VSC Victorian Skills Commissioner

Sector Snapshot

Timber Frame and Truss Sector

December 2020

This document provides a snapshot of skills demand for the Timber Frame and Truss sector in Victoria. For the purposes of this snapshot, the Timber Frame and Truss sector includes companies that manufacture wooden structural fittings, components for prefabricated buildings, roof trusses, and wall frames.

VICTORIA
State Government

Foreword

This Sector Snapshot provides a snapshot of skills demand for the timber frame and truss sector in Victoria. For the purposes of this snapshot, the timber frame and truss sector includes companies that manufacture wooden structural fittings, components for prefabricated buildings, roof trusses, and wall frames. This snapshot provides a genuine understanding of the current and future (1-3 year horizon) skills and training requirements of the sector, with a focus on the elements of the workforce using VET courses and their career pathways. It also considers the impact of the COVID-19 pandemic on the future jobs and skilling needs of the sector.

The success of this work relied on insights from experienced employers within this sector to provide a sector-wide view of skills requirements and workforce challenges. A small representative group of employers, spanning a range of services and market segments, were engaged in an employer roundtable to develop this snapshot. Insights from public data on the timber frame and truss sector were presented and validated with participants.

The roundtable provided the opportunity for timber frame and truss employers to input their view of priorities and requirements from the VET system in addressing sector skills issues. As such, this presents a picture of the demand side of the training market. This snapshot can be used by TAFE and training providers to better understand the timber frame and truss sector's priorities in terms of occupation and skill demand to ensure the supply side responds appropriately to VET opportunities.

The Victorian VET system aims to deliver 'real training for real jobs' by providing up to date training for new challenges in the sector. This report is part of a series of sector snapshots which are being developed by the Office of the Victorian Skills Commissioner (OVSC). The set of sector demand snapshots complements the Commissioner's Regional Skills Demand profiles to provide a richer picture of the skills needs of Victorian employers. Insights from consultations will inform Government decisions around funding for accredited training. A collaborative effort between Government, employers and training providers is required to address these challenges.

This snapshot represents a summary of the views of consulted employers and sector representatives on the foreseeable current and future skilling needs of the timber frame and truss sector. As such, the OVSC has prepared the report with care and diligence, based on information provided through consultations. Information in the snapshot has not subsequently been independently verified or audited.

Acknowledgments

The OVSC would like to acknowledge the time, contribution and insights of participating employers and the Frame and Truss Manufacturers Association of Australia in supporting this process. The findings in this report would not be possible without their shared knowledge, openness, generosity, expertise and commitment.

TABLE 1: PARTICIPATING EMPLOYERS

Member	Organisation
Brendan Schneider	Sunbury Wall Frames & Trusses
Damian Whitnell	Complete Frames
Kersten Gentle	Frame and Truss Manufacturers Association of Australia
Tammy Kidd	Kidd Truss
Nathan Quarrell	Dahlsens

SUMMARY
VICTORIA'S TIMBER FRAME AND TRUSS SECTOR

Approximately 3,000-4,000 workers across Victoria	Moderate impact of COVID-19 on the sector outlook	Shortage of skilled designers and estimators	1 validated pathway to employment	Increased impact of automation	New training package being introduced

CAREER PATHWAYS AND TRAINING

Validated career and training pathways

Owner

Salary: Based on sales

Plant manager

Experience: 10+ years

Skills: business management, people management, customer management, logistics, financial planning and budgeting, health and safety management

Note: The business owner is often also the plant manager, but some businesses may have additional levels of management.

Salary: $60-80k annual

Estimator/Designer

Experience: 5-10+ years

Skills: read plans for buildings, assess structural requirements, problem solving, prepare sketches, use design software, assess timber and wood requirements, customer service

Note: Estimation is often outsourced, but employees may also start as estimators and move to design roles.

On the job training or undertake Certificate III or IV in Timber Systems Design

Salary: $25 per hour

Leading hand/supervisor

Experience: 4+ years

General Skills: communicating with clients, planning and delivering products, people management, planning, budgeting, cutting timber, wall frame manufacture, roof truss manufacture, floor truss manufacture, stacking and storing frames,

Note: The leading hand is often also the supervisor, but some businesses may have additional levels of management.

