



CPCBC4001A

APPLY BUILDING CODES AND STANDARDS TO THE CONSTRUCTION PROCESS FOR LOW RISE BUILDING PROJECTS

THEORY EXAM INSTRUCTIONS

- This exam will occur under standard assessment conditions.
 - An oral examination may be allowed under certain circumstances. Answers will be documented and FT003 (Oral examination declaration form) must be completed.
- Participants must provide enough detail in their responses to demonstrate their knowledge and skills.
- Please fill in the details below, providing your name, signature and date of assessment.
 - Your signature acknowledges that this is your own work.
- If a participant initially answers a question incorrectly but modifies their response, they must follow the instructions below:
 - If a participant changes their response in writing, they must put their initials next to the written change.
 - If a participant changes their response verbally, this must be noted on the exam paper by the assessor.

Participant name

DAVID MOORE

Participant signature



Assessor name

Assessor signature

Date

Click here to enter a date.

10/12/2017

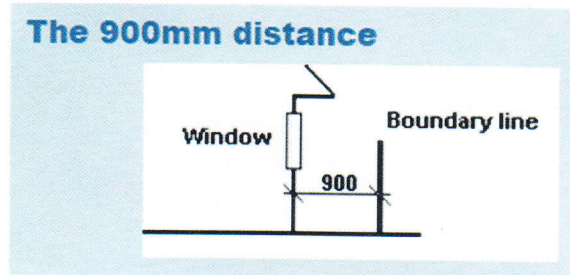
Number of questions	Number of questions answered correctly	Satisfactory?	
		Yes	No
35		☐	☐



ASSESSOR COMMENTS



- Q1. The diagram below represents an external house wall, shows part of roof and eave and a window in the wall and the vertical boundary line fence is shown a prescribed measurement of 900mm from the house wall to allow light from the sun to reach the window.



What type of regulation could allow a lesser distance to be used if appropriate justification was provided?

In what document/s might you find the appropriate information?

Answer

Performance based regulations could allow a lesser distance.

Documents that may have appropriation information

- Part 3.7.1 Fire separation
- Parts 3.7.13, 3.7.15, 3.7.12, 3.7.13
- BCA (Building Codes Australia)



- Q2. In regard to the above 900mm distance from house wall to boundary fence and in using or referencing performance-based regulations in the BCA what else should you be aware of and consider?

Answer

Dimensions between external walls and boundaries may also be subject to local government planning laws.



Q3. Who has responsibility for producing and maintaining The Building Code of Australia (BCA) and who is it done on behalf of?

Answer Australian Building Codes Board maintain the BCA on behalf of the commonwealth government and each State and Territory Government. ☐

Q4. Fill in the missing words to complete the following two sentences.

- a. The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia.
- b. It is a performance based document that is referenced so that your building system or material can demonstrate that it meets certain performance requirements in order to meet legislative requirements.

Answer ☐

Q5. What is the principal goal of the Building Code of Australia (BCA)?

Answer Consistent performance based building regulatory systems that are. Efficient, cost effective, able to meet community and industry needs. Also nationally consistent, minimum necessary standards of safety, health, amenity and sustainable ☐

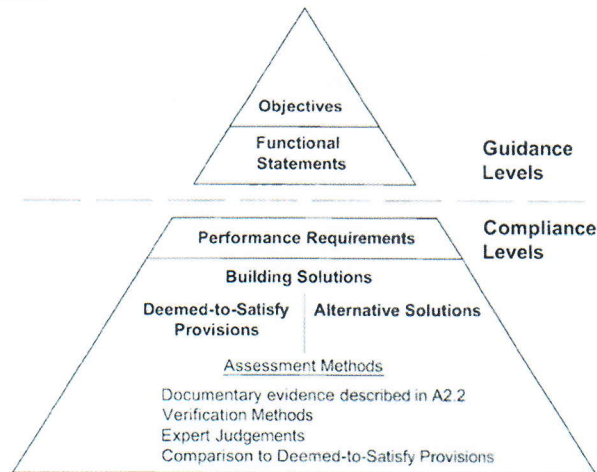
Q6. How many volumes are there in the BCA and to what do the volumes refer?

