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Construction Plumbing Services Training Package

Building & Construction Reference Paper

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## **Appendix A – Regulation and Licencing**

| **State** | **Occupation covered by licence** | **Licence title** | **Regulator** | **Training requirements** |
| --- | --- | --- | --- | --- |
| New South Wales | Contractor Licence – Building - Individual | Building | Fair Trading | Certificate IV in Building and Construction (BCG40106 or CPC40108 Building or CPC40110 Building) or (BCG40206 or CPC40208 Contract Administration) or (BCG40306 or CPC40308 Estimating) or (BCG40506 or CPC40508 Site Management) including all of the following units:  BCGBC4001A or CPCCBC4001A Apply building codes and standards to the construction process for low rise building projects  BCGBC4002A or CPCCBC4002A Manage occupational health and safety in the building and construction workplace  BCGBC4003A or CPCCBC4003A Select and prepare a construction contract  BCGBC4004A or CPCCBC4004A Identify and produce estimated costs for building and construction projects  BCGBC4005A or CPCCBC4005A Produce labour and material schedules for ordering  BCGBC4006A or CPCCBC4006A or CPCCBC4006B Select, procure and store construction materials for low rise projects  BCGBC4007A or CPCCBC4007A Plan building or construction work  BCGBC4008A or CPCCBC4008A or CPCCBC4008B Conduct on-site supervision of the building and construction project  BCGBC4009A or CPCCBC4009A or CPCCBC4009B Apply legal requirements to building and construction projects  BCGBC4010A or CPCCBC4010A or CPCCBC4010B Apply structural principles to residential low-rise constructions  BCGBC4011A or CPCCBC4011A or CPCCBC4011B Apply structural principles to commercial low-rise constructions  BSBSBM406A or BSBSMB406A or BSBSMB406 Manage small business finances  BCGBC4012A or CPCCBC4012A or CPCCBC4012B Read and interpret plans and specifications  BCGBC4018A or CPCCBC4018A Apply site surveys and set out procedures to building and construction projects  BCGBC4024A or CPCCBC4024A Resolve business disputes.  PLUS any of the following:  a current Carpentry or Bricklaying contractor licence or supervisor certificate, or an approved qualification that would allow the issue of such a licence (for details of approved qualifications, see Carpentry or Bricklaying)  Diploma of Building and Construction (Building) BCG50206 or CPC50208  Diploma of Building and Construction (Building) CPC50210 including the following units:  CPCCBC5004A Supervise and apply quality standards to the selection of building and construction materials  CPCCBC5005A Select and manage building and construction contractors  CPCCBC5007A or CPCCBC5007B Administer the legal obligations of a building and construction contract  CPCCBC5009A Identify services layout and connection methods in medium rise construction projects. |
| Victoria | Commercial Builder | * Commercial Builder (Unlimited) * Commercial Builder (Limited to the Construction of Low Rise Buildings) * Commercial Builder (Limited to the Construction of Medium Rise Buildings) | Building Practitioners Board, Victorian Building Authority | “If you have successfully completed one of the following qualifications, you will satisfy some of the knowledge requirements for registration:  • Diploma of Building and Construction (Building) (CPC50210)  • Diploma of Building and Construction (Management) (CPC50308).  The above qualifications include units of competency relevant to the construction of buildings of Type B and Type C construction up to three storeys. They do not include units of competency relevant to the construction of buildings of Type A construction or buildings above three storeys.”[[1]](#footnote-1) |
| Victoria | Domestic Builder |  | Building Practitioners Board, Victorian Building Authority | “Unlimited: **Degree, Diploma or Associate Diploma in** building and three years practical experience or successful completion of the Course in Builder Registration (BPB) and three years practical experience.”[[2]](#footnote-2) |
| Queensland | Builder – Low Rise | Individual Builder Licence | Queensland Building and Construction Commission | “Any one of the following:  successful completion of Certificate IV in Building and Construction (Building) CPC40110  successful completion of a course the commission considers is at least equivalent to the course above  recognition certificate as a builder qualified to carry out the scope of work for the licence class  a qualification or statement of attainment of required competency for the class of licence.”[[3]](#footnote-3) |
|  | Builder – Medium Rise | Individual Builder Licence | Queensland Building and Construction Commission | “Any one of the following:  successful completion of the Diploma of Building and Construction (Building) CPC50210  successful completion of a course the commission considers is at least equivalent to the course above  recognition certificate as a builder qualified to carry out the scope of work for the licence class  a qualification or statement of attainment of required competency for the class of licence.”[[4]](#footnote-4) |
| Queensland | Builder – Open | Individual Builder Licence | Queensland Building and Construction Commission | “Any one of the following:  successful completion of the Advanced Diploma of Building and Construction (Management) CPC60212  successful completion of a course the commission considers is at least equivalent to the course above  recognition certificate as a builder qualified to carry out the scope of work for the licence class  a qualification or statement of attainment of required competency for the class of licence.”[[5]](#footnote-5) |
| Queensland | Builder – Project Management Services |  | Queensland Building and Construction Commission | “Any one of the following:  successful completion of Advanced Diploma of Building and Construction (Management) CPC60212  successful completion of a course the commission considers is at least equivalent to the course above  recognition certificate as a builder qualified to carry out the scope of work for the licence class  a qualification or statement of attainment of required competency for the class of licence  successful completion of a degree in architecture, construction management, engineering or quantity surveying, or  successful completion of a course the commission considers at least equivalent to those listed immediately above.”[[6]](#footnote-6) |
| South Australia | Commercial building work restricted to classes 2-9 buildings with **no height**  **restriction**.  Includes construction, alteration, addition to and renovation of class 2 - 9  buildings. |  | Consumer and Business Services | Pathway 1  BCG40106 or CPC40108 or CPC40110 Certificate IV in Building and Construction  (Building)  OR  BCG40506 or CPC40508 Certificate IV in Building and Construction (Site  Management)  AND  Completion of all of the following units of competency in addition to the above  qualification:  • BCGBC5001A or CPCCBC5001A or CPCCBC5001B - Apply building codes  and standards to the construction process for medium rise building projects  • BCGBC5003A or CPCCBC5003A - Supervise the planning of on-site medium  rise building or construction work  • BCGBC5008A or CPCCBC5008A or CPCCBC5018A - Apply structural  principles to the construction of medium rise buildings  • BCGBC6001A or CPCCBC6001A or CPCCBC6001B - Apply building codes  and standards to the construction process for large building projects  • BCGBC6014A or CPCCBC6014A - Apply structural principles to the  construction of large, high rise and complex buildings[[7]](#footnote-7) |
| South Australia | Commercial building work restricted to classes 2-9 buildings, **not**  **exceeding three storey**.  Includes construction, alteration, addition to and renovation of class 2 - 9 |  | Consumer and Business Services | buildings.  Pathway 1  BCG40106 or CPC40108 or CPC40110 Certificate IV in Building and Construction  (Building)  OR  BCG40506 or CPC40508 Certificate IV in Building and Construction (Site  Management)  AND  Completion of all of the following units of competency in addition to the above  qualification:  • BCGBC5001A or CPCCBC5001A or CPCCBC5001B - Apply building codes  and standards to the construction process for medium rise building projects  • BCGBC5003A or CPCCBC5003A - Supervise the planning of on-site medium  rise building or construction work  • BCGBC5008A or CPCCBC5008A or CPCCBC5018A - Apply structural  principles to the construction of medium rise buildings[[8]](#footnote-8) |
| Western Australia | Builder | Building Practitioner Registration | Building Services Board, Building Commission  Department of Mines, Industry Regulation and Safety | What are the required units of a CPC50210 Diploma in Building and Construction?  For registration purposes, the Diploma must include the following seven units:  CPCCBC4005A – Produce labour and material schedules for ordering  CPCCBC4018A – Apply site surveys and set-out procedures to building and construction projects  CPCCBC5005A – Select and manage building and construction contractors  CPCCBC5007A – Administer the legal obligations of a building construction contract  CPCSUS5001A – Develop workplace policies and procedures for sustainability  CPCCBC4014A – Prepare simple building sketches and drawings  CPCCOHS1001A – Work safety in the construction industry  Make sure you complete all seven units before applying to be registered.[[9]](#footnote-9) |
| Northern Territory | Building contractor residential (unrestricted) | Building contractor residential (unrestricted) | Building Practitioners Board, NT | The qualifications and experience for registration in the category of building  contractor residential (unrestricted) are:  (a) one of the following:  (i) successful completion of the following units for a Certificate IV  in Building:  ABC001 Construction 1  ABC002 Construction 2  ABC005 Materials 1  ABC061 Builders Working Drawings 1  ABC064 Building Computer Applications  ABC069 Cost Control and Planning 1  ABC076 Building Quantities and Estimating 1  ABC077 Building Quantities and Estimating 2  ABC082 Building Site Supervision  ABC083 Building Site Surveying and Set Out 1  ABC086 Structures 1  ABC091 Business Management for Building 1A  ABC092 Business Management for Building 1B  ABC102 Residential Site Safety  ABC105 Timber Framing Code;  (ii) successful completion of the following units for a BCG40106  Certificate IV in Building and Construction (Building) – Low Rise  and 3 elective units from the BCG03 General Construction  Training Package:  BCGBC4001A Apply building codes and standards to the  construction process for low-rise building  projects  BCGBC4002A Manage occupational health and safety in the  building and construction workplace  BCGBC4003A Select and prepare a construction contract  BCGBC4004A Identify and produce estimated costs for  building and construction projects  BCGBC4005A Produce labour and material schedules for  ordering  BCGBC4006A Select, procure and store construction  materials for low-rise projects  BCGBC4007A Plan building or construction work  Northern Territory Government Gazette No. G2 10 January 2018  Page 6  BCGBC4008A Conduct on-site supervision of the building  and construction project  BCGBC4009A Apply legal requirements to building and  construction projects  BCGBC4010A Apply structural principles to residential low  rise constructions  BCGBC4011A Apply structural principles to commercial low  rise constructions  BSBSBM406A Manage finances[[10]](#footnote-10) |
| Northern Territory | Building contractor residential (restricted) | Building contractor residential (restricted) | Building Practitioners Board, NT | The qualifications and experience for registration in the category of building  contractor residential (restricted) are:  (a) one of the following:  (i) successful completion of the following units for a Certificate IV  in Building:  ABC001 Construction 1  ABC002 Construction 2  ABC005 Materials 1  ABC061 Builders Working Drawings 1  ABC064 Building Computer Applications  ABC069 Cost Control and Planning 1  ABC076 Building Quantities and Estimating 1  ABC077 Building Quantities and Estimating 2  ABC082 Building Site Supervision  ABC083 Building Site Surveying and Set Out 1  ABC086 Structures 1  ABC091 Business Management for Building 1A  ABC092 Business Management for Building 1B  ABC102 Residential Site Safety  ABC105 Timber Framing Code;  (ii) successful completion of the following units for a BCG40106  Certificate IV in Building and Construction (Building) – Low Rise  and 3 elective units from the BCG03 General Construction  Training Package:  BCGBC4001A Apply building codes and standards to the  construction process for low-rise building  projects  BCGBC4002A Manage occupational health and safety in the  building and construction workplace  BCGBC4003A Select and prepare a construction contract  BCGBC4004A Identify and produce estimated costs for  building and construction projects  BCGBC4005A Produce labour and material schedules for  ordering  BCGBC4006A Select, procure and store construction  materials for low-rise projects  BCGBC4007A Plan building or construction work  Northern Territory Government Gazette No. G2 10 January 2018  Page 6  BCGBC4008A Conduct on-site supervision of the building  and construction project  BCGBC4009A Apply legal requirements to building and  construction projects  BCGBC4010A Apply structural principles to residential low  rise constructions  BCGBC4011A Apply structural principles to commercial low  rise constructions  BSBSBM406A Manage finances[[11]](#footnote-11) |
| ACT |  | * **Class A Builder (unlimited)** |  | A Bachelor degree, Graduate Certificate, Graduate Diploma, Masters degree or Doctoral degree in Building  “Method 1 Educational Qualification The applicant holds: a) a tertiary qualification in Building that the Australian Qualifications Framework Advisory Board has determined is a bachelor degree, graduate certificate, graduate diploma, masters degree or doctoral degree in the Australian Qualifications Framework System. Building Work Experience   The applicant has undertaken and documented: b) not less than 2 years full time building work experience where 1 year full time building work experience was undertaken post the date the qualification was issued.   Method 2    Formerly held licence     The applicant held: a) a class A builder licence in the ACT within a 5 year period from the date of application that was not, or is not, the subject of cancellation or suspension.”[[12]](#footnote-12) |
| ACT |  | * **Class B Builder (medium rise)** |  | [Diploma of Building and Construction (Building)](http://www.opencolleges.edu.au/courses/building-and-construction/diploma-building-and-construction-building)  “Method 1 Educational Qualification The applicant holds:   a) Diploma of Building and Construction (Building) with a course code of CPC50210, CPC50208 or BCG50206; or b) a tertiary qualification in Building that the Australian Qualifications Framework Advisory Board has determined is a bachelor degree, graduate certificate, graduate diploma, masters degree or doctoral degree in the Australian Qualifications Framework System. Building Work Experience The applicant has undertaken and documented: This is page 3 of the schedule to the declaration made by the Deputy Construction Occupations Registrar under the Construction Occupations (Licensing) Regulation 2004 Deputy Registrar’s Initials     Authorised by the ACT Parliamentary Counsel—also accessible at www.legislation.act.gov.au c) not less than 2 years full time building work experience where 1 year full time building work experience was undertaken post the date the qualification was issued.   Method 2       Formerly held licence     The applicant held: a) a class A or class B builder licence in the ACT within a 5 year period from the date of application that was not, or is not, the subject of cancellation or suspension. Method 3 Eligible for higher class The applicant is: a) eligible for the grant of an unconditional builders licence class A.”[[13]](#footnote-13) |
| ACT |  | * **Class C Builder (low rise/residential)** |  | A [Certificate IV in Building and Construction (Building)](http://www.opencolleges.edu.au/courses/building-and-construction/certificate-iv-building-and-construction-building) or a [**Diploma of Building and Construction (Building**)](http://www.opencolleges.edu.au/courses/building-and-construction/diploma-building-and-construction-building), **and** a **written examination**. Before your license is issued, you must undertake and pass, with a mark of 80% or above, a written examination set by the Construction Occupations Registrar.  “Method 1 Educational Qualification The applicant holds:   a) Certificate IV in Building and Construction (Building) with a course code of CPC40110, CPC40108, or BCG40106; or b) Diploma of Building and Construction (Building) with a course code of CPC50210, CPC50208 or BCG50206; or c) a tertiary qualification in Building that the Australian Qualifications Framework Advisory Board has determined is a bachelor degree, graduate certificate, graduate diploma, masters degree or doctoral degree in the Australian Qualifications Framework System. Building Work Experience   The applicant has undertaken and documented: d) not less than 2 years full time building work experience where 1 year full time building work experience was undertaken post the date the qualification was issued.   Written Examination Please note: This requirement applies to all applicants that make an application for a licence on or after     1 May 2016. e) The applicant must undertake and pass, with a mark of 80% or above, a written examination set by the Construction Occupations Registrar.   Method 2       Formerly held licence     This is page 4 of the schedule to the declaration made by the Deputy Construction Occupations Registrar under the Construction Occupations (Licensing) Regulation 2004 Deputy Registrar’s Initials     Authorised by the ACT Parliamentary Counsel—also accessible at www.legislation.act.gov.au The applicant held: a) a class A, class B or class C builder licence in the ACT within a 5 year period from the date of application that was not, or is not, the subject of cancellation or suspension. Method 3 Eligible for higher class The applicant is: a) eligible for the grant of an unconditional builders licence class A or class B. b) The applicant must undertake and pass, with a mark of 80% or above, a written examination set by the Construction Occupations Registrar.”[[14]](#footnote-14)  **“**From 1 May 2016, individuals who apply for a Class C builder’s licence will be required to sit a written exam as part of the application process. The requirement to sit an exam will be in addition to evidence of a qualification and work experience. Written exams have been introduced to ensure applicants have a thorough understanding of the regulatory framework and building processes before they are granted a licence.”[[15]](#footnote-15) |
| ACT |  | * **Class D Builder** |  | No formal qualifications required.  “Method 1 Building Work Experience The applicant has undertaken and documented: a) 3 years full time building work experience.  Method 2 Formerly held licence     The applicant held: a) a class A, class B, class C or class D builder licence in the ACT within a 5 year period from the date of application that was not, or is not, the subject of cancellation or suspension. Method 3 Eligible for higher class The applicant is: a) eligible for the grant of an unconditional builders licence class A, class B or class C.”[[16]](#footnote-16) |
| TAS | Builder or construction manager (low rise) | Builder or construction manager (low rise) | Consumer, Building and Occupational Services | To apply for a builder’s licence you must have a minimum qualification:  Certificate IV in building and construction (building)[[17]](#footnote-17) |
| TAS | Builder or construction manager (medium rise) | Builder or construction manager (medium rise) | Consumer, Building and Occupational Services | To apply for a builder’s licence you must have a minimum qualification: Diploma of building and construction (building)[[18]](#footnote-18) |
| TAS | Builder (open) | Builder (open) | Consumer, Building and Occupational Services | To apply for a builder’s licence you must have a minimum qualification: Advanced diploma of building and construction management or building degree[[19]](#footnote-19) |
| TAS | Construction manager (open) | Construction manager (open) | Consumer, Building and Occupational Services | To apply for a builder’s licence you must have a minimum qualification: Advanced diploma of building and construction management, or building degree, or construction management degree.[[20]](#footnote-20) |

