

# **Assessment task 2 –Plan the construction project**

CPCCBBC4010B

## Contents

Introduction .....	2
Assessment task – Plan the construction project .....	3
1. Project documentation required to a project .....	3
2. Industry professionals and their roles in the project .....	3
3. the requirements of BCA for bushfire or other relevant effects .....	6
4. new and emerging technologies can be applied in the project .....	6
5. pre-commencement site inspection checklist .....	7
6. Produce basis construction programs for a residential low rise building project, which would be typical for their type in your local area. The programs should include: .....	8
7. All mandatory inspections during the whole project – provide additional details of what these inspections assess .....	10
8. All other inspections for engineering, finance, progress payments, etc. ....	12
Conclusion.....	13
Reference list .....	13

## Introduction

### **Purpose of assessment.**

To prepare a plan for the construction of projects. This assessment task accounts for 20% of total assessment.

### **Assessment task**

Prepare a report, from an analysis of the project documentation, which includes provisions for the following:

- Identify and analyse project documentation to assess the adequacy of the structure and the construction practice.
- Identify industry professionals and their roles in the project.
- Assess the requirements of BCA for bushfire or other relevant effects.
- Assess how new and emerging technologies can be applied in the project.
- Prepare a pre-commencement site inspection checklist.
- Produce basic construction programs for a residential low-rise building project, which would be typical for their type in your local area.

The programs should include:

- a list of all on-site activities in relative sequence
- all mandatory inspections
- provide additional details of what these inspections Assess

## Assessment task 2 – Plan the construction project

### 1. Project documentation required to a project

A building permit is required to commence any building. In some cases, a planning permit is also required. When a planning permit is necessary, it must be obtained before the building permit.

The following documentation is required in order to obtain a building permit from the local municipal officer:

- three copies of the title
- three copies of the plan
- three copies of the soil report
- three copies of the specifications for the proposed structure
- three copies of the computations (if applicable) to the structure
- necessary fees
- application form
- flooding levels (required by certain councils)
- survey and reduced levels of site
- statistical data relevant to BCA requirement (eg area of permeable land on allotment after construction).

### 2. Industry professionals and their roles in the project

- **Architects:**

An architect provides the conceptual elements of the proposed building to the client. After consultation, an agreement of a contract between the owner and the architect is made. The architect can then prepare the working drawings and specifications based on a series of preliminary meetings, proposed sketches and finally, the complete drawings in confirmation with all codes, standards, regulations and local authority approvals.

As a function of the architect's role in designing and building, there is also the provision for supervision by the architect. Because the building is constructed in stages, the architect may wish to inspect each stage and verify that the critical aspects of design and structure have been complied with.

Architects receive their information and professional assistance through their membership and affiliation with the Royal Australian Institute of Architects (RAIA).

- **Building designers**





A building designer has the professional skills and knowledge to design and draft residential, industrial and commercial buildings. Many offices also provide construction supervision.

Building designers carry out (in Victoria), a significant amount of the building design and documentation of a wide range of projects.

- **Draftspersons**

A draftsperson has the professional skills and knowledge to design and draft residential, industrial and commercial buildings.

The role of the draftsperson can vary, but primarily their duties involve the following:

-  assisting in planning and design
-  assisting in gathering information to produce concept drawings
-  assisting in the initial building design
-  working in an office administration position.





Whether the building is being erected or demolished, the architectural draftsperson has a role to perform.

- **Engineers**

- As all parties have some input into the structural integrity of the structure, the engineer is a specialist part who provides initial input, guidance and ongoing assessment of the structure. Engineers can be categorised as either civil or structural, or by specialist areas such as landscaping, acoustics, electrical and electronics. There are also many other building areas that require expert engineering involvement.

- A structural engineer provides the design to structural members of the building; to account for all live and dead loads and produces a set of structural work drawings, which are certified as legal documents and form part of the complete set of working drawings.

Typical structural elements could include:

-  slabs design and placement of reinforcement
-  strength of concrete
-  type of position of all piers, piles and floor structure
-  all structural beams, posts and columns

- The engineer bases all computations on standards, codes, regulations and compliance with the BCA.

- **Quantity surveyors**

- In the larger residential low-rise constructions, the quantity surveyor calculates the total cost and amount of all materials and labour used in construction by preparing a bill of quantities. Generally, in residential projects this responsibility is undertaken by the estimator working for the builder when preparing their tender.
- The calculation of quantities can vary from estimation and a costing schedule to a bill of quantities. The bill of quantities is classified as a legal document – it therefore becomes an essential component in the overall contract documentation.

