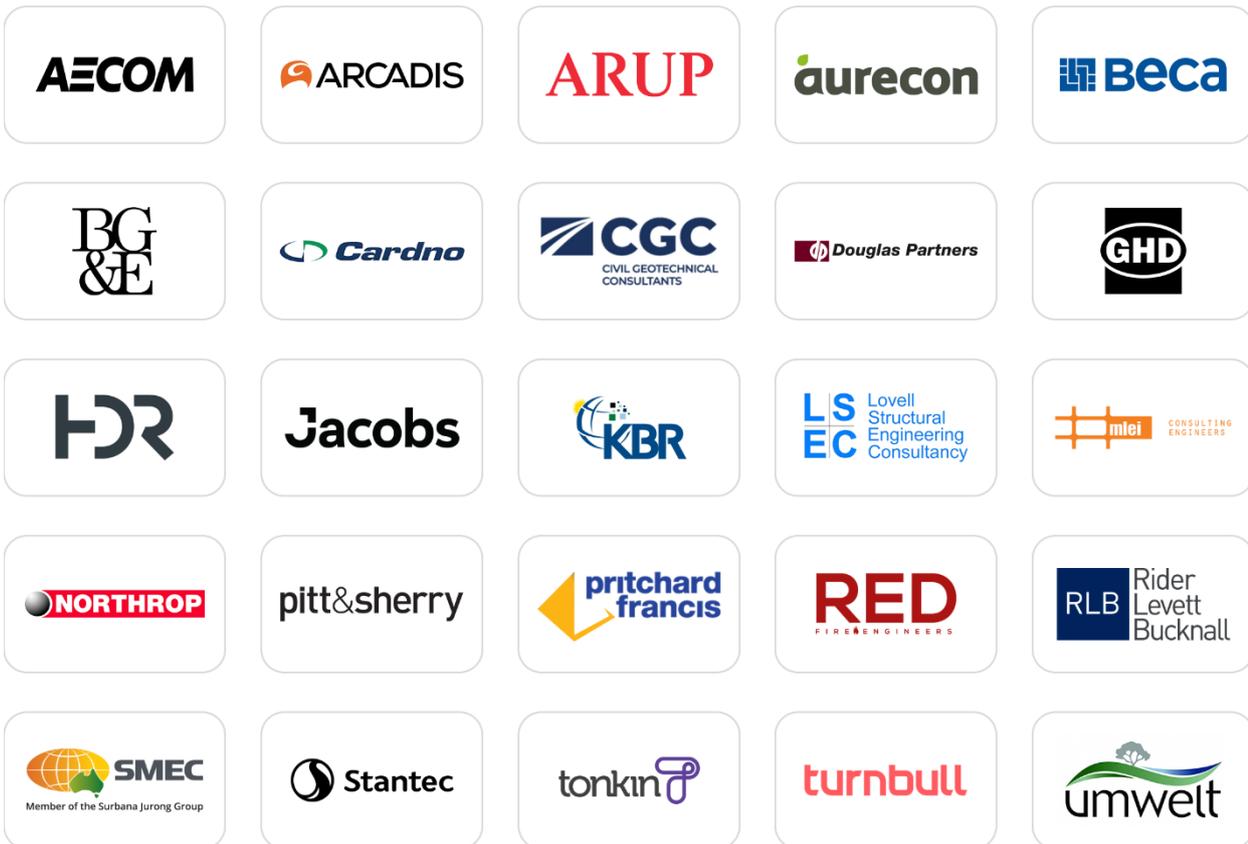
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## ABOUT US

Consult Australia is the industry association representing consulting businesses in design, advisory and engineering, an industry comprised of over 58,600 businesses across Australia. This includes some of Australia’s top 500 companies and many small businesses (97%). Our members provide solutions for individual consumers through to major companies in the private sector and across all tiers of government. Our industry directly employs over 285,000 people in architectural, engineering and technical services and many more in advisory and business support. It is also a job creator for the Australian economy, the services we provide unlock many more jobs across the construction industry and the broader community.

### Our members include:



A full membership list is available at: <https://www.consultaustralia.com.au/home/about-us/members>

## EXECUTIVE SUMMARY

Consult Australia welcomes the opportunity to contribute to the Australian Bureau of Statistics' (ABS') 2022 update of the Australian and New Zealand Standard Classification of Occupations (ANZSCO). We understand that in this targeted update the ABS is looking at the following areas:

- construction-related trades occupations – particularly a preliminary list of 24 occupations where an Australian Apprenticeship is a significant pathway
- other areas of ANZSCO requiring update to assist with planning future updates
- the way skills are reflected in the classification.

We are supportive of the approach taken by the ABS to undertake targeted reviews of ANZSCO and being open to new and emerging occupations.

We are concerned that specialist skills which are vital for the success of Australia's construction and infrastructure workforce are not being prioritised in this ANZSCO update. In this update, the focus is on trade occupations – but nothing can be built before it is designed.