## **Appendix B – Functional Analysis of Qualifications by Competency Outcomes using ASCED categories**

| **Skills Profile: Building and Construction Qualifications** | | **CPC40110** | **CPC40208** | **CPC40308** | **CPC40408** | **CPC40508** | **CPC40611** | **CPC40708** | **CPC50210** | **CPC50308** | **CPC60212** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Competency Outcomes** | **Unit/s of Competency** |  |  |  |  |  |  |  |  |  |  |
| **Accounting** | BSBFIM501: Manage budgets and financial plans |  |  |  |  |  |  |  | Y |  |  |
|  | BSBFIM501A: Manage budgets and financial plans |  |  |  |  |  |  |  |  | Y |  |
|  | CPCCBC4041A: Undertake preparations for refractory work |  |  |  |  |  | Y |  |  |  |  |
| **Bricklaying and Stonemasonry** | CPCCBC4042A: Construct a fire brick wall and arch using refractory materials |  |  |  |  |  | Y |  |  |  |  |
| **Building Construction Economics** | CPCCBC4004A: Identify and produce estimated costs for building and construction projects | Y |  | Y |  |  | Y | Y | Y |  |  |
| CPCCBC4013A: Prepare and evaluate tender documentation | Y | Y | Y |  |  |  | Y | Y |  |  |
| CPCCBC4026A: Arrange building applications and approvals | Y | Y |  |  | Y |  |  |  |  |  |
| CPCCBC5002A: Monitor costing systems on medium rise building and construction projects |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC5007B: Administer the legal obligations of a building or construction contract |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC6011A: Establish systems to develop and monitor building and construction costs |  |  |  |  |  |  |  |  |  | Y |
| **Building Construction Management** | CPCCBC4003A: Select and prepare a construction contract | Y | Y | Y | Y |  |  | Y | Y |  |  |
| CPCCBC4005A: Produce labour and material schedules for ordering | Y | Y | Y |  | Y |  | Y | Y |  |  |
| CPCCBC4007A: Plan building or construction work | Y | Y |  |  | Y |  | Y |  |  |  |
| CPCCBC4008B: Conduct on-site supervision of building and construction projects | Y |  |  |  | Y |  | Y |  |  |  |
| CPCCBC4009B: Apply legal requirements to building and construction projects | Y |  |  |  |  |  |  | Y |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| CPCCBC4016A: Administer a construction contract | Y | Y | Y | Y |  |  |  |  |  |  |
| CPCCBC4017A: Arrange resources and prepare for the building or construction project | Y | Y | Y |  | Y |  | Y |  |  |  |
| CPCCBC4021A: Minimise waste on the building and construction site | Y | Y | Y | Y | Y |  | Y |  |  |  |
| CPCCBC4022A: Supervise tilt-up work | Y |  |  |  |  |  |  |  |  |  |
| CPCCBC4024A: Resolve business disputes | Y | Y | Y | Y | Y |  | Y | Y |  |  |
| CPCCBC4028A: Prepare design brief for construction works |  |  | Y |  | Y |  |  |  |  |  |
| CPCCBC5003A: Supervise the planning of on-site medium rise building or construction work |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC5004A: Supervise and apply quality standards to the selection of building and construction materials |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC5005A: Select and manage building and construction contractors |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC5009A: Identify services layout and connection methods to medium rise construction projects |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC5010B: Manage construction work |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC5012A: Manage the application and monitoring of energy conservation and management practices and processes |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC5018A: Apply structural principles to the construction of medium rise buildings |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC6002A: Generate and direct the development of new projects |  |  |  |  |  |  |  |  |  | Y |
| CPCCBC6003A: Establish, maintain and review contract administration procedures and frameworks |  |  |  |  |  |  |  |  |  | Y |
| CPCCBC6005A: Manage tender developments for major projects |  |  |  |  |  |  |  |  |  | Y |
| CPCCBC6006A: Manage the procurement and acquisition of resources for building or construction projects |  |  |  |  |  |  |  |  |  | Y |
| CPCCBC6007A: Develop, plan and implement appropriate building or construction environmental management practices and processes |  |  |  |  |  |  |  |  |  | Y |
| CPCCBC6008A: Develop and implement an appropriate estimating and tendering system |  |  |  |  |  |  |  |  |  | Y |
| CPCCBC6009A: Develop, plan and implement an appropriate building or construction planning process |  |  |  |  |  |  |  |  |  | Y |
| CPCCBC6012A: Manage and administer development of documentation for building or construction projects |  |  |  |  |  |  |  |  |  | Y |
| **Building Science and Technology** | CPCCBC4010B: Apply structural principles to residential low rise constructions | Y |  | Y |  | Y |  | Y | Y |  |  |
| CPCCBC4011B: Apply structural principles to commercial low rise constructions | Y |  | Y |  | Y |  | Y | Y |  |  |
| CPCCBC4012B: Read and interpret plans and specifications | Y | Y | Y | Y | Y | Y | Y | Y |  |  |
| CPCCBC4014A: Prepare simple building sketches and drawings | Y | Y | Y | Y | Y |  |  | Y |  |  |
| CPCCBC4015A: Prepare specifications for all construction works | Y |  | Y |  | Y |  |  |  |  |  |
| CPCCBC4019A: Apply sustainable building design principles to water management systems | Y | Y | Y | Y | Y | Y | Y |  |  |  |
| CPCCBC4020A: Build thermally efficient and sustainable structures | Y | Y | Y | Y | Y | Y | Y |  |  |  |
| CPCCBC4035A: Initiate the heritage works process |  |  |  |  |  | Y |  |  |  |  |
| CPCCBC4036A: Prepare to undertake the heritage restoration process |  |  |  |  |  | Y |  |  |  |  |
| CPCCBC4037A: Prepare drawings for heritage works |  |  |  |  |  | Y |  |  |  |  |
| CPCCBC4038A: Prepare work plans for restoration work |  |  |  |  |  | Y |  |  |  |  |
| CPCCBC4039A: Undertake the heritage restoration process |  |  |  |  |  | Y |  |  |  |  |
| **Building Services Engineering** | CPCSUS4002A: Use building science principles to construct energy efficient buildings | Y |  |  |  |  |  |  |  |  |  |
| CPCSUS4003A: Maximise energy efficiency through applied trade skills | Y |  |  |  |  |  |  |  |  |  |
| CPCCBC4047A: Quality assure fire-rated lining systems |  |  |  |  |  | Y |  |  |  |  |
| CPCSUS5002A: Develop action plans to retrofit existing buildings for energy efficiency |  |  |  |  |  |  |  | Y |  |  |
| CPCSUS5003A: Manage energy efficient building methods and strategies |  |  |  |  |  |  |  | Y |  |  |
| CPCCBC6010A: Plan, develop and implement building or construction energy conservation and management practices and processes |  |  |  |  |  |  |  |  |  | Y |
| **Building Surveying** | CPCCBC4001A: Apply building codes and standards to the construction process for low rise building projects | Y | Y | Y |  | Y |  |  | Y |  |  |
| CPCCBC4034A: Apply codes and standards to building trade and services contracting |  |  |  |  |  | Y | Y |  |  |  |
| CPCCBC4018A: Apply site surveys and set-out procedures to building and construction projects | Y |  |  |  | Y |  |  | Y |  |  |
| CPCCBC5001B: Apply building codes and standards to the construction process for medium rise building projects |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC5006B: Apply site surveys and set-out procedures to medium rise building |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC5013A: Develop professional technical and legal reports on building and construction projects |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC6001B: Apply building codes and standards to the construction process for large building projects |  |  |  |  |  |  |  |  |  | Y |
| CPCCBC6018A: Manage processes for complying with legal obligations of a building or construction contractor |  |  |  |  |  |  |  |  |  | Y |
|  | BSBRES401: Analyse and present research information |  |  |  | Y |  |  |  |  |  |  |
| **Business Management** | BSBSMB401: Establish legal and risk management requirements of small business | Y |  |  | Y |  | Y | Y |  |  |  |
| BSBSMB402: Plan small business finances | Y |  |  |  |  |  | Y |  |  |  |
| BSBSMB404: Undertake small business planning | Y |  |  |  |  |  | Y |  |  |  |
| BSBSMB405: Monitor and manage small business operations | Y |  |  |  |  |  | Y |  |  |  |
| BSBSMB406A: Manage small business finances | Y |  |  |  |  |  | Y |  |  |  |
| BSBPMG407A: Apply risk management techniques |  | Y | Y |  | Y | Y | Y |  |  |  |
| BSBMGT515A: Manage operational plan |  |  |  |  |  |  |  |  | Y |  |
| BSBMGT517: Manage operational plan |  |  |  |  |  |  |  | Y |  |  |
| BSBMGT617: Develop and implement a business plan |  |  |  |  |  |  |  |  |  | Y |
| BSBRSK501: Manage risk |  |  |  |  |  |  |  | Y |  | Y |
|  | BSBOHS404B: Contribute to the implementation of strategies to control OHS risk |  |  | Y |  |  |  |  |  |  |  |
| **Environmental Engineering** | CPCCBC5011A: Manage environmental management practices and processes in building and construction |  |  |  |  |  |  |  | Y | Y |  |
|  | BSBHRM402A: Recruit, select and induct staff |  |  |  |  |  |  |  |  | Y |  |
|  | BSBHRM509: Manage rehabilitation or return to work programs |  |  |  |  |  |  |  | Y | Y |  |
| **Human Resource Management** | BSBLED502: Manage programs that promote personal effectiveness |  |  |  |  |  |  |  | Y | Y |  |
|  | BSBMGT502: Manage people performance |  |  |  |  |  |  |  | Y | Y |  |
| **Industrial Relations** | BSBWRK502A: Represent the union in key forums |  |  |  |  |  |  |  |  | Y |  |
| **Management Training** | BSBWOR501: Manage personal work priorities and professional development |  |  |  |  |  |  |  | Y | Y |  |
| **Marketing** | BSBMKG414B: Undertake marketing activities |  |  |  | Y |  |  |  |  |  |  |
|  | BSBMKG609: Develop a marketing plan |  |  |  |  |  |  |  |  |  | Y |