- **Licensed land surveyors**

- The licensed land surveyor is a registered industry professional who verifies that the proposed building is placed on land of clear title and that all easement, boundaries and dimensions are according to the title documents. As properties are marked with survey pegs showing the boundaries, the pegs are classified as a legal document and penalties exist for illegally removing or altering the site boundaries

- The structural integrity of all building components relies on being straight, level and plumb, although other miscellaneous shapes are used. It is the land surveyor who can check the alignment of components during construction using sophisticated instrumentation including laser levels, and dumpy levels.

### 3. the requirements of BCA for bushfire or other relevant effects

3.1 A building that is constructed in a designated bushfire prone area must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the—

- (a) potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire; and
- (b) intensity of the bushfire attack on the building.

3.2 In a *designated bushfire prone area*, a Class 2 building, a Class 3 building, a Class 4 part of a building or a Class 9 building that is a *special fire protection purpose* or a Class 10a building or deck associated with such a building or part, must comply with the following—

- (a) AS 3959 except for Section 9 Construction for Bushfire Attack Level FZ (BAL-FZ). Buildings subject to BAL-FZ must comply with specific conditions of development consent for construction at this level; or
- (b) the requirements of (a) above as modified by the development consent following consultation with the NSW Rural Fire Service under section 79BA of the Environmental Planning and Assessment Act 1979; or
- (c) the requirements of (a) above as modified by development consent with a bushfire safety authority issued under section 100B of the Rural Fires Act 1997 for the purposes of integrated development.

### 4. new and emerging technologies can be applied in the project

New materials are continually being developed, and these new materials are being combined with other new or existing materials to form new structural components of a building that are very strong, cost effective and lightweight.

Lightweight pre-cast concrete panels that are structural members of a building.

- a. Curtain walls built from steel through to plastic, and supporting an external finish that could be glass or stone.
- b. Whole buildings being constructed using pre-fabricated building components.
- c. The use, again, of Adobe earth walls, and mud bricks or even straw bale houses.
- d. Steel trusses being replaced with metal space frames.
- e. Fully glazed rolled roofs, supported by minimal structure.
- f. The new additives being added to concrete to provide strong industry resistant floors.
- g. Manufactured wood products that are now available for almost any use within a building project.
- h. The glues and resins that when used in laminated products are developed for all types of uses.

## 5. pre-commencement site inspection checklist

Pre-commencement site inspection checklist				
	Operation	Action	Comment	Date
1	Site Identification			
2	Site Visit and Photographs			
3	Provisional Brief			
4	Feasibility Study			
5	Hold preliminary discussions with the planning officers			
6	Decision to proceed			
7	Agree provisional programme			
8	Establish site boundaries			
9	Commission a Site Survey			
10	Commission a soil and contamination investigation			
11	Is an Ecological survey required?			
12	Is an archaeological survey required?			
13	Is a green travel plan required?			









14	Are there any potential off site noise impacts?			
15	Is a Green Travel Plan required?			
16	Are there any potential off site noise impacts?			
17	Is a structural engineer required?			
18	Agree structural engineer's fee?			
19	Is electricity available?			
20	Is gas available?			
21	Is telephone available?			
22	Where are the foul water drains?			
23	Where are the surface water drains?			
24	What amount of onsite water storage will be required and are there outflow constraints?			
25	Are there any demolitions required?			
26	Is an asbestos log available?			
27	Consult with the neighbours and prospective residents.			



6. Produce basis construction programs for a residential low-rise building project, which would be typical for their type in your local area. The programs should include:






























list of all on-site activities in relative sequence

➤ Services:

-  Water supply
-  Electricity supply
-  Gas supply
-  Telephone
-  Cable TV pre-wiring
-  Computer cable

➤ Storm water drainage:

-  Storm water drains
-  Agricultural drains

- Sewer
  -  Septic tank installation
  -  Other requirements for septic tank installation
- Preliminary site works and foundations
  -  Site preparation- cleaning if site
  -  Exaction of rock
  -  Removal from site/ or spreading of surplus and / or rock
  -  Protection of existing crossover.
- Footings
  -  Concrete floor slab construction
  -  Concrete strip footings construction
  -  Protection against subterranean termites
  -  Stumps
- Concrete
  -  Concrete other than Grade 20MPa
  -  Concrete landings, ramps, steps and thresholds
  -  Concrete vehicle crossover
  -  Concrete paving including driveways
  -  Concrete stairs – external and internal
  -  Concrete balconies
- Brickwork and Masonry
  -  Brickwork (including block work)
  -  Jointing to external brickwork
  -  Colour of mortar
  -  Jointing to internal brickwork
  -  Dam proof Course Material
  -  Articulation Joint to walling
  -  Construction of Fireplace
  -  Window Sills
  -  Brick fencing, letterbox
- Roofing
  -  Roofing
  -  Spouting / gutters
  -  Down pipes
  -  Roof flashings