Answer Two BCA Volumes ☐

Volume 1. • Class 2 - 9 buildings
• Access requirements for disable persons class 1b
• Certain Class 10b swimming pools for disable person class 10b. ^{+ class 10a.}

Volume 2.
• Class 1 and 10a buildings.
• Class 10b structures other than requirements for disable in class 10b
• class 10c

Q7. Explain the BCA performance requirements for low rise projects from the diagram below.



Answer

BCA performance requirements outline a suitable level of performance for building materials, components, design factors and construction methods in order for a building to meet the relevant functional statements and, in turn, the relevant objectives.

A 'Performance Requirement' is defined as the level of performance which a building solution must meet.

This is achieved by:-

- * complying with the deemed-to-satisfy provisions
- * Formulating an alternative solution which:
 - I. complies with the Performance Requirements
 - II. Is shown to be equivalent to the deemed-to-satisfy provisions.
 - III. A combination of (a) and (b) -

Q8. What is the intent of the 'Relevant Performance Requirements' in the BCA?

Answer

The method of determining the appropriate Performance Requirements to be used when an Alternative Solution is used to prove that a Building Solution complies with the BCA.



Q9. Building solutions set out the means of achieving compliance with the performance requirements. The BCA provides for two methods that can be followed to develop a building solution. Explain these two methods.

Answer

1) Deemed-to-satisfy provisions include examples of materials, components, design factors, and construction methods which if used will result in compliance with performance requirements of the BCA
E.g. Ceiling height must not be less than 2400mm in habitable room.

2) Alternative Solutions - there is no obligation to adopt any particular material, component, design factor or construction method. An approval authority may still issue an approval if a building proposal differs in whole or in part from deemed-to-satisfy provisions described in the BCA and if design complies with the relevant performance requirements.



Q10. The deemed-to-satisfy building solution establishes a clear and concise process for compliance for a builder, building surveyor or the like (building certifier) who does not want to develop a new means of achieving performance requirements; what does 'deemed-to-satisfy' mean?

Answer

Deemed to Satisfy means a detailed provisions required for each building (size, height, type, construction)
• Provisions are detailed and are usually referred to by Australian standard in the BCA.





Q11. Write an example of a 'deemed-to-satisfy' provision for a class 1 building including deemed-to-satisfy requirements for kitchen, bathroom, laundry and sanitary facilities.

Nominate where you found the information in the BCA.

Answer

Deemed to satisfy example for a class 1 building including requirements for kitchen bathroom, laundry and sanitary facilities.

Class 1 building must be provided with:

- (i) a kitchen sink and facilities for the preparation of cooking food.
- (ii) a bath or shower
- (iii) clothes washing facilities, comprising at least one washtub and space in the same room for a washing machine.
- (iv) a closet pan and wash basin

The performance requirement for this provision is:

(a) Suitable sanitary facilities for personal hygiene must be provided in a convenient location within or associated with a building, appropriate to its function or use.

(b) Laundering facilities or space for laundering facilities must be provided in a convenient location within or associated with a building, appropriate to its function or use.

(c) A food preparation facility must be provided which includes

(i) a means for food rinsing, utensil washing and waste water disposal

(ii) a means for cooking food

(iii) Space for food preparation

(e) A sanitary compartment must be constructed with sufficient space or other means to enable an unconscious occupant to be removed from the compartment.

(FROM BCA Vol Two, P2.4.3: Facilities)



Q12. Who and what is Standards Australia?**Answer**

Standards Australia is Australia's Peak Standards body, recognised through a Memorandum of understanding with the Commonwealth Government. It is an independent, non-government, not-for profit organisation. In consultation with government, business, industry, community, academia and consumers, Standards Australia develops internationally aligned Australian Standards and related publications to help ensure the safety, reliability and performance of a range of products, services and systems.

