

# ARCHITECTURAL, ENGINEERING & TECHNICAL SERVICES

THE INDUSTRY & WORKFORCE IN WESTERN AUSTRALIA 2019



## THE INDUSTRY<sup>1</sup>

The Architectural, Engineering and Technical Services industry employs almost 43,000 Western Australians. The industry encompasses a broad range of sectors, from architectural and building design services, to surveying and spatial sciences and engineering design and consulting.

This is a heavily male dominated industry with a large proportion of its workforce engaged in full-time employment. The demand for workers in this sector is largely dependent on WA's cyclical buoyancy of the resources industry, infrastructure work and land development. Signs of skills shortages are beginning to emerge resulting in VET and tertiary surveying graduates finding employment quickly.

## KEY WORKFORCE DEMOGRAPHICS<sup>2</sup>

### Gender



30% female

### Age



35% <35 years of age

### Nationality



40% born outside Australia

### Employment



73% employed full time

### Education



53% tertiary qualified  
43% vocational & secondary qualified

### Weekly Income



24% earn <\$1,000  
49% earn \$1,500+

## WORKFORCE PRIORITIES<sup>3</sup>

1

Surveying and spatial sciences occupations are adopting advanced technologies, requiring new entrants and existing workers to have highly specific, technical skills and knowledge.

3

Educational pathways for Authorised Mine Surveyors are under review. WA's VET pathway is critical in supporting mining and infrastructure activity, currently on the rise.

2

Increasing use of pre-fabricated modular homes will see a decrease in the demand for draftspersons as clients rationalise efficiencies, look for lower maintenance and cheaper building options.

4

Emphasis is being placed on application of data for planning and development, including the ability to process, analyse and manipulate data, think critically, problem solve and innovate solutions.

## OCCUPATIONS & CAREERS

### Surveying and Spatial

Surveying Assistant  
Land Surveyor  
Mine Surveyor  
Cadastral Surveyor  
Geodetic Surveyor  
Hydrographic Surveyor  
Photogrammetric Surveyor  
Cartographer



### Building Design

Architect  
Landscape Architect  
Conservation/Heritage Architect  
Draftsperson  
Building Designer  
Urban & Regional Planners  
Interior Design



### Emerging roles

Drone Operator  
CAD/BIM Technician  
Data Analyst



1: Australian Bureau of Statistics, 6291.0.55.003, Labour Force, Australia, Detailed, Quarterly, May 2019, Data Cube EQ06, 692 Architectural, Engineering and Technical Services.  
(Does not include Engineering Design & Engineering Consulting Services, Other Specialised Design Services or Scientific Testing & Analysis).

2: Australian Bureau of Statistics, Census 2016, TableBuilder. Findings based on use of ABS TableBuilder data for Architectural Services & Surveying and Mapping Services.

3: FAPSTC's Workforce Profile: Architectural, Engineering and Technical Services, 2019.



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## INDUSTRY DEVELOPMENTS<sup>4</sup>



**TECHNOLOGY** Technological advances continue to shape the sector, enabling automation of processes, digitisation of data collection, cloud based processing and data storage. Technology such as remote sensing, photogrammetry, satellite positioning, laser scanning, digital mapping and drones continue to drive operational changes, particularly in the surveying and spatial sector. It is increasingly important users maintain awareness of ancillary compliance and changing statutory requirements on use of adopted technologies.



**BUILDING INFORMATION MODELLING** BIM's integrated capacity exemplifies the emergent streamlining and convergence of industries in property services. Adoption of such technologies will require a breadth of skills to support technical knowledge. The main workforce priority for the building design industry is ensuring new and existing workers are skilled in the use of BIM and other building automation software. This is likely to increase as the use of these programs and other technology (such as 3D modelling) continue to rise.



**HOUSING DIVERSITY** The WA Government is implementing a staged approach to higher density development and infill throughout Perth setting a new policy to guide subdivision, building design and development of small lots in new residential areas and transit precincts. Housing diversity is essential to WA's long-term prosperity, infill targets and improved liveability. Density housing is fuelling local planning debates as local governments review their local planning schemes to incorporate medium density housing in well-established suburbs.



**SHORTAGES** Commercial construction, major civil infrastructure projects and WA's recovering mining sector are driving the need for surveyors, with signs of skills shortages beginning to emerge, particularly in local government and the Goldfields. The ability to manipulate data, distil information, analyse applicability and determine cross-sector relevance is driving a need for surveyors to have skills beyond the ability to use and apply technologies to measure and record data.

## TRAINING<sup>4,5</sup>

WA has a unique training environment which offers both vocational and tertiary pathways into surveying. Despite low enrolment numbers, the Advanced Diploma in Surveying continues to provide a critical pipeline of mining surveyors to meet cyclical demand. Cessation of vocational delivery through South Regional TAFE and limited work-based training options may impact supply in the region which supports both mining and infrastructure activity.

Legislative and regulatory reform is anticipated following the release of a report commissioned by the Building Master's Forum, assessing current compliance and regulation systems in the building and construction industry across Australia. The current update of VET surveying and spatial qualifications are set to capture the changes affecting industry, resulting in better suited training products to include big data, changing technology and base core compliance audit skills.

The Property Services Training Package contains 14 traineeships ranging from Certificate II to Diploma qualifications, including a Certificate IV and Diploma in Surveying. These provide vocational training through a combination of on-the-job and off-the-job training. Financial incentives exist for eligible employers.