|  | BSBOHS201A: Participate in OHS processes |  | Y |  | Y |  |  |  |  |  |  |
|  | BSBOHS404B: Contribute to the implementation of strategies to control OHS risk |  |  |  |  |  | Y |  |  |  |  |
| **Occupational Health and Safety** | BSBOHS504B: Apply principles of OHS risk management |  |  |  |  |  |  |  | Y | Y |  |
| BSBOHS603B: Analyse and evaluate OHS risk |  |  |  |  |  |  |  |  |  | Y |
| CPCCBC4002A: Manage occupational health and safety in the building and construction workplace | Y |  |  |  | Y |  | Y |  |  |  |
| CPCCWHS1001: Prepare to work safely in the construction industry | Y |  | Y |  | Y | Y | Y | Y |  |  |
|  | BSBINN502: Build and sustain an innovative work environment |  |  |  |  |  |  |  | Y | Y |  |
| **Organisation Management** | CPCSUS5001A: Develop workplace policies and procedures for sustainability |  |  |  |  |  |  |  | Y | Y |  |
|  | TLILIC3006A: Licence to operate a non-slewing mobile crane (greater than 3 tonnes capacity) |  |  |  |  |  | Y |  |  |  |  |
|  | TLILIC3008A: Licence to operate a slewing mobile crane (up to 20 tonnes) |  |  |  |  |  | Y |  |  |  |  |
| **Plant and Machine Operations** | TLILIC4009A: Licence to operate a slewing mobile crane (up to 60 tonnes) |  |  |  |  |  | Y |  |  |  |  |
|  | TLILIC4010A: Licence to operate a slewing mobile crane (up to 100 tonnes) |  |  |  |  |  | Y |  |  |  |  |
|  | TLILIC4011A: Licence to operate a slewing mobile crane (over 100 tonnes) |  |  |  |  |  | Y |  |  |  |  |
| **Practical Computing Skills** | BSBITU201: Produce simple word processed documents | Y | Y | Y | Y | Y | Y | Y |  |  |  |
| BSBITU202: Create and use spreadsheets | Y | Y | Y | Y | Y | Y | Y |  |  |  |
| BSBITU301: Create and use databases | Y | Y | Y | Y | Y |  | Y |  |  |  |
| BSBITU402: Develop and use complex spreadsheets |  |  |  |  |  |  |  | Y | Y |  |
| BSBITU404: Produce complex desktop published documents |  |  |  |  |  |  |  | Y | Y |  |
|  | BSBPMG404A: Apply quality management techniques |  | Y | Y | Y | Y | Y | Y |  |  |  |
| **Project Management** | BSBPMG415: Apply project risk management techniques | Y |  |  |  |  |  | Y |  |  |  |
| BSBPMG522: Undertake project work | Y | Y |  |  | Y |  |  |  |  |  |
| BSBPMG504A: Manage project costs |  |  |  |  |  |  |  |  | Y |  |
| BSBPMG505A: Manage project quality |  |  |  |  |  |  |  | Y | Y |  |
| BSBPMG507A: Manage project communications |  |  |  |  |  |  |  |  | Y |  |
| BSBPMG508A: Manage project risk |  |  |  |  |  |  |  | Y | Y |  |
| CPCCBC4006B: Select, procure and store construction materials for low rise projects | Y | Y | Y |  |  |  |  | Y |  |  |
| **Quality Management** | BSBMGT403: Implement continuous improvement | Y | Y | Y | Y | Y | Y | Y |  |  |  |
| BSBPMG411: Apply project quality management techniques | Y |  |  |  |  |  |  |  |  |  |
|  | CPPDSM4014A: Market property for sale |  |  |  | Y |  |  |  |  |  |  |
|  | CPPDSM4022A: Sell and finalise the sale of property by private treaty |  |  |  | Y |  |  |  |  |  |  |
| **Real Estate** | CPPDSM5022A: Implement asset management plan |  |  |  |  |  |  |  | Y | Y |  |
|  | BSBCUS402: Address customer needs |  |  |  | Y |  |  |  |  |  |  |
|  | BSBCUS501: Manage quality customer service |  |  |  |  |  |  |  | Y | Y |  |
|  | BSBSLS403A: Present a sales solution |  |  |  | Y |  |  |  |  |  |  |
|  | BSBSLS404A: Secure prospect commitment |  |  |  | Y |  |  |  |  |  |  |
|  | BSBSLS502: Lead and manage a sales team |  |  |  |  |  |  |  | Y | Y |  |
|  | CPCCBC4027B: Establish a basis for sales consulting |  |  |  | Y |  |  |  |  |  |  |
|  | CPCCBC4029B: Apply construction information to the sales process |  | Y |  | Y |  |  |  |  |  |  |
|  | CPCCBC4030A: Analyse and communicate industry information |  |  |  | Y |  |  |  |  |  |  |
| **Sales** | CPCCBC4031A: Process client requirements |  | Y |  | Y |  |  | Y |  |  |  |
|  | CPCCBC4032A: Apply contract law to sales processes |  | Y |  | Y |  |  | Y |  |  |  |
|  | CPCCBC4033A: Maintain the sales environment |  |  |  | Y |  |  |  |  |  |  |
|  | BSBCUS301: Deliver and monitor a service to customers |  |  | Y |  | Y |  |  |  |  |  |
|  | BSBCUS301B: Deliver and monitor a service to customers |  |  |  |  |  |  | Y |  |  |  |
|  | CPCCBC4045A: Perform advanced rigging |  |  |  |  |  | Y |  |  |  |  |
|  | CPCCBC4046A: Erect and dismantle advanced scaffolding |  |  |  |  |  | Y |  |  |  |  |
|  | CPCCLRG3002A: License to perform rigging - intermediate level |  |  |  |  |  | Y |  |  |  |  |
| **Scaffolding and Rigging** | CPCCLRG4001A: License to perform rigging - advanced level |  |  |  |  |  | Y |  |  |  |  |
|  | CPCCLSF3001A: License to erect, alter and dismantle scaffolding - intermediate level |  |  |  |  |  | Y |  |  |  |  |
|  | CPCCLSF4001A: License to erect, alter and dismantle scaffolding - advanced level |  |  |  |  |  | Y |  |  |  |  |
| **Secretarial and Clerical Services** | BSBWRT401: Write complex documents | Y | Y | Y | Y | Y | Y | Y |  |  |  |
| **Specialist Agriculture, Environmental and Related services** | CPCSUS4001A: Implement and monitor environmentally sustainable work practices | Y | Y | Y | Y | Y | Y | Y |  |  |  |
|  | CPCCBC4043A: Operate a self-erecting tower crane |  |  |  |  |  | Y |  |  |  |  |
|  | CPCCBC4044A: Operate a tower crane |  |  |  |  |  | Y |  |  |  |  |
| **Specialist Building Services** | CPCCCO4001A: Supervise concreting work |  |  |  |  | Y |  |  |  |  |  |
|  | CPCCBC4051A: Supervise asbestos removal | Y |  | Y |  | Y | Y | Y |  |  |  |
|  | CPCCBC5014A: Conduct asbestos assessment associated with removal |  |  |  |  |  |  |  | Y |  |  |
|  | CPCCLTC4001A: License to operate a tower crane |  |  |  |  |  | Y |  |  |  |  |
|  | CPCCLTC4002A: License to operate a self-erecting tower crane |  |  |  |  |  | Y |  |  |  |  |
| **Systems Analysis and Design** | BSBITA401: Design databases |  |  |  |  |  |  |  | Y | Y |  |
| **Teacher Education: Vocational Education and Training** | TAEDEL402: Plan, organise and facilitate learning in the workplace | Y |  |  |  | Y |  |  |  |  |  |
|  | BSBWOR401A: Establish effective workplace relationships |  |  |  |  |  |  | Y |  |  |  |
|  | BSBWOR402A: Promote team effectiveness |  |  |  |  | Y |  |  |  |  |  |
|  | BSBWOR502: Lead and manage team effectiveness |  |  |  |  |  |  |  | Y |  |  |
| **Work Practices Programmes** | BSBLDR402: Lead effective workplace relationships | Y | Y |  |  | Y |  |  |  |  |  |
| BSBLDR403: Lead team effectiveness | Y | Y | Y |  |  | Y | Y |  |  |  |
| CPCCBC4025A: Manage personal work priorities and professional development | Y | Y | Y | Y | Y | Y | Y |  |  |  |
| HLTHIR403C: Work effectively with culturally diverse clients and co-workers | Y | Y | Y | Y | Y | Y | Y |  |  |  |

## 

## **Appendix C – Contemporary Position Description Analysis**

**Is the qualification relevant to current jobs?**

On the face of it, the qualifications’ competencies align with contemporary job requirements.[[21]](#footnote-21) The functional fit looks correct for sampled job vacancies, where the most sought-after requirements were relevant qualifications and relevant industry experience.

However, caution is needed for several reasons:

* Jobs of tomorrow: the building and construction industry is facing multiple drivers of change (e.g. technology, non-traditional building materials, building shortages, environmental changes). Vocational training that is suitable today is unlikely to be fit for purpose as these drivers begin to impact post trade practice.
* Sample limitations: most of the job advertisements in this area were brief (compared to other industries, such as security), with a higher proportion of vocational teacher jobs advertised than might be representative of the broader building construction industry. This is possibly because these jobs are more likely to be advertised, while construction and building roles are filled by word-of-mouth or direct recruiting by large construction firms.

| **Position Description Requirement** | **Found in related qualification competency group/s** | **Frequency** | **Example** |
| --- | --- | --- | --- |
| **Relevant qualifications** |  | 6 | *Qualifications in Building & Construction (Diploma of Building & Construction or Certificate IV in Building & Construction (essential)* |
| **Relevant Industry Experience** |  | 4 | *Minimum of 3 years current industry experience in Building & Construction (essential)* |
| **Teaching Experience** | Teacher education: vocational education and training | 4 | *A Certificate IV in Training and Assessment (TAE40110 or TAE40116) (essential)* |
| **Flexible learning experience** | Teacher education: vocational education and training | 1 | *Recent experience\* in distance, flexible or online learning (highly desirable)* |
| **Demonstrated knowledge of the Building code of Australia associated standards** | Building surveying | 1 |  |
| **Computer literacy and excellent report writing skills** | Practical Computing Skills | 1 |  |
| **Strong organisational and time management skills.** | Management training  Work practices programmes | 1 |  |
| **Demonstrate effective analytical and problem solving skills.** |  | 1 |  |
| **Current Class C drivers licence.** |  | 1 |  |
| **Familiarity with RPL processes** | Teacher education: vocational education and training | 1 |  |
| **Advanced communication skills** | Secretarial and clerical services | 1 |  |
| **The ability to set priorities and co-ordinate available time and resources for maximum effectiveness.** | Building Construction Management  Project management | 1 |  |
| **Previous experience with quality management system, planning techniques and tools** | Building Construction Management  Project management | 1 |  |
| **Previous Experience Contracts Administration** | Building Construction Management | 1 |  |