On the job training or undertake Certificate III in Timber Frame or Truss Manufacture

Salary: $21 per hour

Production worker

Experience: 0-4 years

Skills: cutting timber, wall frame manufacture, roof truss manufacture, floor truss manufacture, stacking and storing frames,

NO REQUIRED TRAINING PATHWAY

Other roles in the sector that are not sector specific include forklift drivers, truck drivers, occupational health and safety, human resources and finance

SECTOR WORKFORCE PRIORITIES

- Monitor the take up of new qualifications and skill sets, in particular qualifications in timber systems design, to assess their effectiveness in addressing workforce skill gaps.
- Given the small size of the sector may create challenges for training providers in reaching the numbers required for a viable training offer, options for delivery of training to small cohorts should be explored, including specialised funding and support models and options for flexible and online delivery to cohorts across Victoria
- Promote timber frame and truss career pathways in schools, in particular career opportunities in design and estimation, to address the lack of general knowledge about the sector.
- Explore options for contextualised leadership and management training for leaders in the sector

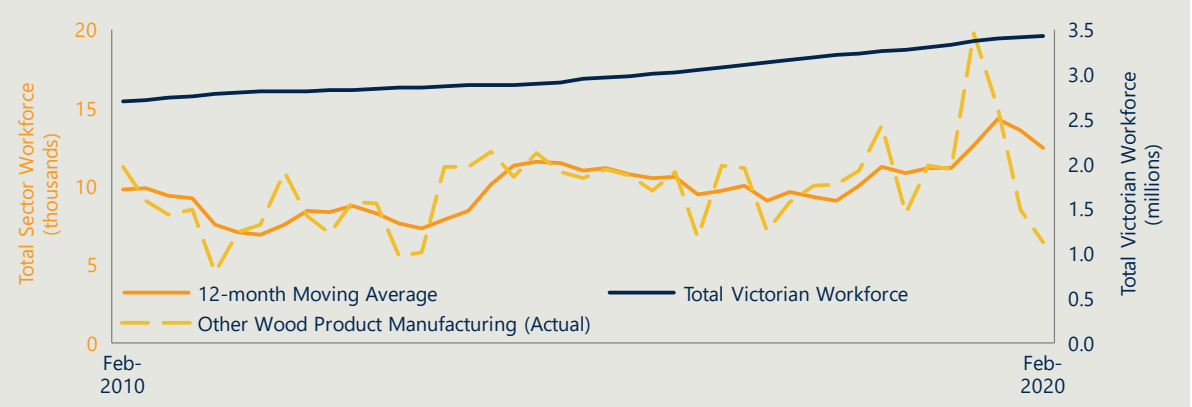
Overview – Timber Frame and Truss

The timber frame and truss sector is aligned with demand for residential construction

The timber frame and truss sector in Victoria is comprised of companies that manufacture wooden structural fittings, components for prefabricated buildings, roof trusses, and wall frames. These products are used extensively in building construction. Timber frame and truss manufacturers largely serve the residential housing market and products are most commonly developed for detached housing with 1-2 stories, however, some businesses may develop products for 3-4 story buildings. Manufacturers also service the commercial sector for projects such as schools, childcare, hospitals and correctional centres.

There are approximately 3,000-4,000 people working in the timber frame and truss sector in Victoria. Timber frame and truss manufacturers sit within a broader workforce that makes prefabricated wooden buildings, wooden structural fittings and components, veneers and plywood, and reconstituted wood products. This workforce has fluctuated significantly over the past 10 years as shown in Figure 1 below. Due to the high volatility of the workforce, the growth rate also varies significantly from month to month. The average annual growth rate based on the 12-month moving average was 2.4 per cent, which is in line with the growth rate for the total Victorian workforce over the same period.

FIGURE 1 | 12-MONTH ROLLING AVERAGE WORKFORCE SIZE, FEB '10-'20[1]



Demand for timber frame and truss products fluctuates with the construction market, particularly residential construction. This in turn is driven by immigration, population growth, household income and employment. Government stimulus, including policies such as First Home Buyer grants and the recent Homebuilder Scheme are also drivers of growth.

Peak periods for residential construction drive demand for products, firstly because more houses are being built, and secondly because builders are more likely to seek out prefabricated wall frames. Roof trusses are almost always developed by frame and truss companies, however, products such as wall frames may be produced by builders. When builders have time, they are likely to construct wall frames themselves, whereas when they are experiencing high demand they often purchase pre-fabricated components. Builders have strong negotiating power and prices for frame and truss products may fall when residential construction activity is low and rise when activity increases.