The unfortunate reality is that design consultants such as engineers, scientists and architects are in critical shortage across Australia with Infrastructure Australia reporting that there is an immediate need for over 50,000 engineers, scientists and architects which is going to grow to 70,000 when the peak demand of infrastructure projects hits in the next few years.<sup>1</sup> While infrastructure skills are in shortage across multiple occupational sectors, including structural trades, civil trades and labour, half of the occupational shortfall will be impacted by a lack of engineers, scientists, and architects.<sup>2</sup>

Many of the occupations that make up this need, either do not yet have a specific classification code under ANZSCO or it is unclear where they fit under other occupations. Specialist skills such as digital engineering (data engineer/BIM manager), energy efficiency engineer, rail engineer, bushfire consultant, human factors consultant and sustainability engineer are particularly hard to recruit for as they require lengthy qualifications and accreditations to meet the skill level. Access to these roles whether it be through education, training or global market recruitment is further complicated when the occupations do not have a specific classification code under ANZSCO.

Many of these occupations are the result of emerging industry developments in technology and digitalisation, and are critical skills for our industry, however without ANZSCO recognition they cannot be added to the skills priority list, or sufficiently prioritised in education and skilled migration policies.

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<sup>1</sup> Infrastructure Australia, [Infrastructure workforce and skills supply](#), p. 6.

<sup>2</sup> Infrastructure Australia, [Infrastructure workforce and skills supply](#), p. 6.

## AREAS OF ANZSCO REQUIRING UPDATE IN FUTURE TARGETED REVIEWS

As a result of new and emerging technologies and climate change, new and emerging occupations need to be recognised to ensure the development of necessary specialist skills. With an already strained occupational profile, the consulting sector, particularly engineers, scientists, and architects, needs immediate attention and support to address skill shortages.

The following occupations have been identified as specialist skills that require ANZSCO classification to ensure policies can appropriately capture the education and skilled migration needs to meet demand.

### Data Engineers (Digital Engineer/BIM Manager)

In our submission to the 2021 Targeted Update of the ANZSCO, we identified Digital Engineer/Building Information Modelling (BIM) Manager as roles that could fit within the occupation of Data Engineer. We understand that the category *Electronic Engineering Draftspersons and Technicians* (3124) was updated as part of the 2021 review, but the proposed inclusion of Data Engineer does not appear to be introduced. This is despite the occupation being identified as one of the National Skills Commission’s 25 emerging occupations. Whilst we appreciate some occupations are grouped amongst umbrella occupations, we value Data Engineers such as Digital Engineer or Building Information Modelling (BIM) Manager to be a unique skillset that requires an independent code.

These roles are growing significantly with the increased use of digitalisation in design projects and the increasing mandate by government in their digital strategies to rely on BIM and digital twins. BIM Managers require a mix of IT and engineering, but do not necessarily require an engineering degree. BIM represents a significant growth area for our industry and is reported by our members to be in national shortage particularly in New South Wales, Victoria, Queensland, Western Australia, and South Australia in metropolitan areas. Data Engineers may be a more appropriate occupational umbrella as it appears flexible enough to capture other emerging digital skills related to the built environment and infrastructure.

#### Typical duties of BIM Managers:

Implementing BIM standards on projects, providing input into company-wide BIM systems development, quality assurance checks on designs/documentation prepared to BIM standards to meet client expectations, implementing project documentation plans and any project BIM management or execution plans, participating in day-to-day modelling tasks.

#### Skills and qualifications of BIM Managers:

Knowledge of engineering software solutions (e.g. AutoCAD, Revit, Bentley) across different disciplines, including an ability to advise on best practice, interoperability and workflows. Experience developing and implementing digital design engineering strategies, and a degree in civil engineering or equivalent industry qualifications.

### Energy Efficiency Engineer

We understand that Energy Efficiency Engineer was also a considered occupation in the 2021 ANZSCO Targeted Review based on the National Skills Commission’s 25 emerging occupations. It is unclear from the 2021 Targeted updates and the ANZSCO website whether Energy Efficiency Engineer is now an ANZSCO listed classification.

Consult Australia supports the inclusion of Energy Efficiency Engineer into the ANZSCO. Increasingly sustainability and energy efficiency are a key focus for our members. We believe there are numerous roles which can fit within the description of Energy Efficient Engineer, including:

- Environmentally Sustainable Design (ESD) Consultant
- Environmentally Sustainable Design (ESD) Engineer
- Sustainability Engineer/Consultant

- Life Cycle Design Consultant.

We would recommend broadening the description of Energy Efficient Engineer to incorporate the above. We are increasingly finding that these roles are becoming occupations in their own right.

#### **Typical duties of an Energy Efficiency Engineer:**

Analysing and presenting different forms of energy options to clients, with a focus on minimised energy consumption, determining ways to improve environmental performance, and working collaboratively with other specialists including architects and designers to improve project outcomes.