## **Appendix D – Qualification Enrolment and Completion Tables, by state/territory**

| **CPC40110 - Certificate IV in Building and Construction (Building)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 4198 | 4672 | 6032 | 6292 | 1402 | 1550 | 1591 | 1404 |
| **Victoria** | 8219 | 10869 | 8874 | 7850 | 2430 | 3992 | 2792 | 2007 |
| **Queensland** | 2416 | 3374 | 5535 | 6630 | 790 | 810 | 1327 | 1961 |
| **South Australia** | 778 | 914 | 812 | 425 | 145 | 116 | 189 | 85 |
| **Western Australia** | 287 | 472 | 424 | 263 | 56 | 39 | 100 | 132 |
| **Tasmania** | 200 | 198 | 141 | 161 | 43 | 63 | 42 | 48 |
| **Northern Territory** | 129 | 79 | 69 | 55 | 55 | 41 | 44 | 17 |
| **Australian Capital Territory** | 1377 | 1979 | 1692 | 641 | 1162 | 789 | 822 | 205 |
| **Total** | **17604** | **22557** | **23579** | **22317** | **6083** | **7400** | **6907** | **5859** |

| **CPC40208 - Certificate IV in Building and Construction (Contract Administration)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 56 | 188 | 179 | 154 | 37 | 21 | 53 | 31 |
| **Victoria** | 51 | 35 | 51 | 54 | 25 | 6 | 17 | 7 |
| **Queensland** | 11 | 8 | 3 | 28 | 6 | 5 | 3 | 15 |
| **South Australia** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Western Australia** | 13 | 163 | 179 | 118 | 0 | 9 | 45 | 49 |
| **Tasmania** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northern Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australian Capital Territory** | 12 | 8 | 31 | 19 | 5 | 0 | 0 | 7 |
| **Total** | **143** | **402** | **443** | **373** | **73** | **41** | **118** | **109** |

| **CPC40308 - Certificate IV in Building and Construction (Estimating)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 165 | 198 | 213 | 194 | 26 | 14 | 29 | 34 |
| **Victoria** | 43 | 58 | 34 | 57 | 13 | 24 | 17 | 10 |
| **Queensland** | 33 | 27 | 53 | 120 | 4 | 3 | 1 | 3 |
| **South Australia** | 69 | 70 | 63 | 44 | 14 | 10 | 10 | 6 |
| **Western Australia** | 59 | 349 | 302 | 215 | 17 | 79 | 51 | 129 |
| **Tasmania** | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northern Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australian Capital Territory** | 0 | 34 | 39 | 22 | 0 | 0 | 7 | 1 |
| **Total** | **373** | **736** | **704** | **652** | **74** | **130** | **115** | **183** |

| **CPC40408 - Certificate IV in Building and Construction (Sales)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Victoria** | 15 | 4 | 0 | 0 | 2 | 0 | 0 | 0 |
| **Queensland** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **South Australia** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Western Australia** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Tasmania** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northern Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australian Capital Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **15** | **4** | **0** | **0** | **2** | **0** | **0** | **0** |

| **CPC40508 - Certificate IV in Building and Construction (Site Management)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 82 | 76 | 87 | 51 | 5 | 9 | 9 | 9 |
| **Victoria** | 56 | 91 | 90 | 101 | 17 | 9 | 17 | 28 |
| **Queensland** | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| **South Australia** | 208 | 167 | 146 | 89 | 68 | 26 | 30 | 12 |
| **Western Australia** | 40 | 177 | 161 | 90 | 10 | 2 | 23 | 61 |
| **Tasmania** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northern Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australian Capital Territory** | 1 | 4 | 20 | 6 | 3 | 0 | 9 | 0 |
| **Total** | **387** | **515** | **504** | **337** | **105** | **46** | **88** | **110** |

| **CPC40611 - Certificate IV in Building and Construction (Specialist Trades)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 106 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| **Victoria** | 12 | 90 | 31 | 3 | 112 | 156 | 0 | 0 |
| **Queensland** | 211 | 15 | 16 | 2 | 0 | 0 | 0 | 0 |
| **South Australia** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Western Australia** | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Tasmania** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northern Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australian Capital Territory** | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | 353 | 105 | 47 | 6 | 112 | 156 | 0 | 0 |

***Enrolments and completions in the CPC40611 - Certificate IV in Building and Construction (Specialist Trades) are absent or declining in all regions. Victorian completions in 2014 and 2015 appear to be anomalous.***

***It is unclear why states/territories with enrolments in 2014-2015 then declined in 2016-17. Have licensing or regulatory requirements changed in this period?***

| **CPC40708 - Certificate IV in Building and Construction (Trade Contracting)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Victoria** | 17 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Queensland** | 0 | 17 | 0 | 6 | 0 | 13 | 0 | 0 |
| **South Australia** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Western Australia** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Tasmania** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northern Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australian Capital Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **17** | **20** | **0** | **6** | **0** | **13** | **0** | **0** |

***Q. With the exception of a small number of enrolments in Victoria and Queensland, and some completions in Queensland in 2015, the CPC40708 (PROGRAM RECOG ID 11) - Certificate IV in Building and Construction (Trade Contracting) has minimal uptake. Could the skills distinct to this qualification be offered as electives within other qualifications at the Certificate IV level, or be packaged as a skillset for those already in the building construction industry? The latter option may meet the continuing development required of holders of some state licenses.***

| **CPC50308 - Diploma of Building and Construction (Management)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 41 | 112 | 111 | 78 | 15 | 19 | 36 | 13 |
| **Victoria** | 664 | 907 | 1173 | 685 | 80 | 311 | 499 | 124 |
| **Queensland** | 0 | 31 | 72 | 99 | 0 | 3 | 8 | 5 |
| **South Australia** | 135 | 59 | 47 | 24 | 20 | 11 | 18 | 4 |
| **Western Australia** | 31 | 40 | 39 | 44 | 2 | 19 | 6 | 9 |
| **Tasmania** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northern Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australian Capital Territory** | 36 | 31 | 32 | 35 | 13 | 17 | 5 | 6 |
| **Total** | 907 | 1180 | 1474 | 965 | 130 | 380 | 572 | 161 |

***Q. What is distinctive about the Victorian environment which has resulted in notably higher enrolments and completions in the CPC50308 - Diploma of Building and Construction (Management)? Are these differences the result of the licensing and regulatory environment? Is this likely to change – to increase with Victoria, relax, or extend to other regions?***

| **CPC50210 - Diploma of Building and Construction (Building)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 5115 | 6964 | 6707 | 5459 | 349 | 442 | 597 | 408 |
| **Victoria** | 3774 | 4858 | 5140 | 4619 | 814 | 1183 | 1523 | 1234 |
| **Queensland** | 444 | 610 | 680 | 807 | 133 | 349 | 393 | 338 |
| **South Australia** | 327 | 267 | 213 | 111 | 34 | 28 | 24 | 20 |
| **Western Australia** | 829 | 808 | 733 | 835 | 192 | 157 | 213 | 196 |
| **Tasmania** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northern Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australian Capital Territory** | 453 | 301 | 208 | 131 | 420 | 102 | 54 | 37 |
| **Total** | **10942** | **13808** | **13681** | **11962** | 1942 | 2261 | 2804 | 2233 |

***Q. The CPC50210 - Diploma of Building and Construction (Building) has enrolments in the hundreds and thousands in most states, but considerably lower completions. With the exception of Queensland, where enrolments and completions are fairly even, what accounts for the uneven patterns of enrolment and completion in most regions? Are apparent enrolments in this qualification distorted by enrolments in units shared with other qualifications? Why are there zero enrolments and completions in Northern Territory and Tasmania?***

| **CPC60212 - Advanced Diploma of Building and Construction (Management)** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **State/territory of training organisation** | **Enrolments** | | | | **Completions by year** | | | |
| **2014** | **2015** | **2016** | **2017** | **2014** | **2015** | **2016** | **2017** |
| **New South Wales** | 14 | 31 | 23 | 47 | 14 | 27 | 13 | 32 |
| **Victoria** | 15 | 54 | 20 | 11 | 8 | 28 | 17 | 10 |
| **Queensland** | 127 | 167 | 192 | 245 | 59 | 85 | 80 | 56 |
| **South Australia** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Western Australia** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Tasmania** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northern Territory** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australian Capital Territory** | 98 | 51 | 53 | 43 | 80 | 6 | 28 | 15 |
| **Total** | **254** | **303** | **288** | **346** | **161** | **146** | **138** | **113** |

***Q. The CPC60212 - Advanced Diploma of Building and Construction (Management) did not have any enrolments or completions in several states and the Northern Territory. What accounts for this lack of enrolments and completions in these areas?***

## **Appendix E – Unit of Competency Map, by packaging and enrolment status**

The below table demonstrates the packaging status and how frequently units of competency are used in the ten qualifications under review. Please note, the ten qualifications do not fully account for all enrolments in these units as they are also used in other qualifications (this will be shown in the subsequent table.):

* Superseded units are highlighted in red with white text
* Units highlighted in yellow had enrolment numbers under 100 in 2017
* Qualifications highlighted in yellow are proposed for deletion due to duplication and low enrolments
* Units highlighted in blue are not listed as Core or Electives in the qualifications under review