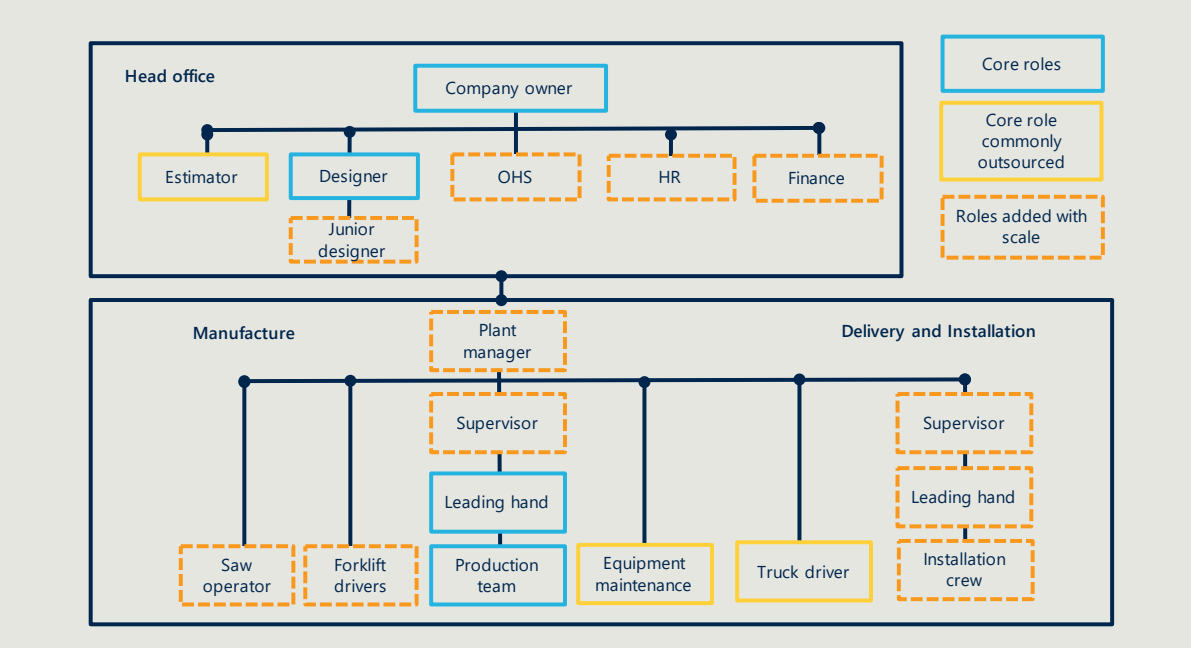
[1] Source: ABS Labour Force Survey, August 2020

Businesses adopt similar structures with some roles added with scale

There are 88 timber frame and truss companies in Victoria. Many of these (35 per cent) are small businesses employing 1-15 staff. 25 per cent of businesses have 16-40 employees, 16 per cent of businesses have more than 41 employees and 24 per cent of businesses are of unknown size. Traditionally, most frame and truss businesses have been small enterprises run by families, but there are a number of businesses that have grown very large, including Bowens, Dahlsens and Bunnings. These companies operate across multiple locations, may employ over 1,000 staff and use increasingly sophisticated technologies.

All frame and truss businesses will employ head office roles and manufacturing roles as depicted in Figure 2. Key roles in head office include estimation and design. Estimators are the first point of contact for a frame and truss order. They will review building plans, assess the work that is involved and prepare a quote for the client. While some frame and truss companies undertake their own estimation, it is increasingly common to outsource this work to an offshore company. Many frame and truss companies will also set up an offshore branch of their own company and employ skilled estimators in countries such as Malaysia. Once a quote has been accepted, the job will be passed to a designer (also known as a detailer) who will use engineering software to develop the detailed plans for frame and truss products. Key software providers to the sector include Pryda, MiTek and Multinail. Designers usually work individually on a design, but senior designers will also supervise and train junior designers. In smaller businesses, estimation and design may be a dual role, undertaken by a single person. Other critical head office roles include occupational health and safety and human resources, which may also be combined in smaller businesses.