**Q13. What are Australian Standards?****Answer**

Australian Standards are published documents setting out specifications and procedures designed to ensure products, services and systems are safe, reliable and consistently perform the way they were intended to.

They establish a common language which defines quality and safety criteria.





Q14. The classification of a building or part of a building is determined by the purpose for which it is designed, constructed or adapted to be used. Please summarise the 10 building classifications below.

Answer

Class	Summary
1	One or more buildings which in association constitute: a. Class 1a - single dwelling Class 1b - boarding house, hostel
2	A building containing 2 or more sole-occupancy units each being a separate dwelling.
3	A residential building, other than a building class 1 or 2, which is a common place or long term or transient living for a number of persons unrelated (boarding house, school)
4	A dwelling in a building that is class 5, 6, 7, 8 or 9 if it is the only dwelling in the building
5	Office building used for professional or commercial purposes excluding building of class 6, 7, 8 or 9.
6	A shop or other building for the sale of goods by retail or services direct to public.
7	Class 7a (carpark) Class 7b (storage or display of goods for sale)
8	A laboratory or building for the production, assembling, altering, repairing, packing, finishing or cleaning goods for sale.
9	Building of a public nature Class 9a - health care Class 9b - assembly building 9c - aged care
10	Non-habitable 10a - non-habitable 10b - fence, mast, pool 10c - shelter.





- Q15. Other than the 10 BCA building classifications (A3.2), there are also multiple classifications (A3.3) where each part of a building is classified separately.

Where would you find a full list of Past A3 classification of Buildings and Structures?

Answer

BCA (Building Codes Australia)

☐

- Q16. True or False (Tick your response): If a building or part of a building has more than one classification applying to the whole building or part in accordance with, that building or part must comply with all the relevant provisions of the BCA for each classification.

Answer

☒	True
☐	False

☐

- Q17. Familiarity with plans and specifications for a project when interpreting a building solution and therefore trying to interpret clauses and other referenced documents in the BCA is important.

What do plans and specifications include?

Answer

- Floor level plans
- Elevations plans
- Sectional drawings
- All specifications

☐

- Q18. You must have a clear picture of the building to be constructed and be able to identify the criteria that you will need to compare to the Deemed-To-Satisfy (DTS). What is it you must also consider when constructing complex buildings?

Answer

One BCA clause may have an impact on the requirements of another.

☐



Q19. Complete the missing words from the sentence below and explain the difference between these points.

BCA Performance Requirements are mandatory and Deemed-to-Satisfy provisions are Optional.

Answer

Mandatory - must be done to performance Requirement -
Optional - ~~Up to~~ is only a recipe to achieve an outcome as long as the outcome achieves the performance Requirement of BCA.



Q20. What is a Building Solution?

Answer

A solution which complies with the performance requirements are is
a) Alternative solution
b) complies with the DTS provisions
c) combination of A + B.



Q21. Referring to the BCA, what are the objectives of Section C Fire Resistance?

Answer

Objectives of Section C Fire Resistance is the BCA Codes for buildings to reduce the spread of fires, maintain structural stability during fire and limit the generation of smoke and heat also toxic gases likely to be produced from the fire.



Q22. Why is it necessary to identify and document performance-based solutions?

Answer

- comply with organisational quality procedures and processes.
- apply and interpret relevant documentation and codes
- accurately apply National and state and Territory OHS requirements relating to construction workplace.
- identify faults and problems impacting on OHS and proposing appropriate action to rectify.



Q23. In the context of the Building Code of Australia what are Assessment Methods used to determine?

Answer

Assessment methods are used to determine whether a Building Solution complies with the relevant BCA Performance Requirements. As shown in the Hierarchy of the Performance-Based BCA, ~~there~~ a Building Solution can be achieved through complying with the Deemed-to-Satisfy Provisions, or by using an Alternative Solution to achieve the Performance Requirements.



Q24. Explain the importance of maintaining detailed documentation for a building project.