**Table: Units of Competency, by packaging status and enrolments**

| **Unit of competency** |  |  | **Packaging Status** | | | | | | | | **Enrolments by year\*** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CPC40110** | **CPC40208** | **CPC40308** | **CPC40408** | **CPC40508** | **CPC40611** | **CPC40708** | **CPC50210** | **CPC50308** | **CPC60212** |  | | | |
| **2014** | **2015** | **2016** | **2017** |
| CPCCBC4001A - Apply building codes and standards to the construction process for low rise building projects | C | E | C |  | C |  |  | C |  |  | 16709 | 21856 | 22474 | 19975 |
| CPCCBC4002A - Manage occupational health and safety in the building and construction workplace | C |  |  |  | C |  | C |  |  |  | 10228 | 14266 | 15001 | 13322 |
| CPCCBC4003A - Select and prepare a construction contract | C | C | E | C |  |  | E | C |  |  | 14732 | 19742 | 21443 | 19601 |
| CPCCBC4004A - Identify and produce estimated costs for building and construction projects | C |  | C |  |  | C | C | C |  |  | 13618 | 18722 | 19982 | 18673 |
| CPCCBC4005A - Produce labour and material schedules for ordering | C | E | C |  | E |  | C | E GROUP B |  |  | 10174 | 14825 | 15539 | 13920 |
| CPCCBC4006A - Select, procure and store construction materials for low rise projects [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 541 | 22 | 21 | 5 |
| CPCCBC4006B - Select, procure and store construction materials for low rise projects | C | C | E |  |  |  |  | E GROUP B |  |  | 9968 | 13890 | 14056 | 12415 |
| CPCCBC4007A - Plan building or construction work | C | E |  |  | C | E |  |  |  |  | 9582 | 13293 | 13899 | 12642 |
| CPCCBC4008A - Conduct on-site supervision of building and construction projects [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 860 | 358 | 122 | 38 |
| CPCCBC4008B - Conduct on-site supervision of building and construction projects | C |  |  |  | C |  | C |  |  |  | 8548 | 12965 | 13578 | 12527 |
| CPCCBC4009A - Apply legal requirements to building and construction projects [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 428 | 11 | 16 | 18 |
| CPCCBC4009B - Apply legal requirements to building and construction projects | C |  |  |  | C |  |  | E GROUP B |  |  | 10615 | 14783 | 14906 | 14071 |
| CPCCBC4010A - Apply structural principles to residential low rise constructions [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 975 | 20 | 6 | 5 |
| CPCCBC4010B - Apply structural principles to residential low rise constructions | C |  | C |  | C |  | E | C |  |  | 14166 | 20127 | 21162 | 19879 |
| CPCCBC4011A - Apply structural principles to commercial low rise constructions [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 430 | 12 | 9 | 11 |
| CPCCBC4011B - Apply structural principles to commercial low rise constructions | C |  | C |  | C |  | E | E GROUP B |  |  | 10287 | 14058 | 14866 | 13860 |
| CPCCBC4012A - Read and interpret plans and specifications [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 2025 | 810 | 259 | 186 |
| CPCCBC4012B - Read and interpret plans and specifications | C | C | C | C | C | C | C | E GROUP B |  |  | 13368 | 20126 | 20835 | 17687 |
| CPCCBC4013A - Prepare and evaluate tender documentation | E | E | C |  |  |  | E | C |  |  | 6193 | 9441 | 11234 | 9700 |
| CPCCBC4014A - Prepare simple building sketches and drawings | E | E | E | E | E |  |  | E GROUP B |  |  | 3007 | 3895 | 4274 | 3873 |
| CPCCBC4015A - Prepare specifications for all construction works | E |  | E |  | E |  |  |  |  |  | 329 | 1134 | 932 | 601 |
| CPCCBC4016A - Administer a construction contract | E | C | E | E |  |  |  |  |  |  | 1978 | 2803 | 3609 | 3379 |
| CPCCBC4017A - Arrange resources and prepare for the building or construction project | E | E | E |  | E |  | E |  |  |  | 280 | 414 | 853 | 917 |
| CPCCBC4018A - Apply site surveys and set-out procedures to building and construction projects | E |  |  |  | E |  |  | E GROUP B |  |  | 7156 | 9036 | 10691 | 8646 |
| CPCCBC4019A - Apply sustainable building design principles to water management systems | E | E | E | E | E | E | E |  |  |  | 453 | 497 | 302 | 74 |
| CPCCBC4020A - Build thermally efficient and sustainable structures | E | E | E | E | E | E | E |  |  |  | 4549 | 5058 | 3292 | 3060 |
| CPCCBC4021A - Minimise waste on the building and construction site | E | E | E | E | E | E | E |  |  |  | 2030 | 2867 | 2561 | 1831 |
| CPCCBC4022A - Supervise tilt-up work | E |  |  |  |  |  |  |  |  |  | 148 | 199 | 180 | 209 |
| CPCCBC4023A - Plan and undertake site inspection and assessment of asbestos products and materials [DELETED] |  |  |  |  |  |  |  |  |  |  | 2 | 4 | 0 | 0 |
| CPCCBC4024A - Resolve business disputes | E | E | E | E | E | E | C | E GROUPB |  |  | 5621 | 8990 | 9759 | 7884 |
| CPCCBC4025A - Manage personal work priorities and professional development | E | E | E | E | E | E | E |  |  |  | 431 | 462 | 734 | 804 |
| CPCCBC4026A - Arrange building applications and approvals | E | C |  |  | E |  |  |  |  |  | 798 | 1592 | 1686 | 1437 |
| CPCCBC4027B - Establish a basis for sales consulting |  |  |  | C |  |  |  |  |  |  | 11 | 0 | 2 | 0 |
| CPCCBC4028A - Prepare design brief for construction works |  |  | E |  | E |  |  |  |  |  | 0 | 0 | 7 | 19 |
| CPCCBC4029A - Apply construction information to the sales process [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 0 | 0 | 2 | 6 |
| CPCCBC4029B - Apply construction information to the sales process |  | C |  | C |  |  |  |  |  |  | 76 | 309 | 326 | 288 |
| CPCCBC4030A - Analyse and communicate industry information |  |  |  | C |  |  |  |  |  |  | 7 | 0 | 2 | 0 |
| CPCCBC4031A - Process client requirements |  | C |  | C |  |  | E |  |  |  | 72 | 310 | 330 | 284 |
| CPCCBC4032A - Apply contract law to sales processes |  | C |  | C |  |  | E |  |  |  | 82 | 301 | 318 | 287 |
| CPCCBC4033A - Maintain the sales environment |  |  |  | C |  |  |  |  |  |  | 1 | 0 | 2 | 0 |
| CPCCBC4034A - Apply codes and standards to building trade and services contracting |  |  |  |  |  | C | C |  |  |  | 722 | 954 | 932 | 1021 |
| CPCCBC4035A – Initiate the heritage works process |  |  |  |  |  | C\* |  |  |  |  | N/A | N/A | N/A | N/A |
| CPCCBC4036A – Prepare to undertake the heritage restoration process |  |  |  |  |  | C\* |  |  |  |  | N/A | N/A | N/A | N/A |
| CPCCBC4037A - Prepare drawings for heritage works |  |  |  |  |  | C\* |  |  |  |  | 31 | 63 | 173 | 47 |
| CPCCBC4038A – Prepare work plans for restoration work |  |  |  |  |  | C\* |  |  |  |  | N/A | N/A | N/A | N/A |
| CPCCBC4039A - Undertake the heritage restoration process |  |  |  |  |  | C\* |  |  |  |  | 19 | 14 | 0 | 0 |
| CPCCBC4040A – Prepare report for heritage restoration work |  |  |  |  |  | C\* |  |  |  |  | N/A | N/A | N/A | N/A |
| CPCCBC4041A – Undertake preparations for refractory work |  |  |  |  |  | C\*\* |  |  |  |  | N/A | N/A | N/A | N/A |
| CPCCBC4042A - Construct a fire brick wall and arch using refractory materials |  |  |  |  |  | C\*\* |  |  |  |  | 0 | 2 | 0 | 0 |
| CPCCBC4043A – Operate a self-erecting tower crane |  |  |  |  |  | E |  |  |  |  | N/A | N/A | N/A | N/A |
| CPCCBC4044A - Operate a tower crane |  |  |  |  |  | E |  |  |  |  | 0 | 0 | 0 | 5 |
| CPCCBC4045A - Perform advanced rigging |  |  |  |  |  | E |  |  |  |  | 2 | 0 | 0 | 0 |
| CPCCBC4046A - Erect and dismantle advanced scaffolding |  |  |  |  |  | E |  |  |  |  | 10 | 0 | 0 | 25 |
| CPCCBC4047A - Quality assure fire-rated lining systems |  |  |  |  |  | E |  |  |  |  | 17 | 18 | 29 | 23 |
| CPCCBC4048A - Apply building codes and standards to the construction process for swimming pools and spas |  |  |  |  |  |  |  |  |  |  | 9 | 6 | 2 | 88 |
| CPCCBC4049A - Apply structural principles to construction of swimming pools and spas |  |  |  |  |  |  |  |  |  |  | 10 | 2 | 3 | 93 |
| CPCCBC4050A - Select, procure and store construction materials for swimming pools and spa projects |  |  |  |  |  |  |  |  |  |  | 14 | 4 | 7 | 150 |
| CPCCBC4051A - Supervise asbestos removal | E |  | E |  | E | E | E |  |  |  | 1902 | 1549 | 1906 | 1925 |
| CPCCBC5001A - Apply building codes and standards to the construction process for medium rise building projects [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 4 | 4 | 2 | 3 |
| CPCCBC5001B - Apply building codes and standards to the construction process for medium rise building projects |  |  |  |  |  |  |  | C | E | N/A | 4439 | 7053 | 7694 | 6676 |
| CPCCBC5002A - Monitor costing systems on medium rise building and construction projects |  |  |  |  |  |  |  | C | E | N/A | 4162 | 6408 | 7035 | 6131 |
| CPCCBC5003A - Supervise the planning of on-site medium rise building or construction work |  |  |  |  |  |  |  | C | E | N/A | 4102 | 6162 | 7690 | 6531 |
| CPCCBC5004A - Supervise and apply quality standards to the selection of building and construction materials |  |  |  |  |  |  |  | E GROUP A/B | E | N/A | 6533 | 7654 | 6965 | 4660 |
| CPCCBC5005A - Select and manage building and construction contractors |  |  |  |  |  |  |  | E GROUP A/B | E | N/A | 3266 | 4785 | 5456 | 4226 |
| CPCCBC5006A - Apply site surveys and set-out procedures to medium rise building projects [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 874 | 481 | 449 | 444 |
| CPCCBC5006B - Apply site surveys and set-out procedures to medium rise building projects |  |  |  |  |  |  |  | E GROUP A/B | E | N/A | 1497 | 1580 | 1321 | 916 |
| CPCCBC5007A - Administer the legal obligations of a building or construction contract [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 653 | 178 | 103 | 30 |
| CPCCBC5007B - Administer the legal obligations of a building or construction contractor |  |  |  |  |  |  |  | E GROUP A/B | E | N/A | 2335 | 4533 | 6172 | 5385 |
| CPCCBC5008A - Apply structural principles to the construction of medium rise buildings |  |  |  |  |  |  |  |  |  |  | 0 | 2 | 0 | 0 |
| CPCCBC5009A - Identify services layout and connection methods to medium rise construction projects |  |  |  |  |  |  |  | E GROUP A/B | E | N/A | 1830 | 3226 | 3981 | 4204 |
| CPCCBC5010A - Manage construction work [SUPERSEDED] |  |  |  |  |  |  |  | C |  |  | 1880 | 1240 | 895 | 536 |
| CPCCBC5010B - Manage construction work |  |  |  |  |  |  |  | C | E | N/A | 2506 | 5130 | 6531 | 5432 |
| CPCCBC5011A Manage environmental practices and processes in building and construction |  |  |  |  |  |  |  | E GROUP A/B | E | N/A | 1158 | 1122 | 1425 | 1174 |
| CPCCBC5012A - Manage the application and monitoring of energy conservation and management practices and processes |  |  |  |  |  |  |  | E GROUP A/B | E | N/A | 249 | 401 | 562 | 274 |
| CPCCBC5013A - Develop professional technical and legal reports on building and construction projects |  |  |  |  |  |  |  | E GROUP A/B | E | N/A | 37 | 34 | 117 | 271 |
| CPCCBC5014A - Conduct asbestos assessment associated with removal |  |  |  |  |  |  |  | E GROUP B |  |  | 201 | 235 | 223 | 267 |
| CPCCBC5018A - Apply structural principles to the construction of medium rise buildings |  |  |  |  |  |  |  | C | E | N/A | 4090 | 6645 | 7341 | 6638 |
| CPCCBC6001A - Apply building codes and standards to the construction process for large building projects [SUPERSEDED] |  |  |  |  |  |  |  |  |  |  | 8 | 0 | 0 | 0 |
| CPCCBC6001B - Apply building codes and standards to the construction process for large building projects |  |  |  |  |  |  |  |  |  | C | 221 | 261 | 265 | 282 |
| CPCCBC6002A - Generate and direct the development of new projects |  |  |  |  |  |  |  |  |  | E | 39 | 133 | 143 | 92 |
| CPCCBC6003A - Establish, maintain and review contract administration procedures and frameworks |  |  |  |  |  |  |  |  |  | C | 212 | 220 | 236 | 200 |
| CPCCBC6004A - Manage processes for and legal obligations of a building or construction contract [SUPERSEDED] |  |  |  |  |  |  |  |  |  | E | 6 | 4 | 3 | 0 |
| CPCCBC6005A - Manage tender developments for major projects |  |  |  |  |  |  |  |  |  | E | 89 | 127 | 180 | 118 |
| CPCCBC6006A - Manage the procurement and acquisition of resources for building or construction projects |  |  |  |  |  |  |  |  |  | E | 82 | 55 | 77 | 37 |
| CPCCBC6007A - Develop, plan and implement appropriate building or construction environmental management practices |  |  |  |  |  |  |  |  |  | E | 27 | 43 | 38 | 37 |
| CPCCBC6008A - Develop and implement an appropriate estimating and tendering system |  |  |  |  |  |  |  |  |  | E | 92 | 24 | 32 | 11 |
| CPCCBC6009A - Develop, plan and implement an appropriate building or construction planning process |  |  |  |  |  |  |  |  |  | E | 22 | 31 | 43 | 48 |
| CPCCBC6010A - Plan, develop and implement building or construction energy conservation and management practices an |  |  |  |  |  |  |  |  |  | E | 16 | 39 | 20 | 5 |
| CPCCBC6011A - Establish systems to develop and monitor building and construction costs |  |  |  |  |  |  |  |  |  | E | 58 | 85 | 71 | 94 |
| CPCCBC6012A - Manage and administer development of documentation for building or construction projects |  |  |  |  |  |  |  |  |  | E | 95 | 46 | 21 | 48 |
| CPCCBC6013A - Evaluate materials for multi-storey buildings |  |  |  |  |  |  |  |  |  | E | 73 | 134 | 102 | 65 |
| CPCCBC6014A - Apply structural principles to the construction of large, high rise and complex buildings |  |  |  |  |  |  |  |  |  | E | 194 | 237 | 237 | 266 |
| CPCCBC6015A - Apply building surveying procedures |  |  |  |  |  |  |  |  |  | E | 14 | 17 | 9 | 3 |
| CPCCBC6016A - Assess construction faults in large building projects |  |  |  |  |  |  |  |  |  | E | 110 | 160 | 160 | 195 |
| CPCCBC6017A - Evaluate services layout and connection methods for the planning of large building projects |  |  |  |  |  |  |  |  |  | E | 87 | 116 | 137 | 123 |
| CPCCBC6018A - Manage processes for complying with legal obligations of a building or construction contractor |  |  |  |  |  |  |  |  |  | C | 196 | 235 | 258 | 264 |

Source: NCVER VOCSTATS, *TVA subject enrolments 2014-2017 (Embargoed),* Unit of competency by Year and State/territory of training organisation, Counting: Enrolments.