FIGURE 2 | ORGANISATIONAL STRUCTURE



Once a design is complete, production can commence. Production staff are usually organised into crews, overseen by a leading hand. These crews are responsible for reading plans, using saws to cut timber and assembling products. They may also drive forklifts to move timber products within the factory. In larger businesses the leading hand may be overseen by a supervisor, and different supervisors will be responsible for different products. For example, there may be a truss shed and a wall frame shed. Larger businesses are also likely to have specific roles related to operating a saw to

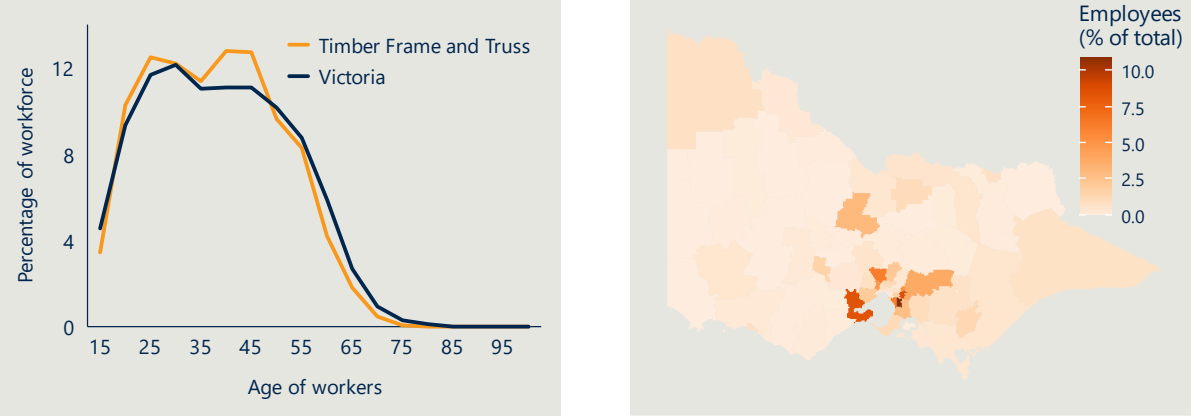
cut the timber to size and driving a forklift. Some frame and truss businesses employ their own truck drivers to transport completed products, but this role is also commonly outsourced. Similarly, some companies may maintain their own equipment but it is more common for the equipment provider to undertake maintenance as part of a leasing arrangement. In recent years, some businesses have started to expand their operations and may employ an installation crew, however, in most cases builders still take responsibility for installation.

Designers, leading hands and supervisors will generally be employed on a fulltime basis, but crews are mostly employed as casuals.

The workforce is mostly male and is concentrated in the south east metropolitan area

There are approximately 3,000-4,000 people working in the timber frame and truss sector in Victoria[2], but employee numbers fluctuate significantly. The workforce is dominated by men (86 per cent) and there is a higher number of employees aged 35-50 than the Victorian average. The workforce is concentrated in the south east metropolitan area, with 11 per cent of the workforce located in Dandenong and 6 per cent in Knox. A high proportion of the workforce is also located in Greater Geelong, which is the location of Australia's largest timber frame and truss factory.

FIGURE 3 | AGE AND GEOGRAPHICAL DISTRIBUTION OF THE WORKFORCE



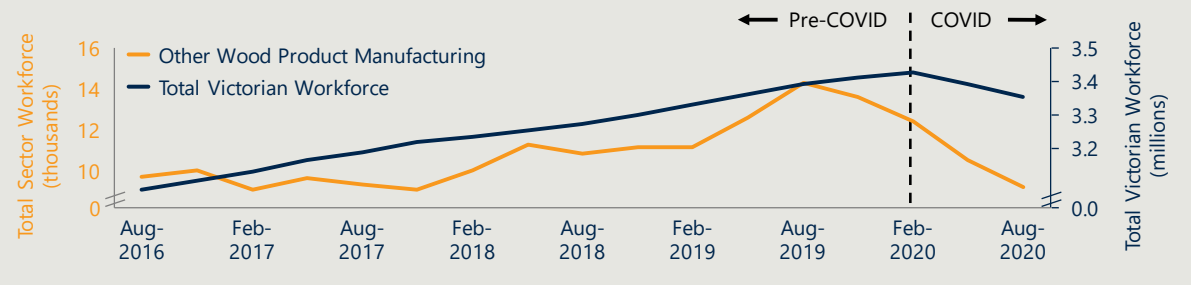
Sector outlook and workforce implications

The COVID-19 pandemic reduced demand temporarily

The timber frame and truss workforce expands and contracts according to demand in the residential construction sector. Despite changing demand, workforce supply in the sector is generally stable, as barriers to entry are low. Demand was broadly in line with the overall Victorian economy until the last quarter of 2019 when it started to decline in line with decreased demand for residential construction. Workforce numbers continued to fall during the COVID-19 pandemic (See Figure 4). As with most sectors in the broader construction industry, activity in the timber frame and truss sector reduced significantly in the early stages of the first Victorian lockdown and some employers resorted to reducing their casual workforce. Demand remained stronger in regional Victoria due to less onerous restrictions.