Answer

To ensure that the building is compliant and can pass assessment. Detailed documentation provides a vital reference tool required for inspections of key building elements, this ensures they are not inadvertently overlooked.
Refer to your state legislation.



Q25. With regard to detailed documentation what are some of the documents that must be provided and maintained by contractors?

Answer

- Document in the plans all calculations of building areas, site areas, site coverage, floor areas, building heights, habitable rooms, windows and secluded private open space or adjoining allotments.
- Maintain all necessary notes, specifications etc analysis
- Alternative solutions proposed.
- Contain all submissions.



Q26. Other than the Builder maintaining detailed documentation, who will also have responsibility to resolve and correct errors for any ambiguity identified in the plans?

Answer

Building certifier needs to carefully check the details of the plan against the applicable standards + codes.



Q27. The threat of an accidental fire in a building and to prevent it are important to understanding fire and taking all steps to prevent or confine fire and to prevent fire spreading within the structure as well as to adjoining or adjacent buildings.

In this regard Fire Protection Systems are paramount and are subject to?

Answer

Fire Protection Systems are subject to

- Building regulations
- Fire regulations
- Insurance company requirements
- Local government requirements
- Other regulatory authorities.



Q28. Briefly explain the following fire definitions:

Answer

Term	Explanation
Fire	The rapid oxidation of a gas, liquid, or solid substance accompanied by the release of heat and light. Chemically fire represents an exothermic or heat-producing reaction.
Passive Fire Protection	Integral parts of the three components of structural fire protection and fire safety in a building. Passive fire protection attempts to contain fires or slow the spread through the use of fire resistant walls, floors and doors.
Active Fire Protection	Items and systems which require a certain amount of motion and response in order to work (e.g. fire sprinkler system or fire detection devices).





Q29. The purpose of fire protection is to:

1. Prevent/reduce the possibility of fire and
2. Reduce the spread of fire within and around a building

Name the two categories or systems that provide measurement and arrangements for fire protection.

Answer

Active Systems :- Portable fire extinguishers
 • Fire Hydrants/hose reels
 • Sprinkler systems
 • Smoke detection and alarms

Passive Systems :- Fire isolated stairs and passageways
 • Fire resistant materials (walls, roofs, openings)
 • Fire doors
 • Fire curtains
 • Fire rated ceilings
 • Fire stop collars (in floor slabs)



Q30. With respect to the general level of fire protection explain separately the terms 'Fire Load' and 'Fire Load Density'?

Answer

Fire Load - refers to the amount of potential heat that can be caused during the fire of combustible contents. It is expressed as KJ/KG (kilojoule per kilogram) or as MJ/kg (megajoules per kilogram.)

Fire Load Density :- the fire load of an enclosure or building divided by floor area. It is expressed as fire load per unit area of floor space (the greater the fire load the more severe the fire)



Q31. Using Volume 2 of the BCA respond to the following:

- Where in the BCA would you look to find requirements for building in bushfire prone areas for Class 1 and 10 buildings?
- Where in the BCA would you look to find requirements for building in bushfire prone areas for Class 2-9 buildings?
- What Australian Standard must be complied with to satisfy the Deemed to Satisfy Provisions for construction of Class 2 and 3 buildings in bushfire prone areas?

Answer

a)	Volume Two BCA 3.7.4 section (1996)
b)	Volume One BCA Section C1
c)	Volume One BCA Section C1.0



Q32. What is a *Fire Safety Schedule* and its relationship to the approval of development of a class 2 – 9 building?

Answer

~~Specify~~ Specifies the fire safety measure (both current and proposed) that should be implemented.



Q33. What are building certifiers responsible for?

Answer

Ensuring specific compliance is achieved and they do this by conducting visual inspections. Also confirming the details of the documentation are reflected in the actual on-site construction.





Q34. What are building certifiers not responsible for?

Answer

Quality of workmanship, as this is the responsibility of the builder to the client.



Q35. Where in the BCA would you determine the level of fire resistance required for the construction of buildings?

Answer

NCC 2015 BCA VOLUME ONE, Section C
'Fire resistance'