Key:

C\* - Core - Heritage restoration stream

C\*\* - Core - Refractory bricklaying stream

C\*\*\* - Core - Crane operations stream

C\*\*\*\* Core - Rigging Stream

## **Appendix F – Building and Construction Qualification Units Imported into other Qualifications**

**Usage of CPCCBC Units of Competency, including sharing with other qualifications and training packages**

The following table documents which qualifications use CPCCBC Units of competency, which must be considered before deletion and redevelopment. To assist in interpretation of this table:

* Superseded units are highlighted in red with white text.
* Units highlighted in yellow have low enrolment numbers less than 100 in 2017.

|  |  |  |  |
| --- | --- | --- | --- |
| **Building and Design Units Imported into other Qualifications** | | | |
|  | **Qualification/s used in/imported to** | **Training package** | **SSO responsible** |
| CPCCBC4001A - Apply building codes and standards to the construction process for low rise building projects | Certificate III in Timber Truss and Frame Design and Manufacture  Certificate IV in Timber Truss and Frame Manufacture  Certificate IV in Timber Truss and Frame Design  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Forest and Wood Products Training Package  Construction, Plumbing and Services Training Package | Skills Impact  Artibus Innovation |
| CPCCBC4002A - Manage occupational health and safety in the building and construction workplace | Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4003A - Select and prepare a construction contract | Diploma of Building and Construction (Building)  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4004A - Identify and produce estimated costs for building and construction projects | Certificate IV in Timber Truss and Frame Design  Certificate IV in Timber Truss and Frame Manufacture  Diploma of Building and Construction (Building)  Certificate IV in Demolition  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Specialist Trades)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Building) | Forest and Forest Products Training Package  Construction, Plumbing and Services Training Package | Skills Impact  Artibus Innovation |
| CPCCBC4005A - Produce labour and material schedules for ordering | Certificate IV in Glass and Glazing  Certificate IV in Timber Truss and Frame Design  Certificate IV in Timber Truss and Frame Manufacture  Certificate IV in Timber Truss and Frame Design  Diploma of Building and Construction (Building)  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Furnishing Training Package  Forest and Wood Products Training Package  Construction, Plumbing and Services Training Package | Innovation and Business Skills Australia  Skills Impact  Artibus Innovation |
| CPCCBC4006A - Select, procure and store construction materials for low rise projects | Superseded |  |  |
| CPCCBC4006B - Select, procure and store construction materials for low rise projects | Diploma of Building and Construction (Building)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4007A - Plan building or construction work | Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4008A - Conduct on-site supervision of building and construction projects | Superseded |  |  |
| CPCCBC4008B - Conduct on-site supervision of building and construction projects | Certificate IV in Demolition  Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4009A - Apply legal requirements to building and construction projects | Superseded |  |  |
| CPCCBC4009B - Apply legal requirements to building and construction projects | Diploma of Building and Construction (Building)  Certificate IV in Demolition  Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4010A - Apply structural principles to residential low rise constructions | Superseded |  |  |
| CPCCBC4010B - Apply structural principles to residential low rise constructions | Diploma of Building and Construction (Building)  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4011A - Apply structural principles to commercial low rise constructions | Superseded |  |  |
| CPCCBC4011B - Apply structural principles to commercial low rise constructions | Diploma of Building and Construction (Building)  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4012A - Read and interpret plans and specifications | Superseded |  |  |
| CPCCBC4012B - Read and interpret plans and specifications | Certificate IV in Glass and Glazing  Diploma of Hydraulic Services Design  Diploma of Fire Systems Design  Diploma of Building and Construction (Building)  Certificate IV in Demolition  Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Specialist Trades)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Furnishing Training Package  Construction, Plumbing and Services Training Package | Innovation and Business Skills Australia  Artibus Innovation |
| CPCCBC4013A - Prepare and evaluate tender documentation | Diploma of Building and Construction (Building)  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4014A - Prepare simple building sketches and drawings | Certificate III in Timber Truss and Frame Design and Manufacture  Certificate IV in NatHERS Assessment  Certificate IV in Home Sustainability Assessment  Diploma of Building and Construction (Building)  Certificate IV in Demolition  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Forest and Wood Products Training Package  Property Services Training Package  Construction, Plumbing and Services Training Package | Skills Impact  Artibus Innovation |
| CPCCBC4015A - Prepare specifications for all construction works | Diploma of Building Design  Certificate IV in Plumbing and Services  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Building) | Property Services Training Package  Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4016A - Administer a construction contract | Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4017A - Arrange resources and prepare for the building or construction project | Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4018A - Apply site surveys and set-out procedures to building and construction projects | Diploma of Building and Construction (Building)  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4019A - Apply sustainable building design principles to water management systems | Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Specialist Trades)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4020A - Build thermally efficient and sustainable structures | Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Specialist Trades)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4021A - Minimise waste on the building and construction site | Diploma of Live Production Design  Diploma of Live Production and Technical Services  Certificate IV in Live Production and Technical Services  Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Specialist Trades)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Creative Arts and Culture Training Package  Construction, Plumbing and Services Training Package | PwC’s Skills for Australia  Artibus Innovation |
| CPCCBC4022A - Supervise tilt-up work | Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4023A - Plan and undertake site inspection and assessment of asbestos products and materials | Deleted |  |  |
| CPCCBC4024A - Resolve business disputes | Certificate IV in Timber Truss and Frame Design  Certificate IV in Timber Truss and Frame Manufacture  Diploma of Building and Construction (Building)  Certificate IV in Demolition  Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Specialist Trades)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Forest and Wood Products Training Package  Construction, Plumbing and Services Training Package | Skills Impact  Artibus Innovation |
| CPCCBC4025A - Manage personal work priorities and professional development | Diploma of Building Design  Diploma of Fire Systems Design  Certificate IV in Demolition  Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Specialist Trades)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Property Services Training Package  Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4026A - Arrange building applications and approvals | Certificate IV in Plumbing and Services  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Contract Administration)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4027B - Establish a basis for sales consulting | Certificate IV in Building and Construction (Sales) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4028A - Prepare design brief for construction works | Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Estimating) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4029A - Apply construction information to the sales process | Superseded |  |  |
| CPCCBC4029B - Apply construction information to the sales process | Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Contract Administration) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4030A - Analyse and communicate industry information | Certificate IV in Building and Construction (Sales) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4031A - Process client requirements | Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Contract Administration) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4032A - Apply contract law to sales processes | Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Sales)  Certificate IV in Building and Construction (Contract Administration) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4033A - Maintain the sales environment | Certificate IV in Building and Construction (Sales) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4034A - Apply codes and standards to building trade and services contracting | Diploma of Hydraulic Services Design  Diploma of Plumbing and Services  Certificate IV in Plumbing and Services  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Specialist Trades) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4037A - Prepare drawings for heritage works | Advanced Diploma of Interior Design  Diploma of Interior Design and Decoration  Advanced Diploma of Interior Design  Diploma of Interior Design and Decoration  Certificate IV in Building and Construction (Specialist Trades) | Furnishing Training Package  Construction, Plumbing and Services Training Package | Innovation and Business Skills Australia  Artibus Innovation |
| CPCCBC4039A - Undertake the heritage restoration process | Certificate IV in Building and Construction (Specialist Trades) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4042A - Construct a fire brick wall and arch using refractory materials | Certificate IV in Building and Construction (Specialist Trades) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4044A - Operate a tower crane | Certificate IV in Building and Construction (Specialist Trades) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4045A - Perform advanced rigging | Certificate IV in Building and Construction (Specialist Trades) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4046A - Erect and dismantle advanced scaffolding | Certificate IV in Building and Construction (Specialist Trades) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4047A - Quality assure fire-rated lining systems | Certificate IV in Building and Construction (Specialist Trades) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4048A - Apply building codes and standards to the construction process for swimming pools and spas | Certificate IV in Swimming Pool and Spa Building | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4049A - Apply structural principles to construction of swimming pools and spas | Certificate IV in Swimming Pool and Spa Building | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4050A - Select, procure and store construction materials for swimming pools and spa projects | Certificate IV in Swimming Pool and Spa Building | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC4051A - Supervise asbestos removal | Certificate IV in Demolition  Certificate IV in Swimming Pool and Spa Building  Certificate IV in Building and Construction (Trade Contracting)  Certificate IV in Building and Construction (Specialist Trades)  Certificate IV in Building and Construction (Site Management)  Certificate IV in Building and Construction (Estimating)  Certificate IV in Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5001A - Apply building codes and standards to the construction process for medium rise building projects | Superseded |  |  |
| CPCCBC5001B - Apply building codes and standards to the construction process for medium rise building projects | Diploma of Building and Construction (Building)  Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5002A - Monitor costing systems on medium rise building and construction projects | Diploma of Plumbing and Services  Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5003A - Supervise the planning of on-site medium rise building or construction work | Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5004A - Supervise and apply quality standards to the selection of building and construction materials | Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5005A - Select and manage building and construction contractors | Diploma of Building Design  Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Property Services Training Package  Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5006A - Apply site surveys and set-out procedures to medium rise building projects | Superseded |  |  |
| CPCCBC5006B - Apply site surveys and set-out procedures to medium rise building projects | Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5007A - Administer the legal obligations of a building or construction contract | Superseded |  |  |
| CPCCBC5007B - Administer the legal obligations of a building or construction contractor | Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5008A - Apply structural principles to the construction of medium rise buildings | superseded |  |  |
| CPCCBC5009A - Identify services layout and connection methods to medium rise construction projects | Diploma of Fire Systems Design  Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5010A - Manage construction work | Superseded |  |  |
| CPCCBC5010B - Manage construction work | Diploma of Plumbing and Services  Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5011A - Manage environmental management practices and processes in building and construction | Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5012A - Manage the application and monitoring of energy conservation and management practices and processes | Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5013A - Develop professional technical and legal reports on building and construction projects | Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5014A - Conduct asbestos assessment associated with removal | Diploma of Building and Construction (Building)  Certificate IV in Demolition | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC5018A - Apply structural principles to the construction of medium rise buildings | Diploma of Building and Construction (Management)  Diploma of Building and Construction (Building)  Certificate IV in Demolition | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6001A - Apply building codes and standards to the construction process for large building projects | Superseded |  |  |
| CPCCBC6001B - Apply building codes and standards to the construction process for large building projects | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6002A - Generate and direct the development of new projects | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6003A - Establish, maintain and review contract administration procedures and frameworks | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6004A - Manage processes for and legal obligations of a building or construction contract | Superseded |  |  |
| CPCCBC6005A - Manage tender developments for major projects | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6006A - Manage the procurement and acquisition of resources for building or construction projects | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6007A - Develop, plan and implement appropriate building or construction environmental management practices | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6008A - Develop and implement an appropriate estimating and tendering system | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6009A - Develop, plan and implement an appropriate building or construction planning process | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6010A - Plan, develop and implement building or construction energy conservation and management practices an | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6011A - Establish systems to develop and monitor building and construction costs | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6012A - Manage and administer development of documentation for building or construction projects | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6013A - Evaluate materials for multi-storey buildings | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6014A - Apply structural principles to the construction of large, high rise and complex buildings | Advanced Diploma of Building and Construction (Management)  Certificate IV in Demolition | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6015A - Apply building surveying procedures | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6016A - Assess construction faults in large building projects | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6017A - Evaluate services layout and connection methods for the planning of large building projects | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |
| CPCCBC6018A - Manage processes for complying with legal obligations of a building or construction contractor | Advanced Diploma of Building and Construction (Management) | Construction, Plumbing and Services Training Package | Artibus Innovation |