[2] 2016 census calibrated with data from the Frame and Truss Manufacturers Association of Victoria

FIGURE 4 | 12-MONTH ROLLING AVERAGE WORKFORCE SIZE, 2016-2020
Source: ABS Labour Force Survey (August 2020)



Since then, confidence has begun returning to the housing market and governmental stimulus packages such as the HomeBuilder scheme have boosted demand. This has led to strong performance in the final quarter of 2020 for residential builders, and consequently many timber frame and truss employers. Employers report that timber frame and truss orders for many businesses are currently on an 8-10-week production lead time. This contrasts with a usual 4-week lead time, clearly indicating a surge in demand. Demand for workers may increase in the immediate short term to assist with the influx of orders.

Border closures and supply chain limitations are affecting the sector's ability to meet demand

Employers predict continued strong demand in early 2021, particularly from regional Victoria, but are facing challenges meeting this demand. While workforce supply is generally stable in the sector, issues have arisen due to border closures limiting immigration. Many employers are concerned about their ability to source labour to fill production roles in the short term.

In addition, supply chain issues are limiting employers' capacity to meet demand. Employers source wood from Australian and international timber plantations. Supply of wood from Australian plantations has been affected by the bushfires in early 2020, and plantations will take some time to recover. Australian companies have also faced challenges accessing imported timber with increased levies on containers and port disruptions as a result of COVID-19. Prices for timber have risen internationally, although export activity may be reduced due to increased complexity in reaching international markets as a result of COVID -19 and unpredictability in demand with key trading partners. Ongoing timber shortages may increase consumers' preference to seek alternative products, for example products made of metal. The longer-term outlook for the timber frame and truss sector will at least partially be predicated on consumers' willingness to choose timber over alternatives for its environmental advantages or aesthetic qualities.

Employers and industry groups expect that an ongoing trend towards consolidation among Victorian timber frame and truss builders may continue, with larger firms expected to acquire smaller manufacturers when opportunities arise. This may be exacerbated by the ongoing impacts of COVID-19, as larger companies may be more insulated from ongoing economic hardship compared to smaller manufacturers. This trend toward consolidation may accelerate the use of sophisticated technologies in the sector with potential skilling impacts for the workforce, as employees increasingly require the skills to operate more complex machinery.

Beyond 2021, workforce demand is uncertain. Performance in the timber frame and truss industry depends largely on demand for residential construction and to a lesser extent, commercial construction. These sectors both face uncertain demand – residential construction in Victoria is

currently stimulated by Government incentives such as the HomeBuilder grant and investment in public housing. However, the sectoral outlook is less clear outside of and beyond these schemes. There is also uncertainty among employers surrounding the use of timber frame and truss manufacturers for public housing projects, so the impact of the state government's investment on the sector is not yet clear. Some projections expect the residential construction sector to contract through 2022, before rebounding slightly in the years to follow,[3] whereas others have a more positive outlook. The outlook is mixed for commercial construction, with the sector expected to contract over the next five years as the ongoing impact of COVID-19 hinders private investment[4]. Across both commercial and residential construction, demand is likely to be stronger in regional Victoria, as an increasing number of Victorians move to the regions, prompting a need for housing and other infrastructure.

Estimation and design skills are in high demand

Employers seek entry level workers who are reliable, committed, hardworking, physically fit and will attend shifts on time. While employers primarily seek employees with the right personal attributes, they also value staff with previous experience using nail guns, tape measure and hammers. Other in-demand skill sets include digital skills, such as dealing with cloud-based systems, use of computer-assisted design (CAD) and interpreting digital drawings. As businesses grow, many manufacturers begin building wall frames as well as roof trusses. This is a less common source of work for the industry, therefore employers can find it difficult to source experienced people for these positions.

Employers also noted gaps in general skills for more senior employees such as leading hands and supervisors. Employees working in more senior roles may oversee logistics which involves communicating with clients, planning and delivering products on time. In managerial roles, employees need skills such as people management, planning and budgeting. Employers report difficulty in finding people for these roles from within their companies and are forced to search externally, whereas many external applicants may not have the requisite sectoral knowledge or experience to succeed in the role. Employers would prefer workers from the factory floor to grow organically into these roles, but this requires recruitment of entry-level labour with these skills or the capacity to develop them.