- Pre - Electrical
- Pre – plumbing
- Pre-central air-condition ducts
- Installing isolation
- Plastering
  - 🔧 External rendering
  - 🔧 Internal solid plaster
  - 🔧 Ceiling plasterboard fixed to joists/ Timber battens.
- Sanitary plumbing and gas fitting
- Heating and air conditioning
- Painting
- Tiling
- Fencing and external property requirements

## 7. All mandatory inspections during the whole project – provide additional details of what these inspections assess

- Each building permit requires inspections to be carried out at different stages of construction. Depending on what is to be constructed will depend on the type of inspections required. Check your issued building permit for the inspections that are required to be undertaken and approved for your project.
- It is a breach of the Building Act if the mandatory inspections are not requested and approved in accordance with the building permit. A Building Notice and enforcement action may result.
- Foundation and Footings Inspection

A foundation inspection is when the construction is on a concrete slab and the inspector needs to look at the foundation material/ soil before any plastic or reinforcement is in place. Other things the inspector looks for is:

- The sitting of the building to ensure that it is located as shown on the approved site plan.
- The footings/ trenches are the correct depth and width.
- Ensuring the bottom of the holes/ trenches are firm, with no loose dirt, rubble or water inside.
- When conducting a footing inspection, the inspector looks at:  
The sitting of the building to ensure that it is located as shown on the approved site plan.

Depth and diameter of the footing hole. Ensure the bottom of the hole is firm, with no loose dirt, rubble or water inside.

- **Reinforcement**

The reinforcement in every slab also requires inspection. This is carried out after the plastic has been laid, the reinforcing steel has been placed and the boxing is erected around the slab. The inspector looks at:

- The plastic to ensure it covers the whole of the slab area up to finished ground level that joins are taped and the correct grade of plastic is used.
- Ensure the correct reinforcing steel is being used.
- The reinforcing steel is lapped correctly at joins and located so that after the concrete is poured it will have the appropriate concrete cover.

- **Frame Inspection**

The frame inspection is to be carried out prior to the installation of wall cladding or roofing materials. It is important that the inspection is carried out prior to the cladding being installed, so that if modifications are required it allows easier access.

When roof trusses are being used, truss specifications and layout plan should be submitted and approved by the relevant building surveyor prior to the frame being constructed.

The frame inspection is a check that all frame members are installed with the same size, type and spacing as shown on the plans. Any change to the framing members shown on the approved plan, are to be re- approved by the relevant building surveyor prior to the construction.

- **Occupancy Permit**

In most instances, an occupancy permit is issued in conjunction with the final inspection. However, an occupancy permit can be issued prior to all work being completed. You will need to have completed the following prior to the issued of an occupancy permit; A shower or bath, toilet, wash basin, laundry facilities, cooking facilities, stairs or steps, hard-wired smoke alarms, water proofed the exterior of the dwelling. A plumbing compliance certificate, a copy of the Compliance Report in relation to the House Energy Rating Report is also to be submitted to the relevant building surveyor.

- **Final Inspection**

A final inspection is carried out once all work has been complete including storm water connection. For new dwellings and large extensions, a pre-final inspection can be carried out so that the builder/ owner knows exactly what items need to be completed before an Occupancy Permit or Final Inspection Certificate can be issued.

## 8. All other inspections for engineering, finance, progress payments, etc.

- ☐ Inspection for engineering

- The foundation and exaction stage – before the footing are poured. Aspects of this stage include boundary clearance, footing excavation, reinforcements
- The slab stage – before the concrete is poured, aspects of this stage include floor level check, termite treatment etc.
- The frame stage – before the cladding or lining is fixed (after if the cladding forms part of the bracing) or, for reinforced masonry construction, before the wall cavities are filled. Aspects of this stage include sub-floor framing, lower wall framing etc.
- The final stage – aspects of this stage include site works, drainage, fire safety, energy and water efficiency etc.
- The HVAC system
- The electrical system

- ☐ Inspection for finance and progress payments

- Identify building and construction costs
- Obtain accurate estimate from project schedules
- Identify cost centres correctly
- Undertake financial risk assessments

## Conclusion

In conclusion, this assessment demonstrates a plan for the construction of projects.

## Reference list

- BCA 2010 – Volume two, Part 3.7.4 Bushfire areas
- CPPCCBC4010A Apply structural principles to residential low-rise constructions learner resource
- <http://mision.com.au/certificates-of-structural-adequacy/>
- [http://www.glenelg.vic.gov.au/Mandatory\\_Inspections](http://www.glenelg.vic.gov.au/Mandatory_Inspections)
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