## **Appendix G – Units Imported in to Building and Construction Qualifications**

| **Imported Units in Building and Construction Qualifications** | | | | |
| --- | --- | --- | --- | --- |
| **Qualification** | **Unit** | **Packaging Status of unit** | **Parent training package** | **SSO** |
| **CPC40110 Certificate IV in Building and Construction (Building)**                              **CPC40110 Certificate IV in Building and Construction (Building)** | BSBSMB401: Establish legal and risk management requirements of small business | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB402: Plan small business finances | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB404: Undertake small business planning | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB405: Monitor and manage small business operations | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB406A: Manage small business finances | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU201: Produce simple word processed documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU202: Create and use spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU301: Create and use databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG415: Apply project risk management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG522: Undertake project work | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT403: Implement continuous improvement | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG411: Apply project quality management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWRT401: Write complex documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| TAEDEL402: Plan, organise and facilitate learning in the workplace | Elective | Training and Education Training Package | PwC’s Skills for Australia |
| BSBLDR402: Lead effective workplace relationships | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBLDR403: Lead team effectiveness | Elective | Business Services Training Package | PwC’s Skills for Australia |
| HLTHIR403C: Work effectively with culturally diverse clients and co-workers [SUPERSEDED BY CHCDIV001] | Elective | Health Training Package | SkillsIQ |
| **CPC40208 Certificate IV in Building and Construction (Contract Administrator)** | BSBPMG407A: Apply risk management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBOHS201A: Participate in OHS processes | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU201: Produce simple word processed documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU202: Create and use spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU301: Create and use databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG404A: Apply quality management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG522: Undertake project work | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT403: Implement continuous improvement | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWRT401: Write complex documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBLDR402: Lead effective workplace relationships | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBLDR403: Lead team effectiveness | Elective | Business Services Training Package | PwC’s Skills for Australia |
| HLTHIR403C: Work effectively with culturally diverse clients and co-workers [SUPERSEDED BY CHCDIV001] | Elective | Health Training Package | SkillsIQ |
| **CPC40308 Certificate IV in Building and Construction (Estimating)** | BSBPMG407A: Apply risk management techniques | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBOHS404B: Contribute to the implementation of strategies to control OHS risk | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU201: Produce simple word processed documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU202: Create and use spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU301: Create and use databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG404A: Apply quality management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT403: Implement continuous improvement | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBCUS301: Deliver and monitor a service to customers | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWRT401: Write complex documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBLDR403: Lead team effectiveness | Elective | Business Services Training Package | PwC’s Skills for Australia |
| HLTHIR403C: Work effectively with culturally diverse clients and co-workers [SUPERSEDED BY CHCDIV001] | Elective | Health Training Package | SkillsIQ |
| **CPC40308 Certificate IV in Building and Construction (Estimating)** | BSBPMG407A: Apply risk management techniques | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBOHS404B: Contribute to the implementation of strategies to control OHS risk | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU201: Produce simple word processed documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU202: Create and use spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU301: Create and use databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG404A: Apply quality management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT403: Implement continuous improvement | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBCUS301: Deliver and monitor a service to customers | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWRT401: Write complex documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBLDR403: Lead team effectiveness | Elective | Business Services Training Package | PwC’s Skills for Australia |
| HLTHIR403C: Work effectively with culturally diverse clients and co-workers [SUPERSEDED BY CHCDIV001] | Elective | Health Training Package | SkillsIQ |
| **CPC40408 Certificate IV in Building and Construction (Sales)** | BSBRES401: Analyse and present research information | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB401: Establish legal and risk management requirements of small business | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMKG414B: Undertake marketing activities | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBOHS201A: Participate in OHS processes | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU201: Produce simple word processed documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU202: Create and use spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU301: Create and use databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG404A: Apply quality management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT403: Implement continuous improvement | Elective | Business Services Training Package | PwC’s Skills for Australia |
| CPPDSM4014A: Market property for sale | Elective | Property Services Training Package | Artibus Innovation |
| CPPDSM4022A: Sell and finalise the sale of property by private treaty | Elective | Property Services Training Package | Artibus Innovation |
| BSBCUS402: Address customer needs | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSLS403A: Present a sales solution | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSLS404A: Secure prospect commitment | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWRT401: Write complex documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| HLTHIR403C: Work effectively with culturally diverse clients and co-workers [SUPERSEDED BY CHCDIV001] | Elective | Health Training Package | SkillsIQ |
| **CPC40508 Certificate IV in Building and Construction (Site Management)** | BSBPMG407A: Apply risk management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU201: Produce simple word processed documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU202: Create and use spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU301: Create and use databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG404A: Apply quality management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG522: Undertake project work | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT403: Implement continuous improvement | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBCUS301: Deliver and monitor a service to customers | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWRT401: Write complex documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| TAEDEL402A: Plan, organise and facilitate learning in the workplace | Elective | Training and Education Training Package | PwC’s Skills for Australia |
| BSBLDR402: Lead effective workplace relationships | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWOR402A: Promote team effectiveness | Core | Business Services Training Package | PwC’s Skills for Australia |
| HLTHIR403C: Work effectively with culturally diverse clients and co-workers [SUPERSEDED BY CHCDIV001] | Elective | Health Training Package | SkillsIQ |
| **CPC40611 Certificate IV in Building and Construction (Specialist Trades)** | BSBPMG407A: Apply risk management techniques | N/A | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB401: Establish legal and risk management requirements of small business | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBOHS404B: Contribute to the implementation of strategies to control OHS risk | Core | Business Services Training Package | PwC’s Skills for Australia |
| TLILIC3006A: Licence to operate a non-slewing mobile crane (greater than 3 tonnes capacity) [SUPERSEDED] | N/A | Transport and Logistics Training Package | Australian Industry Standards |
| TLILIC3008A: Licence to operate a slewing mobile crane (up to 20 tonnes) [SUPERSEDED] | N/A | Transport and Logistics Training Package | Australian Industry Standards |
| TLILIC4009A: Licence to operate a slewing mobile crane (up to 60 tonnes) | N/A | Transport and Logistics Training Package | Australian Industry Standards |
| TLILIC4010A: Licence to operate a slewing mobile crane (up to 100 tonnes) [SUPERSEDED] | N/A | Transport and Logistics Training Package | Australian Industry Standards |
| TLILIC4011A: Licence to operate a slewing mobile crane (over 100 tonnes) [SUPERSEDED] | N/A | Transport and Logistics Training Package | Australian Industry Standards |
| BSBITU201: Produce simple word processed documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU202: Create and use spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU301: Create and use databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG404A: Apply quality management techniques | N/A | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT403: Implement continuous improvement | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBCUS301: Deliver and monitor a service to customers | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWRT401: Write complex documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBLDR403: Lead team effectiveness | Elective | Business Services Training Package | PwC’s Skills for Australia |
| HLTHIR403C: Work effectively with culturally diverse clients and co-workers [SUPERSEDED BY CHCDIV001] | N/A | Health Training Package | SkillsIQ |
| **CPC40708 Certificate IV in Building and Construction (Trade Contracting)** | BSBPMG407A: Apply risk management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB401: Establish legal and risk management requirements of small business | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB402: Plan small business finances | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB404: Undertake small business planning | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB405: Monitor and manage small business operations | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSMB406A: Manage small business finances | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU201: Produce simple word processed documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU202: Create and use spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU301: Create and use databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG404A: Apply quality management techniques | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG522: Undertake project work | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT403: Implement continuous improvement | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBCUS301B: Deliver and monitor a service to customers | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBWRT401: Write complex documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| TAEDEL402: Plan, organise and facilitate learning in the workplace | Elective | Training and Education Training Package | PwC’s Skills for Australia |
| BSBLDR403: Lead team effectiveness | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWOR401A: Establish effective workplace relationships | Core | Business Services Training Package | PwC’s Skills for Australia |
| HLTHIR403C: Work effectively with culturally diverse clients and co-workers [SUPERSEDED BY CHCDIV001] | Elective | Health Training Package | SkillsIQ |
| **CPC50210 Diploma of Building and Construction (Building)** | BSBFIM501: Manage budgets and financial plans | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT517: Manage operational plan | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBRSK501: Manage risk | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBHRM509: Manage rehabilitation or return to work programs | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBLED502: Manage programs that promote personal effectiveness | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT502: Manage people performance | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWOR501: Manage personal work priorities and professional development | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBOHS504B: Apply principles of OHS risk management | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBINN502: Build and sustain an innovative work environment | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU402: Develop and use complex spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU404: Produce complex desktop published documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG505A: Manage project quality | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG508A: Manage project risk | Core | Business Services Training Package | PwC’s Skills for Australia |
| CPPDSM5022A: Implement asset management plan | Elective | Property Services Training Package | Artibus Innovation |
| BSBCUS501: Manage quality customer service | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSLS502: Lead and manage a sales team | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITA401: Design databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWOR502: Lead and manage team effectiveness | Elective | Business Services Training Package | PwC’s Skills for Australia |
| **CPC50308 Diploma of Building and Construction (Management)** | BSBFIM501A: Manage budgets and financial plans | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT515A: Manage operational plan | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBHRM402A: Recruit, select and induct staff | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBHRM509: Manage rehabilitation or return to work programs | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBLED502: Manage programs that promote personal effectiveness | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMGT502: Manage people performance | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWRK502A: Represent the union in key forums | Deleted 13 June 2017 | Business Services Training Package | PwC’s Skills for Australia |
| BSBWOR501: Manage personal work priorities and professional development | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBOHS504B: Apply principles of OHS risk management | Core | Business Services Training Package | PwC’s Skills for Australia |
| BSBINN502: Build and sustain an innovative work environment | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU402: Develop and use complex spreadsheets | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITU404: Produce complex desktop published documents | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG504A: Manage project costs | N/A | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG505A: Manage project quality | N/A | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG507A: Manage project communications | N/A | Business Services Training Package | PwC’s Skills for Australia |
| BSBPMG508A: Manage project risk | N/A | Business Services Training Package | PwC’s Skills for Australia |
| CPPDSM5022A: Implement asset management plan | N/A | Property Services Training Package | Artibus Innovation |
| BSBCUS501: Manage quality customer service | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBSLS502: Lead and manage a sales team | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBITA401: Design databases | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBWOR502: Ensure team effectiveness | Core | Business Services Training Package | PwC’s Skills for Australia |
| **CPC60212 Advanced Diploma of Building and Construction (Management)** | BSBMGT617: Develop and implement a business plan | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBRSK501: Manage risk | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBMKG609: Develop a marketing plan | Elective | Business Services Training Package | PwC’s Skills for Australia |
| BSBOHS603B: Analyse and evaluate OHS risk | Core | Business Services Training Package | PwC’s Skills for Australia |

## **Appendix H – Number of RTOs with Qualifications on Scope**

|  |  |  |  |
| --- | --- | --- | --- |
| **Qualification Name** | **Current status** | **Re-registration pending** | **Total RTOs with Qual registration on scope** |
| CPC40110 | 133 | 5 | 138 |
| CPC40208 | 9 | 0 | 9 |
| CPC40308 | 17 | 0 | 17 |
| CPC40408 | 2 | 0 | 2 |
| CPC40508 | 18 | 0 | 18 |
| CPC40611 | 3 | 0 | 3 |
| CPC40708 | 1 | 0 | 1 |
| CPC50308 | 91 | 3 | 94 |
| CPC50210 | 29 | 2 | 31 |
| CPC60212 | 17 | 1 | 18 |
| Totals | 320 | 11 | 331 |
| Key |  |  |  |
| Heat map shows qualifications taught by a high number of RTOs in green. | | |  |
| Qualifications only taught by a low number of RTOs are shown in red/orange. | | |  |

## **Appendix I – Key Drivers of Change and Proposed Responses[[22]](#footnote-22)**

This section further explores the challenges and opportunities for the construction, plumbing and services sector. The *CPC Skills Forecast Survey 2018* asked participants to ‘*indicate what Social, Technological, Environment, Educational, Economic and Political (STEEEP) trends will have an impact on their industry in the next 3-5 years’* and the answer choices were derived using AISC’s *Future Skills and Training Resource*.[[23]](#footnote-23) There were 66 responses for this question and the top 3 trends per category as identified by participants are in table 6.

**Table 6 *STEEEP Trend Responses from the CPC Skills Forecast Survey 2018*[[24]](#footnote-24)**

|  |  |  |
| --- | --- | --- |
| **Trend** | **Rating per category** | |
| **Social Trends** | | |
| Changing work and career values | 1 | 26% |
| Ageing population\* | 2 | 25% |
| Global mobility | 3 | 23% |
| **Technological Trends** | | |
| Digitisation\* | 1 | 33% |
| Artificial intelligence and machine learning\* | 2 | 37% |
| Augmented reality and virtual reality | 3 | 20% |
| **Economic Trends** | | |
| Workforce vulnerability | 1 | 22% |
| Changing workplace dynamics | 2 | 22% |
| Empowered customers\* | 3 | 15% |
| **Education Trends** | | |
| VET uptake and completion rates | 1 | 42% |
| Skills mismatch\* | 2 | 33% |
| Knowledge-based economy | 3 | 25% |
| **Environmental Trends** | | |
| Financial viability | 1 | 34% |
| Climatic weather shifts | 2 | 22% |
| International sustainability action | 3 | 22% |
| **Political Trends** | | |
| Innovation ahead of regulation | 1 | 37% |
| Political appetite for reform | 2 | 33% |
| Political instability & polarisation | 3 | 30% |

\**Trend also identified by the IRC and discussed in the key drivers section*

The AISC’s *Future Skills and Training Resource* was also used by the IRC to identify the following key drivers for change in the industry and on the CPC Construction, Plumbing and Services Training Package:

* Ageing population, specifically the increase in older workers in the industry
* Digitisation, artificial intelligence and automation
* Empowered customers, specifically demanding smart and green construction
* Skills mismatch

These trends were also validated in the *CPC Skills Forecast Survey 2018.*

*An Increase in Older Workers*

While the evidence in the employment outlook section shows that the construction industry is typically young, the age profile of the industry has actually become older in the last 20 years.

***Graph 4: Percentage of workforce by age - Nov 97 - Nov 17.[[25]](#footnote-25)***

**29.5%**

**29.8%**

The graph above shows that, while the percentage of younger workers in the industry has remained relatively constant over the last 20 years – only increasing 0.6%, there has actually been a decrease in the percentage of the workforce aged 30-49 by 6.7% and an increase in the workforce aged 50 and over by 6.1%.

Graph 4 shows that the skill replacement gap is increasing. Vital skills to the industry are at risk of being lost as increasing amounts of workers retire yet there are proportionally fewer younger workers in the industry to replace their skills.[[26]](#footnote-26) This skill loss is especially relevant to senior level skills such as management and leadership. These skills are projected to be more in demand in the future construction industry, as lower skilled jobs are at risk of being automated, while business and management jobs that require high levels of social intelligence, technical ability and creative intelligence are predicted to increase.[[27]](#footnote-27) Typically, these skills are held by older workers who have worked their way up to these positions, so with a large portion of people with these skills reaching retirement and a fewer portion of people available to take their place, the industry is at risk of critical workforce shortages. This suggests that the training package must be reviewed and updated to provide support for higher-level skills and qualifications to upskill workers to replace the skills of retiring workers as well as efforts to attract new talent to construction VET courses and careers.[[28]](#footnote-28)

This need to replace high skilled workers in larger numbers in the future raises the issue of the future supply of the skilled workforce and whether the current apprentice system will be able to deliver the numbers needed.[[29]](#footnote-29) The industry is likely to face increased competition from other industries for the potential apprentice workforce and needs to ensure that the career training pathways are understood and well established in school settings.