The most significant skills shortages faced by employers are in design and estimation. Estimators are often outsourced from countries like Malaysia to meet this skills gap, but design roles cannot feasibly be outsourced and employers face challenges recruiting to these roles.

Increased automation will shape the future of the sector

In line with the broader manufacturing industry, the automation of certain processes will be an important driver of future skill needs. As some repeatable entry-level tasks are automated, demand for labour in these roles may diminish. Simultaneously, this may create the need for staff capable of operating new machinery. The need for digital skills, including use of computer-assisted design is also likely to increase for many workers in the sector.

A small number of frame and truss manufacturers are currently trialling a new approach in which they employ crews that are contracted to install wall frames and trusses on building sites, which may drive new skills needs. However, demand for these installation services ebbs and flows.

[3] IBISWorld, *House Construction in Australia*, October 2020
[4] IBISWorld, *Commercial and Industrial Building Construction in Australia*, September 2020

The role of training

Entry level workers can progress through the sector to become skilled designers and managers

The sector has relatively low barriers to employment as entry level workers are not required to have any formal training or qualifications to become a production worker. Individuals are sourced through formal and informal means; some employers use conventional sites such as Seek, but more commonly labour is sourced through personal recommendations, on-site resume drop-offs and word of mouth. Once employed, most are required to undertake a 3-5-day occupational health and safety course before they can start working. Some may also be asked to obtain a white card for working on a commercial construction site. Other workers such as forklift operators and truck drivers require licenses to perform their work.

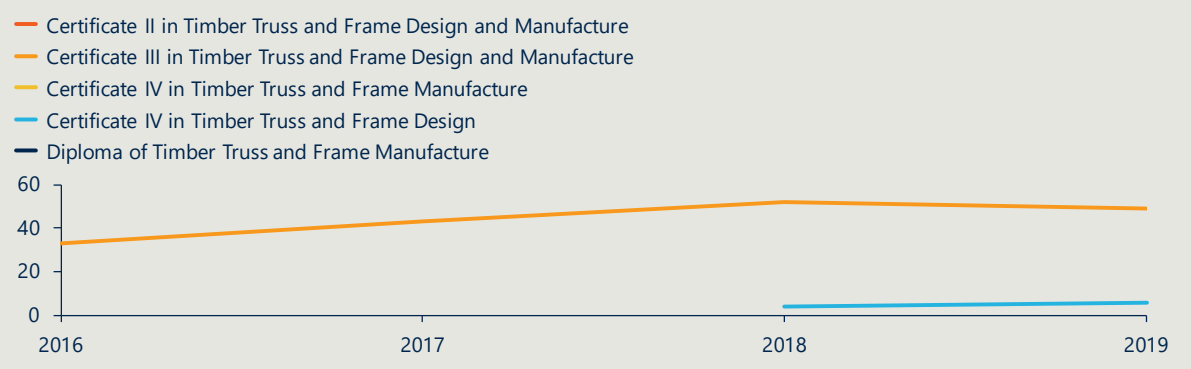
Over the course of 2-4 years of working and on-the-job learning, production workers showing promise may be promoted to a leading hand role and eventually to a more senior supervisory role. If willing to shift their career pathway they may move into an office role as an estimator. After gaining experience as an estimator they may also progress to a role as a designer. This usually occurs after 5-10 years in the sector but may occur earlier if a worker shows promise. From here, skilled individuals could progress into managerial roles within the company, such as plant manager or start their own business. In larger companies, more opportunities are available for progression, such as branch or area manager. Some estimators or designers with appropriate skills and experience can enter the workforce directly and circumvent the traditional pathway, but this is rare and may require translatable work experience in a similar sector.

Employers do not value the current qualifications, but recent changes have been made to better address employers' needs

Rates of accredited training in the sector have been low over recent years as illustrated in Figure 5, with most courses having low or no enrolments. The most popular course has been the Certificate III in Timber Truss and Frame Design and Manufacture, but the current qualifications at Certificate II and Certificate III level do not meet the needs of employers because they combine design and manufacture, which are very separate roles in a timber frame and truss business. Training rates are also low because employers do not see immediate value in upskilling workers pre-employment and prefer to teach on-the-job. In addition, the sector is relatively small, with only two private training providers offering timber frame and truss qualifications. These providers may struggle to run a viable training program with low enrolment numbers.