#### **Skills and qualifications of an Energy Efficiency Engineer:**

Strong technical engineering knowledge with a good understanding of energy efficient solutions (including low-carbon building solutions). Sound knowledge of mapping, thermal and energy modelling and life cycle assessment tools. A degree in a relevant engineering or sustainability subject or relevant experience is required and specific accreditations are often expected.

### **Rail Engineer**

The industry is unclear whether Rail Engineer fits within either (or neither) the Civil Engineer or Transport Engineer classification. Neither classification specifically includes Rail Engineer. While we have been advised that Rail Engineer can potentially be picked up under the Transport Engineer occupation, within the industry these are viewed as different specialities. It is more likely that Rail Engineer would be considered by the industry as within the Civil Engineer classification.

Either way, the industry needs more clarity and specificity in the ANZSCO to address the current confusion in our industry (including how applicants are assessed) and to ensure that either the Civil Engineer or Transport Engineer classification is sufficiently wide to capture Rail Engineer.

This is a priority issue for Consult Australia members as Rail Engineering is a unique skillset with significant shortages in Australia and there is substantial investment in rail projects in the pipeline across Australia. Both Civil Engineer and Transport Engineer were recently added to the priority migration skilled occupation list (PMSOL) for priority visa processing. Without this clarification, we might not have the workforce capacity to deliver the infrastructure spend in rail that governments are looking for to stimulate the economy.

If Rail Engineer was to be included as a new sub-category of Civil Engineering Professionals it would become '233216, Rail Engineer'.

### **Fire Engineer**

Fire Engineers are appropriately qualified and experienced practitioners who, through sound and robust engineering practice, provide services that achieve reductions of risk of life for people in buildings, reduction in property and environmental damage from building fires and the implementation of cost-effective fire safety codes and regulations.

Our members report that Fire Engineers are in national shortage particularly in New South Wales, Victoria, Queensland, Western Australia, and South Australia in metropolitan areas. It is anticipated that this demand will increase over the next five years.

Fire Engineers provide advice that affects the design and specification of services such as fire detection, fire suppression and access for fire service appliances. Fire Engineers understand and apply engineering training, fire science as well as the requirements of building codes and other relevant standards.

Therefore, services by Fire Engineers can include:

- performance-based fire safety design
- fire safety analysis of smoke control systems, building detection/alarm and suppression systems
- evacuation modelling
- fire and smoke modelling

- building design
- design and development of building fire safety strategies.

**Typical duties of a Fire Engineer:**

Performance solutions, fire hazard analysis, evacuation analysis, structural fire engineering, and probabilistic risk assessment.

**Skills and qualifications of a Fire Engineer:**

Experience in fire engineering design, project management and implementation, experience in building code consultancy, strategic advice, fire prevention through specialised fire safety design, smoke and egress modelling, construction supervision, inspection and risk assessment, knowledge of relevant legislation, regulations, codes of practice and guidelines, and relevant tertiary qualifications in fire and life safety, structural engineering, or similar.

**Bushfire Consultant**

Bushfire Consultants implement industry best practices within fire and land management planning and assessment. Services of a Bushfire Consultant can include:

- bushfire threat assessments
- bushfire building and planning compliance
- bushfire design briefings
- strategic bushfire management plans
- bushfire evacuation and emergency plans
- threatened species surveys and implementation of recovery plans
- development and implementation of restoration and recovery plans.

**Typical duties of a Bushfire Consultant:**

Preparing technical reports, management plans and strategies, making technical decisions, and contributing to the preparation of related proposals.

**Skills and qualifications of a Bushfire Consultant:**

Experience in natural resource management and/or bushfire management, qualifications in science or forestry/land management related disciplines, post-graduate qualifications in bushfire planning and design, and ability to deliver high quality and technically robust project outcomes.

**Human Factors Consultant**

Human Factors Consultants design products, processes, and systems by applying human factors processes. This can also include considering human performance which applies principles of psychology, physiology, biomechanics and ergonomics to optimise the interaction between people and critical systems.

**Typical duties of a Human Factors Consultant:**

Developing relevant human factors management plans and procedures for complex projects, from both a technical and commercial perspective, identifying human factors issues and carrying out assessment for a range of projects (for example, a rail or road infrastructure project), carrying out human factors analysis techniques by using anthropometric data (for example, hierarchical task analysis, human error and reliability analysis, human factors analysis, workload analysis, and structured interviews with subject matter experts), preparing human factors requirements as part of inputs for a design, facilitating human factors workshops and participating in risk workshops, and supporting bid and proposal activities that identify human factors engineering solutions.

**Skills and qualifications of a Human Factors Consultant:**

Experience in undertaking formal human factors analysis as applied to engineering programs, knowledge of systems engineering and an understanding on how to integrate human factors into this approach, and relevant degree and/or post graduate qualification in occupational psychology or ergonomics (or three years equivalent experience).

## CONTACT

We would welcome any opportunity to further discuss the issues raised in this submission. To do so, please contact:

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