Furthermore, an increase in older people in the workforce is likely to create a demand for less physically demanding jobs. Automation and new technology may provide a solution but with this comes the need to upskill and re-skill the older population of construction workers to use new technologies and automated processes.[[30]](#footnote-30)

In addition, the construction industry needs to improve career pathways for women into, and the recruitment of women for, the roles that are facing a skill replacement gap. The industry has traditionally been male dominated, this is increasing. In 2006, women accounted for 17% of the construction industry workforce,[[31]](#footnote-31) however in 2018, women only account for 11.6% of the workforce.[[32]](#footnote-32) A 2016 study by UNSW into gender disparity in the construction industry noted that men dominate senior roles, while women are more likely to be in junior, support roles and non-fee-earning professions such as human resources and marketing.[[33]](#footnote-33) Additionally, women experience relative disadvantage in regards to development and promotional opportunities, as well as inequality in pay. These experiences result in women leaving the construction industry almost 39% faster than men.[[34]](#footnote-34)

In order to increase recruitment and retention of women, the report by UNSW recommends that:

* construction companies review the cultures of their workplaces to determine if they are gendered and exclusionary,
* even out how men and women are recruited – through both formal and informal channels,
* provide pathways and training for women to further their construction careers, and
* introduce more flexibility in the workplace so parental leave does not hinder women’s’ careers.[[35]](#footnote-35)

*The Introduction of New Technology*

The construction industry is yet to feel the effects of significant digital disruption and is one of the least ‘digitally engaged’ industry sectors.[[36]](#footnote-36) The major technological advances that will affect the CPC training package are business applications, automation, BIM and pre-fabrication.

***Business Applications***

The *Telstra Loop Self Employed Tradies Summary Report*highlights the low uptake of everyday digital technology among the construction workforce and the imperative for tradespeople to rapidly upskill to survive and compete in a service-based economy.[[37]](#footnote-37) The report notes that equipment used by industry has the potential to improve workplace performance, safety and training. For example, the rapid development of handheld devices and computer numerical control (CNC) routers has the potential to improve the safety, precision and operation of many construction tasks, particularly those that are manual or high risk. [[38]](#footnote-38)

***Automation***

In the Australian labour market, about 40% of current jobs are deemed to be at high risk of automation over the next 10-15 years, yet we are still training people for these jobs. The Foundation for Young Australians suggest that this is particularly critical for young people, as more than half of young Australians are be trained for jobs that will no longer exist in the same capacity in the future.[[39]](#footnote-39) In the construction industry, PwC projections show that lower skilled jobs such as plasterers and tilers have an 81.4% probability of being automated, while higher skilled jobs such as construction managers and engineers only have an 8.2% and 4.2% chance of being automated the next 20 years respectively.[[40]](#footnote-40)

***Building Information Modelling (BIM)***

BIM is the digital version of a building, which includes all information on the building through its whole lifecycle – from design, to build, to operations and even demolition. BIM allows construction professionals, as well as owners and operators to access construction and operation information about the building.[[41]](#footnote-41) The Australian construction industry has had a gradual and varied adoption of BIM, depending on how complex the project is.[[42]](#footnote-42)

BIM has shown to have major benefits for the construction industry, such as reliable cost estimates, 3D walk-though animations for marketing, reliable predictions of the building’s sustainability rating, early assessment of potential issues and design errors, tracking of construction activities and site safety planning. It also allows for better communication between project owners, designers, subcontractors and workers on site.[[43]](#footnote-43) BIM is projected to completely replace current computer-aided design (CAD) systems. This is helped by smartphone and tablet technologies, which allow project workers and stakeholders to quickly access building information from BIM virtually everywhere.[[44]](#footnote-44) Governments in Australia have been slow to mandate BIM for public works, but Tier One companies are already well advanced in this area and are starting to require sub-contractors to be able to connect with this technology.

###### Pre-fabrication, offsite and modular building

Pre-fabrication refers to any part of a building that has been created at a different location to the building being constructed.[[45]](#footnote-45) This means that more of the construction process takes place offsite in a manufacturing plant instead of at the building site.[[46]](#footnote-46) The Australian construction industry has been slow to adopt pre-fabrication in comparison to global markets. For example, in Scandinavian countries approximately 50% of residential housing is constructed with pre-fabrication, while in Australia, pre-fabrication only accounts for 3% of residential buildings, though this number is growing.[[47]](#footnote-47) There are major benefits to pre-fabrication such as a significant reduction in construction waste, increase in safe work practices and injury prevention, and time savings due to construction taking place at same time as site preparation.[[48]](#footnote-48)

Prefabrication is not a new construction process, rather it has been used for decades, but developed a reputation as being cheap and of poor quality compared to onsite site construction.[[49]](#footnote-49) However, with the rise of new technologies in the construction industry, particularly BIM, it is easier to implement lean design and modularisation into construction, making the fabrication of complex building parts more economical.[[50]](#footnote-50)

*How will this impact the Construction, Plumbing and Services Training Package?*

These emerging technologies are likely to have a major impact across the construction industry. For the construction industry to capitalise on these opportunities, the workforce will need to be trained, re-trained and upskilled with the skills and knowledge to not only use these new technologies, but also for the new jobs and tasks that arise.[[51]](#footnote-51)

History tells us that automation will not affect all jobs equally. For example, lower skilled jobs such as secretary or administrative roles have been partially replaced by computers while higher skilled jobs such as managers have reaped the benefits of this automation as it results in more efficient and cost-effective projects.[[52]](#footnote-52) This trend is set to continue in the construction industry, as automation is predicted to complement and assist jobs of higher skill levels but substitute those of routine and lower skill levels.[[53]](#footnote-53) This means that a significant portion of the industry will need to be up-skilled and new workers trained for higher skilled jobs. However, this does not mean that higher skilled jobs will not be affected by automation. With increased automation comes a need to learn how to use new machines, computers, software and applications and therefore all workers in the construction industry will need to be trained appropriately.[[54]](#footnote-54)

In regard to BIM, construction workers will need to be upskilled and retrained, not only so they have the knowledge and skills to use BIM in their fields[[55]](#footnote-55), but also because BIM will bring about new and more efficient ways of working,[[56]](#footnote-56) which may result in new processes, tasks, policies and regulations for particular jobs. BIM usage will span across many occupations in the construction industry, so it is vital that competencies are incorporated into the training package.[[57]](#footnote-57)

Additionally, an increase in prefabrication in Australia will require construction workers with different skillsets and therefore different training than what is currently available.[[58]](#footnote-58) Prefabrication will require workers to have a mix of skills from both construction and manufacturing. This means that workers entering the industry will need training that comes from both the manufacturing and construction training packages.[[59]](#footnote-59)

*The Demand for Smart and Green Construction*

With the need for action on climate change and sustainability becoming a focal point globally, so too comes a demand for green and smart buildings. Green buildings significantly reduce the negative impact buildings have on the environment by incorporating sustainable design, construction and operational elements. This also translates to healthier buildings for occupants.[[60]](#footnote-60) Similarly, smart buildings are those that incorporate technology and materials that capture data on how the building is performing. This allows for a greater level of control over energy usage, monitoring tenant usage and maintenance and repair needs while also improving safety features.[[61]](#footnote-61) Often, buildings that incorporate green elements also incorporate smart elements and vice versa.

The green and smart construction industry is growing worldwide, and while adoption has been slow in Australia, it is on the rise. A 2016 study conducted by Dodge Data and Analytics suggests that of the Australian companies surveyed, 48% expect that more than 30% of their projects will be green by 2018. This is an increase of 14 percentage points on green construction projects at the time of the survey.[[62]](#footnote-62) Sectors with highest expected green construction growth rate in Australia are new low-rise residential building construction, retrofits of existing buildings and institutional building construction.[[63]](#footnote-63)

The benefits of smart and green construction are becoming increasingly clearer, which is helping drive market awareness and consumer demand as the world moves towards more sustainable practices and ways of living.[[64]](#footnote-64) These benefits include; lower carbon footprint from building operation, lower operating costs, increased value of building, higher rental and occupancy rates and improved health and productivity benefits for occupants.[[65]](#footnote-65)

According to a study conducted by Dodge Data and Analytics in 2016, client demand and environmental regulations were the top two drivers for green building in 2015 globally. This trend can also be seen for Australia, as respondents ranked environmental regulations, the desire for healthier neighbourhoods and client demands as the top three drivers in 2015.[[66]](#footnote-66)

*How will this impact the Construction, Plumbing and Services Industry?*

Buildings have a high carbon footprint, as they account for about 40% of global energy consumption.[[67]](#footnote-67) This opens large opportunities for the construction industry to provide innovative solutions to reduce this – one way to achieve this is through green and smart construction.

However, with demand for green and smart construction, comes the need for governments and the industry to prioritise vocational education and training for new and current construction workers in energy-efficiency building and retrofitting, as many construction jobs will see a change in practices and tasks.[[68]](#footnote-68) Construction workers will need to keep their skills and knowledge up to date in advances in water conservation, wastewater recycling and treatment and the renewable energies sector.[[69]](#footnote-69) Some jobs may be more affected than others, as the Construction Skills Queensland (CSQ) and CSIRO *Farsight for Construction* report predicts those that will see a more significant change in practices and tasks are carpenters, plumbers, heating engineers, painters and plasterers, roofers, and electricians.[[70]](#footnote-70)

*Skills Shortages in a Specialised & Growing Industry*

Employment numbers in the construction, plumbing and services industry are growing. Typically, businesses in the industry are characterised by sub-contractors with trade specialisations employed in small-scale businesses of less than 20 employees or as sole operators.[[71]](#footnote-71) This means that often a construction worker will specialise in a narrow aspect of their trade after being trained in a wide base of skills. The CSQ and CSIRO *Farsight for Construction* report notes that these specialised contractors can find it difficult to give their apprentices the full range of skilling opportunities that are needed to fulfil the requirements of a traditional apprenticeship.[[72]](#footnote-72)

With an increased reliance on technology, more automated processes and tasks, and construction that is both green and smart, there will likely be a shift in skills, with much of the research indicating the growing need for science, technology, engineering and maths (STEM) skills. A 2015 report on STEM skills in Australia’s workforce by PwC reports that 75% of the fastest growing occupations require STEM skills.[[73]](#footnote-73) It is interesting to note that respondents to the Artibus Innovation CPC Skills Forecast Survey 2018 placed STEM skills 10th in the ranking of key generic workforce skills. There will need to be a shift in the understanding of the applicability of STEM skills to the construction industry to keep up with the skill needs of the industry into the future.

In addition to STEM skills, critical thinking, problem solving, analytical capabilities, curiosity and imagination have all been identified as skills that help foster STEM skills and are critical to the future workplace.[[74]](#footnote-74) The Foundation for Young Australians (FYA) calls these skills ‘enterprise skills,’ and in their 2017 report *The New Work Smarts* millions of online job advertisements were analysed and results show that employers are already demanding these enterprise skills and paying higher wages for them. For example, they found that the demand for critical thinking has increased by 158% in the past three years while problem solving skills attract an additional $7,745 compared with jobs of the same level that don’t list problem solving in selection criteria.[[75]](#footnote-75)

For the construction industry, these skills will be particularly important as more automated processes are introduced and there is a shift towards higher-skilled jobs. As skill needs change in the industry, employers will need to be able to give employees and apprentices opportunities to upskill and reskill. It is vital that the workforce is updated with relevant skills and knowledge as the industry grows and changes otherwise there is a risk of severe skills shortages and experience, leading to reduced quality and quantity of work and increased project costs, time frames and risks for the industry.[[76]](#footnote-76)

**Proposed Responses and Risks of Not Proceeding**

*Proposed Responses*

***Finalising the transition of the CPC training package to the 2012 standards***

The IRC’s priority is to finalise all current and proposed transitions of the Construction, Plumbing and Services Training Package to the 2012 standards for training packages as set out by the (former) National Skills Standards Council. This will ensure that the CPC training package keeps in line with the standards of other national training packages, allowing for the easy alignment of imported units relevant to specific qualifications, as well as facilitating the collaboration on projects across sectors and training packages. It will also ensure that the CPC training package remains of a high quality and meets the workforce development needs of the construction, plumbing and services industry.

***Continuing to update the current training package to respond to skill shortages***

The IRC will also continue to update the CPC training package to ensure current and emerging skills needs are met. There is a threat of looming skills shortages in the industry with the increase in older workers and lack of younger workers available to replace their skills. In addition, new technologies and the automation of many routine jobs will see a shift towards the need for STEM and enterprise skills. Continually updating the CPC training package to include these higher-level skills is vital to the industry.

***Having an eye on the future***

The future of the construction industry is more streamlined, environmentally friendly and cost effective as a result of the key drivers mentioned above. The workforce will need to be trained, re-trained and upskilled with the skills and knowledge to not only use these new technologies, but for the new jobs and tasks that arise. It is therefore important that the skills and knowledge needed for this future are embedded in the CPC training package. The IRC aims to continue researching these drivers for change as part of the cross-sector projects on automation, digitisation and environmental sustainability, and developing these into cases for change for the training package.

*Risks of not proceeding*

Not updating the CPC training package as proposed risks a loss of currency and erosion of the knowledge and skills in the training package, and therefore in the construction, plumbing and services industry. Emerging technologies and the automation of many routine jobs and processes are likely to have a major impact across the construction industry and in order for these impacts to become opportunities, it is vital that the workforce be trained, re-trained and upskilled with the skills and knowledge to not only use these new technologies, but also for the new jobs and tasks that arise. If this does not occur the CPC training package risks becoming out-dated with obsolete skills and knowledge, which could lead to severe skills shortages knowledge and experience among the workforce in the industry.

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