FIGURE 5 | VICTORIAN ENROLMENTS IN TIMBER FRAME AND TRUSS QUALIFICATIONS, 2016-2019

SOURCE: National Centre for Vocational Education and Research



To address the needs of employers, a Victorian Course In has been developed in Timber Systems Design (22522VIC Course). Learning materials are currently being finalised and delivery of this course will commence in early 2021. This Course In has been created to address the current shortfall in estimators and designers, which has led to many estimator roles being outsourced to offshore companies.

The national frame and truss qualifications have also recently been redeveloped and the new versions are available with the release of the Forest and Wood Products Training Package Version 6. The following qualifications have been removed from the training package:

- FWP20716 Certificate II in Timber Truss and Frame Design and Manufacture
- FWP40316 Certificate IV in Timber Truss and Frame Manufacture
- FWP50316 Diploma of Timber Truss and Frame Design
- FWP50216 Diploma of Timber Truss and Frame Manufacture

New qualifications are summarised in Table 2 below and these separate design from manufacturing, given the roles are separated within most organisations.

TABLE 2 | NEW QUALIFICATIONS

New qualifications	Alignment to previous qualifications
FWP30920 Certificate III in Timber Frame or Truss Manufacture	Supersedes and is not equivalent with FWP30916 Certificate III in Timber Truss and Frame Design and Manufacture
FWP31220 Certificate III in Timber Systems Design	Supersedes and is not equivalent with FWP30916 Certificate III in Timber Truss and Frame Design and Manufacture
FWP40420 Certificate IV in Timber Systems Design	Supersedes and is not equivalent with FWP40416 Certificate IV in Timber Truss and Frame Design

In addition, five new skill sets have been developed to support production workers who wish to develop technical skills related to a job function, as opposed to a complete end-to-end manufacturing process. Each skill set is a subset of, and will provide credits toward, the revised FWP30920 Certificate III in Timber Frame or Truss Manufacture. These skill sets are:

- FWPSS00041 Cutting Timber to Length and Angle Skill Set
- FWPSS00042 Timber Wall Frame Manufacture Skill Set
- FWPSS00043 Timber Roof Truss Manufacture Skill Set
- FWPSS00044 Timber Floor Truss Manufacture Skill Set
- FWPSS00045 Stacking and Storing Timber Frames and Trusses Skill Set

These skill sets may support employers to address specific gaps in their workforce skills, for example skills in wall frame manufacture, where a business is expanding their product lines.

There are opportunities to improve the training system by monitoring the training market and promoting frame and truss careers

The recent development of the Victorian Course In Timber System Design, and many of the recent changes to the Forest and Wood Products Training Package are aimed at addressing the needs identified by employers, in particular the development of a specific training pathway for designers and estimators. The take-up of these qualifications should be monitored over coming years to ensure employers are satisfied and the supply of designers and estimators increases. It will also be important to monitor the take up of new skill sets for manufacturers to determine if a skill set based approach to training meets the needs of employers and employees in the sector, and if further skill sets should be considered for manufacturers.

The small size of the sector means that there may be barriers to the take up of new qualifications, particularly design qualifications, due to small cohorts. Given there are only 88 businesses operating in Victoria and many already employ designers and estimators, enrolments may not reach the required threshold to be financially viable for training providers. If there continues to be limited training activity in the short term, particularly in identified priority areas such as design, the sector and government should work with providers to explore options for delivery to small cohorts, including specialised funding and delivery models.

Finally, given that the sector is small and may not be considered as a career pathway by many young people, there is potential to promote careers in timber frame and truss, and raise awareness about roles in the sector. This could include a focus on promoting design and estimation jobs to ensure that the shortage of estimators and designers is addressed over coming years. To support career development within the sector, there is also an opportunity for contextualised leadership and management training for emerging leaders in timber frame and truss companies, recognising that this will be a niche offering, given the small size of the sector.

Office of the
Victorian Skills Commissioner
Level 1, 21 Degraves Street
Melbourne VIC, 3000
PO Box 354, Flinders Lane
VIC, 8009
T: (03) 8892 1602
E: enquiries@vsc.vic.gov.au
www.vsc.vic.gov.au

The OVSC would like to acknowledge the support of Nous Group in the development of this Sector Snapshot